Title III Final Report (2014-2021)

Utah Valley University

Title: Strengthening Engagement and Completion at Utah Valley University

PR Award Number: P031A140224

Program: U.S. Department of Education, Title III, Strengthening Institutions Program

Award Period: 10/01/2014 - 09/30/2019; with extension to 09/30/2021

Project Director: Ala'a Alsarhan

Program Evaluation, comprehensive for 7 year project
Janis Raje, Raje Writing & Research

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EXECUTIVE SUMMARY

Aims, Milestones, and Accomplishments of UVU's Title III SIP Project

This Title III project has sought to address overall completion by strengthening student engaged learning and scholarly activities within academic programs, strengthening the institutions' capacity to assess such student engagement, and strengthening academic advising from the first year through to graduation.

Graduation and Retention. The project was designed to strengthen the UVU's capacity to serve low-income students by raising retention and completion rates. The project aimed to accomplish this by the objectives and activities described below, ***in concert with other institutional efforts.*** During the project period:

- UVU's overall IPEDS graduation rate (completion of any degree within 150% of expected time) increased from 25% in 2014 (the year the project was funded) to 38% for the most recent cohort (2015-2021). This surpassed the project goal of 30%. ***(Note to Department of Education readers.[1])***
- UVU's first-year student retention rate has increased from 61% in 2014 to 66% for the most recent cohort (Fall 2020 to Fall 2021). This was the target aimed for by the project. ***(Note to Department of Education readers.[2])***

Area 1 (Objectives 1-3, 5): Expand opportunities for meaningful student engaged learning. Expand engaged learning activity by awarding internal grants to faculty for implementing High-Impact Practices (HIPs) in their classes and co-curricular activities. Provide support to faculty in the form of training, mentoring, and resources for seeking external funding.

- Over 6 years, three types of competitive internal grants were funded: HIELG (High Impact Engaged Learning Grants), GREEN (Grants of Research for Engaged Educators and Novices), and URSIG (Undergraduate Research Summer Institute Grant).
- A total of 73 internal grants were awarded to 206 faculty for increased student engagement in 11 courses (multiple sections) with over 17,816 classroom students and 325 student assistants and mentored researchers.
- Funded projects focused on *High-Impact Practices* or other evidence-based models of student engagement, many of them interdisciplinary. These projects have been of high quality and thoughtfully designed with complex levels of student engagement. They provide UVU with effective models and strategies for implementing student engagement both in and out of the classroom.
- The Office of Engaged Learning (OEL) refined its HIPs focus on *Five Pillars of Engagement*: Global & Intercultural, Community Engagement (e.g., Service Learning), Undergraduate Research & Creative Works, Internships, and Engaged Curriculum.

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[1] In APR reports, the *bachelor degree-seeking* graduation rate has been reported, which was 24% in 2014 and has increased to 33% for the most recent cohort (2015-2021).

[2] In APR reports, the *bachelor degree-seeking* retention rate has been reported, which was 59% in 2014 and has increased to 65% for the most recent cohort (2015-2021).

- The Scholarly and Creative Undergraduate Partnership Team (SCULPT), a faculty-base resource for training faculty in effective student engagement and mentoring, was created under this grant and has grown from its founding 17 members to 253 members with 3 co-chairs and a 14-member advisory board. SCULPT has been institutionalized under OTL.
- The Office of Teaching & Learning (OTL) developed the *Teaching Excellence Program for HIPs* in partnership with OEL and SCULPT. Over 580 faculty have been trained.
- The Office of Sponsored Programs (OSP) has used Title III funding to provide training and support to faculty and staff in grant development with an emphasis on external funding that supports student engagement. Over 130 faculty have been coached in seeking external funding to support student engagement.
- Title III funding to the Office of Sponsored programs has resulted in an increase in the number of faculty preparing and submitting grant proposals, and receiving awards from external funders for student engagement opportunities at UVU. In 2020, $21,647,100 in external grants was awarded through OSP (an increase of 49% since 2014); Of the 42 awards received, 27 awards directly facilitate student engagement activities.

Area 1 (Objective 4): Create mechanisms to track, evaluate, and report on the efficacy of student engagement on measures of student success.

- The *Repository of Engaged Learning Activities* was created based on an examination of course catalog descriptions of over 3,500 courses and of lists of HIPs-specific courses. The Repository established a baseline for engagement at UVU and established characteristics of student engagement and HIPs at UVU.
- The *In-class Engagement Instrument*, a survey to measure the level and type of student engagement in courses, was developed and prototyped. Survey results are used to populate the *In-class Engagement Dashboard*, a graphic representation of the courses' engagement and thus a tool for analyzing the engagement level of courses across campus.
- The *Collective Impact of HIPs* tool has been created and piloted. It shows the impact of single and multiple HIPs on student retention and persistence. Findings of this tool can inform decision making about where to direct resources, how to structure academic programs, and what to advise students about taking HIPs
- These instruments, their development, management, and implementation, have been institutionalized under OEL. The In-class Engagement Instrument is being prepared for use with all students in all classes at across campus to assess the level of engagement of courses at the institution. The dashboard will become a tool for administration, faculty, and staff to assess and improve student engagement across UVU.
- In Fall 2021, the Director of the *National Survey of Student Engagement (NSSE)* visited UVU and praised UVU's efforts in HIP evaluation (Ala'a Alsarhan). UVU faculty who have completed OTL training are being invited to participate in the NSSE National Quality of HIP Implementation Study, led on campus by OTL (Wendy Athens) and Institutional Research.
- An article entitled "Measurement and Evaluation of HIPs within a Centralized Model" describing UVU's efforts in implementing HIPs and measuring their impact is being published by AAC&U (Qudisat & White, March 2022).

Area 2 (Objectives 1-3): Through the PSI advising model, assist students in entering a graduate plan in Wolverine Track; provide tools and reports to improve efficacy of academic advising; and improve course scheduling to keep students on track for graduation.

- All advisors have been and continue to be trained in the PSI (personalized, seamless and intentional advising) model. Advisors are required to complete 40 hours of New Advisor Training which includes Wolverine Track, Stoplight, relationship building, and the Advisor Dashboard.
- Academic advisors have tools that provide them with current, easy-to-access information they need to inform students' decision making. Each program of study has a graduation template built into Wolverine Track.
- A process was set in place to encourage students to meet with their advisor each semester and to require students to meet with their advisor annually. An academic hold is placed on each student's record requiring them to meet with their academic advisor. Each student is required to have a graduation plan.
- With the help of the Title III grant, the Academic Advising staff feel that the role of academic advising is now recognized on campus as a high priority and impactful for students (Wade Oliver).
- The advising accountability structure and electronic reporting mechanisms have improved to hold advisors responsible, including the expectation that they use Wolverine Track and the Planner feature.
- In Years 1 and 2, the non-cognitive assessment was administered to first-year students and results integrated into the Advising Dashboard. Review showed that the instrument was very helpful, but was not robust enough to meet advisement needs. This foundation-laying experience led to the institution's investment in Civitas, a predictive analytics platform, which is proving to be a game-changer for student advising.
- While course scheduling does not use the graduation plans entered into Wolverine Track in course scheduling as was envisioned under the Title III Proposal, course scheduling has improved, partially because of the flexibility students now have with online and hybrid courses (Michelle Kearns).

PART I: REPORT OVERVIEW

1. Institution Description

Utah Valley University (UVU) is a comprehensive regional public university of over 41,000 students, located in the Orem, Utah. Formerly a community college, the institution became a state college in 1993 and a regional university in 2008. Enrollments have mushroomed from 10,500 in fall 1993 to 41,262 in fall 2021. (Even from the time this award began in 2014, the institution has grown by 32%.) UVU is now the largest bachelor-degree granting institution in the Utah System of Higher Education, which makes it akin to many large state universities around the country.

UVU has a dual mission – that of a comprehensive university offering 91 bachelors' and 11 master's degrees, and that of a community college offering 65 associate's degrees and 54 certificate programs. To fill its community college mission, the institution maintains an open-admission policy. Thus, UVU student demographics are similar to those of a community college, with many low-income, first-generation, and nontraditional students and a higher percentage of underrepresented minority students than other universities in Utah.

2. Program Description

UVU's overall graduation and first-year retention rates have long been low in relation to comparison institutions. This Title III Strengthening Institutions Program (SIP) project was designed to assist the institution in expanding its capacity to serve low-income students by addressing stated institutional goals of raising retention and completion rates. Moreover, this effort was not borne by the Title III project alone, but rather it has been an institutional focus that has included many complementary initiatives and endeavors across the entire campus community.

The primary means to accomplish the project goal was an emphasis on student engaged learning. Student engagement is central to UVU's mission and its vision of student success. The university has been designated a Carnegie Community Engagement Institution for both *Curricular Engagement* and *Outreach and Partnerships* and takes pride in this distinctive approach to teaching and learning. However, engagement opportunities, especially those most likely to improve student success, were not being extended to a significant number of students, and it was not possible to assess the quality of these engagement activities. Thus, the evidence-based Theory of Change under which this project was designed was that increasing the quantity and measurable quality of student engagement opportunities at UVU would improve student outcomes, including retention and completion.

In order to ensure that engaged learning of the highest caliber was being promoted and to strengthen long-term institutional efforts to assess and sustain engagement, the project devoted considerable resources to developing mechanisms to track and evaluate student engaged, as well as to train and mentor faculty for engaged learning and associated external funds seeking.

The second vehicle for accomplishing the project goal was to strengthen academic advising by requiring students to meet at least once a year with their advisors and to enter graduation plans into an online tracking system, encouraging well-prepared students to plan to complete in four years. The productivity of advising was to be improved with additional advisor training and accountability, updates to the online advisor tracking tools, and the addition of a non-cognitive assessment tool.

3. Project Goal and Objectives

The project goal and objectives are presented in Table 1:

Table 1: Project Goals and Objectives
Project Goal: Assist in increasing the IPEDS overall graduation rate to 28% by 2018 by strengthening the institutional environment for engagement and completion.
Benchmark: Assist in increasing the overall first-year retention rate to 66% by 2018.
Area 1 Goal: Increase completion by expanding opportunities for meaningful student engaged learning and scholarly activities.
Objective 1.1 Expand engaged learning activity that focuses on effective models of engagement (see 1.2) with high to moderate levels of evidence for increased retention and completion.
Objective 1.2 Increase the effectiveness of faculty in designing and implementing engaged learning via curricular and co-curricular engagement activities through professional development, exposure to models of best practices, and support.
Objective 1.3 Expand and strengthen faculty effectiveness in mentoring students for scholarly and creative work especially with regard to co-curricular project teams by exploring models and best practices with an emphasis on early involvement by students.
Objective 1.4 Create mechanisms to track, evaluate, and report on the efficacy of student engagement on measures of student success.
Objective 1.5 Strengthen the institutional capacity to sustain long-term student engaged learning and scholarly activities by providing training and support to faculty in student-engaged, external grant-writing activities.
***Area 2 Goal*:** Increase student completion by strengthening academic advising and improving course scheduling.
Objective 2.1 Use the PSI advising model to assist students to prepare a graduation plan (utilizing Wolverine Track), improve their academic outcomes, and take advantage of engagement opportunities.
Objective 2.2 Provide tools and reports for Academic Advising to support informed decision making by students and advisors, including decisions about taking classes that emphasize engagement; implement additional accountability measures through electronic reporting.
Objective 2.3 Provide tools and reports from student gradation plans to course scheduling personnel in the schools and colleges so they can anticipate student needs and schedule courses to keep students on track for graduation.

Within the first year, as the project leadership worked to implement the project, the broad term "engaged learning" came to focus on High-Impact Educational Practices (HIPs) as defined by George D. Kuh (2008), with an emphasis on those with a best fit for UVU's unique circumstances. This decision was guided by notable scholarship that substantiates the relationship between HIPs and student success. Also, in the practical effort to maintain consistency in the implementation and evaluation of student engagement at a large, multi-division university, the effort to "develop mechanisms to track, evaluate, and report" on student

engaged," was fine-tuned to that of developing a statistical model and survey to measure the targeted HIPs.

Thus, there are four general categories of activities encompassed in this Title III project, which are listed below and depicted in Figure 1.

- Funding for faculty to implement high-impact engaged learning practices
- Support for professional development and mentoring for faculty
- Development of a statistical model and survey to measure engaged learning
- Facilitation of process changes for academic advising and course scheduling.

Figure 1: Four Categories of Activities Encompassed in this Project

4. Implementation Timeline

In keeping with the nature of Title III SIP awards, the objectives and major activities of this award were completed and then institutionalized according to the timetable set forth in the initial proposal. This Title III project began in Fall 2014 and concluded its 7th and final year in Fall 2021. The objectives address academic advising and course scheduling (2.1, 2.2, and 2.3) were completed and institutionalized by Year 3. Objectives 1.2 and 1.3 for faculty development and mentoring were completed and institutionalized in Year 4 and Year 5, respectively. Planned work for the engaged learning measure (1.4) was completed and institutionalized in Year 5, but work has continued beyond the scope of the project to make the instrument more useable and broadly utilized across the institution.

Table 2: Project Years

Project Year	Calendar Year
Year 1	2014-2015
Year 2	2015-2016
Year 3	2016-2017
Year 4	2017-2018
Year 5	2018-2019
Year 6 (Ext.)	2019-2020
Year 7 (Ext.)	2020-2021

In 2019, UVU requested and was granted a one-year no-cost extension. The project status at that time showed that six of the eight project objectives had been successfully accomplished and institutionalized and that the remaining two had been implemented successfully but would benefit from additional time. The project had unspent funds due to the delay in getting the project started in Year 1 and some unspent amounts in subsequent years. A second one-year no-cost extension was requested and received in 2020 because of underspending due to COVID-19.

As such, Objective 1.5 for faculty development and mentoring of grant writing for external funding to sustain student engagement activities was completed and implemented in Year 6. Financial funding of internal grants for HIP activities (1.1) was concluded in Year 7.

Table 3 shows the individuals who have led the implementation of this project.

<table>
<tr><th colspan="2">Table 3: Leadership of this Title III Award</th></tr>
<tr><th>Title III Director/Coordinator</th><th>Office of Engaged Learning</th></tr>
<tr><td>Dr. Richard Tafalla (Director), Assistant Vice President for Academic Affairs, Scholarship & Faculty Development</td><td rowspan="2">Dr. Frederic White, Associate Vice President for Engaged Learning</td></tr>
<tr><td rowspan="2">Dr. Rasha Qudisat (Coordinator), Director of Engaged Undergraduate Research and Creative Work</td></tr>
<tr><td rowspan="2">Dr. Cheryl Hanewicz, Interim Associate Provost for Engaged Learning</td></tr>
<tr><td rowspan="3">Dr. Ala’a Alsarhan (Director), Program Director of Engaged Curriculum (now Assessment & Analytics)</td></tr>
<tr><td>Dr. Janet Colvin, Interim Associate Provost for Engaged Learning</td></tr>
<tr><td>Dr. Tammy Clark, Associate Provost for Engaged Learning</td></tr>
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5. Evaluator Activities

The Evaluator, Ms. Janis Raje of *Raje Writing & Research*, is an independent contractor with experience in grant preparation for institutions of higher education. She was requested to serve as the evaluator of UVU’s Title III project in late July of 2019 through the conclusion of the project. She was on the initial Title III proposal preparation team and served as principal writer for the proposal, awarded in October 2014, so she understands the objectives of the project.

Methodology. The evaluator met with the Title III Program Director, Dr. Ala’a Alsarhan to review the project and the scope of the evaluation. The Program Director made available to the Evaluator all prior years’ annual reports and evaluators reports, as well applications for the HIELG, GREEN, and URSIG grants. The Program Director and Evaluator met to decide which stakeholders to request an interview with. Those who were key in project implementation were interviewed, including the current Project Director and past Project Coordinator; supervising Associate Vice Presidents, past and current; directors of key offices involved in the project; and faculty participants in SCULPT and faculty recipients of HIELG, GREEN, and URSIG grants.

The evaluator conducted interviews by Teams from August through November. A list of the stakeholders interviewed is given in Table 4. Transcriptions of the interviews for this overall project evaluation and for the evaluation of Year 5 (which have relevance here) are found in Appendix C. The stakeholder interviews, Annual Performance Reports, Annual Project Evaluation Reports, and reports from stakeholders were primary sources of data for this report.

Purpose. The purpose of the evaluation is to determine the extent to which project objectives were met as well as to ascertain how has the institution been strengthened in the short term and the long term. Since a thrust of the Title III project is the institutionalization of successful programmatic elements, this report examines each objective to assess the strength of its institutionalization, not only fiscally, but within the UVU culture and community as well.

Table 4: List of Interviewees			
Name	**Title**	**Department**	**Title III Activity**
1. Ala'a Alsarhan	Program Director	Engaged Learning	Title III Director
2. Rasha Qudisat	Researcher	Engaged Learning	Former Coordinator
3. Frederick White	Professor	Russian Studies	Former AVP for Engaged Learning
4. Cheryl Hanewicz	Dean, former AVP – Engaged Learning	College of Health & Public Service	Former AVP for Engaged Learning
5. Tammy Clark	Associate Provost – Engaged Learning	Academic Affairs	New AVP for Engaged Learning
6. Curtis Pendleton	Sr. Director of Sponsored Programs	Sponsored Programs	Sponsored Program implementation
7. Anton Tolman	Professor	Behavioral Sciences	SCULPT Chair
8. Wendy Athens	Sr. Director, Office of Teaching & Learning		Director of OTL
9. Jonathan Westover	Director of Center for Social Impact; Chair	Organizational Leadership	Service Learning implementation
10. Michelle Kearns	AVP – Enrollment Management	Student Affairs	Former AVP for Student Success & Retention
11. Wade Oliver	Director of University Advising	Academic Affairs	Advising Coordinator
12. Claudia Jorgensen	Associate Professor	Psychology	HIELG grant
13. Linda Shelton	Senior Lecturer	English	HIELG grant
14. Amanda Bordelon	Associate Professor	Civil Engineering	HIELG grant
15. Olga Kopp	Professor	Biology	URSIG grant; SCULPT Co-Chair
16. Maria Blevins	Professor	Communication	URSIG grant
17. Trevor Warburton	Assistant Professor	Secondary Education	GREEN grant
18. Armen Ilikchyan; Elena Laricheva	Associate Professor Assistant Professor	Technology Mgmt. Chemistry	GREEN grant

5. Summary of the Implementation and Institutionalization of Project Goal and Objectives

Table 5 below presents the project goal and objectives and summarizes how each was implemented and institutionalized. Parts II and III of the report give a more detailed description of the implementation and institutionalization of Area 1 and Area 2 Objectives (respectively), and an assessment of their short-term and long-term impacts. Part IV gives conclusions about the overall project.

Table 5: Implementation and Institutionalization of Project Goal and Objectives	
Goal / Benchmark	**Outcome**
Project Goal: Assist in increasing the IPEDS *overall* graduation rate from 23% to 28% by 2018 by strengthening the institutional environment for engagement and completion. [**Note:** Because the project was awarded in 2014 instead of 2013 as planned, the target graduation rate was increased to 30% by 2019.] *Source: UVU Office of Institutional Research*	**Outcome:** UVU's *overall* IPEDS graduation rate [completion of any degree within 150% of expected time] increased to 38% for the most recent cohort (2015-2021). This surpassed the project goal of 30%. (The graduation rate was 32% for the 2018.) [***Note:*** In APR reports, the *bachelor degree-seeking* rate has been reported, which was 24% in 2014 and has increased to 33%.]
Benchmark: Assist in increasing the *overall* first-year retention rate to 66% by 2018.	**Outcome:** UVU's *overall* first-year retention rate increased to 66% for the most recent cohort (Fall 2020 to Fall 2021). [***Note*:** The *bachelor degree* rate has increased from 59% to 65%.]

Area 1 Goal: To increase completion rates by expanding opportunities for a meaningful student engaged learning and scholarly activities.		
Objective / Closure	**Implementation**	**Institutionalization**
1.1 Expand engaged learning activity that focuses on effective models of engagement with high to moderate evidence for increased retention and completion. **Closed in Year 7**	The Office of Engaged Learning (OEL), and later the Office of Engaged Curriculum (OEC) under OEL, awarded competitive grants to faculty to design and implement effective student engagement activities, specifically High-Impact Practices (HIPs): • HIELG (High-Impact Engaged Learning Grants), curricular • URSIG (Undergraduate Research Summer Institution), co-curricular • GREEN (Grants for Engaged Educators and Novices). Over 7 years, 73 internal grant awards were given to 206 faculty for increased student engagement in 111 courses (multiple sections) with over 17,816 classroom students and 325 student assistants and mentored researchers. (*See Appendix A for a summary of grants.)* ➢ 84% students of students who participated in Title III/HIPs activities persisted to the next semester compared to 75% of students who did not participate. ➢ 72% of freshmen students who participated in Title III/HIPs activities persisted to the next year compared to 68% of students who did not participate. (Fa → Sp)	➢ The Office of Engaged Curriculum was established as a direct result of this project. A new Office of Undergraduate Research & Creative Works was established during the period of the grant under the Associate VP of Engaged Learning who served as the Title III Director, an example of the change in climate fostered by the Title III award. ➢ Under the Gateway Project, 13 general education courses in 6 colleges were redesigned and taught before the project was institutionalized within OTL. ➢ Faculty who have received these grants report gaining invaluable experience in conducting student engagement activities which they carry forward to their current work and share as models to others. ➢ An increased number of sponsored external grants awarded through OSP has help institutionalize funding for student engagement activities, both curricular and co-curricular (see Objective 1.5). ➢ URSIG grants were sustained for one year; additional grant funds will be requested through PBA (UVU's budgeting process).

Objective / Closure	Implementation	Institutionalization
1.2 Increase the effectiveness of faculty in designing and implementing engaged learning via co- and extra-curricular engagement activities* through professional development, exposure to models of best practices, and support. Note that *co-curricular* and *extra-curricular* were redefined to be *curricular* and *co-curricular* as per the PI's original intent. **Closed in Year 3** Continues to develop.	The Office of Teaching and Learning (OTL), formerly the Faculty Center for Teaching Excellence, has delivered professional development to increase the effectiveness of faculty in designing & implementing engaged learning. During Years 2-4 of the project, OTL headed the Gateway Project, aimed at reducing the fail rate in key general education or 'gateway' courses. The project required faculty training, course redesign, and piloting. Thirteen multi-section courses were redesigned and about 7,750 students were taught before the project was institutionalized under OTL. OTL began the Teaching Excellence Program for High-Impact Practices (HIPs), which are generally overseen by OEL. Faculty members receive preparation for teaching with HIPs in one of six pathways: global/ intercultural, service learning, writing enriched, under-graduate research, teaching first-year students, and team-based learning (see Figure 6). These HIPs align with AAC&U standards for HIPs (some titles vary). Under the joint coordination of OTL and OEL, other UVU entities that have been created or re-envisioned under the influence of the Title III program have assumed responsibility for some aspects of the faculty training: • The Scholarly Creative Undergraduate Learning Partnership Team (SCULPT) is a faculty-led group initiated in Year 1 members and designed to facilitate greater faculty participation and mentoring in undergraduate research and creative activity. Within the Teaching Excellence Program, SCULPT provides the Mentoring Academy for undergraduate research. • The Center for Social Impact (CSI) received a HIELG grant to train faculty in service learning course design and implementation. Faculty who have completed the course serve as mentors to others. This training is part of the Teaching Excellence Program.	➢ Professional development that trains faculty in the development and implementation of effective use of HIPs in curricular and co-curricular education, has been institutionalized under OTL in collaboration with OEL, SCULPT, and CSI. The Teaching Excellence Program continues to be a strong vehicle for providing faculty training, mentoring, and assessment of HIP implementation. ➢ To date, the following certifications have been awarded: • Global/intercultural – 63 faculty • Service learning – 224 faculty • Writing enriched – 65 faculty • Undergraduate research – 113 faculty • Teaching first-year students – 62 faculty • Team-based learning – 52 faculty 579 faculty ➢ Faculty who complete each 12.5 hour training course receive a certification in the HIP and a $500 stipend; they become members of a Community of Practice for where they can collaborate with other faculty teaching with that HIP and mentor new faculty. Access to training and materials is available through the OTL website. ➢ Certified faculty will (if they choose) be part of the national HIPs analysis being conducted by the center that conducts the NSSE (National Survey of Student Engagement). OTL has recently received the survey that faculty will administer in their classes, and, as per the agreement, tailored the survey slightly for UVU. The results of this Quality HIP Implementation Study will be reported to participating faculty and to the institution; it will become part of the national study. ➢ Institutionalization of the SCULPT and CSI programs are discussed under Objective 1.3.

Objective / Closure	Implementation	Institutionalization
1.3 Expand and strengthen faculty effectiveness in mentoring students for scholarly and creative work especially with regard to extracurricular project teams by exploring models and best practices with an emphasis on early involvement by students. Note that *extra-curricular* was redefined to be *curricular* and *co-curricular*. **Closed in Year 5**	Objective 1.3 was implemented under the two UVU entities mentioned previously, SCULPT (Scholarly Creative Undergraduate Learning Partnership Team) and CSI (Center for Social Impact). **SCULPT** is a faculty-led group designed to facilitate greater faculty participation and mentoring in inquiry-based learning, undergraduate research, and creative activity. Title III funds supported the travel of 5 teams of faculty to different CUR institutes to gather current best practices to inform their efforts and share with others. SCULPT is organized with 3 Co-Chairs (who receive a stipend), an Advisory Board of 14 members from across campus, and several subcommittees. SCULPT has initiated the following programs: • Mentoring Academy – a collaborative workshop. • Learning Circles – a small faculty community focused on inquiry-based learning and other HIP topics. • SHOWCASE of Undergraduate Scholarly & Creative Works, an annual event for student presentations. • A website of student and faculty resources. • Micro-grants of $200-$500 for student engagement. --- **The Center for Social Impact** (formerly the Service Learning Center), received a $30,000 HIELG grant from Title II funding for faculty training. In the first year, 12 faculty were trained on service-learning pedagogy, course design, and community-engaged project development and implementation; 14 new service-learning courses were developed. Momentum continued to build with a little Title III support and a great amount of faculty vision and commitment. Internal UVU grants and funding continued the program. Service learning classes are designed to include a local organization that will contribute to the project; then UVU matches up to $5,000.	SCULPT, an entirely faculty-driven organization, is growing, adding more members, and becoming more visible and influential. Initiated in Year 1 with 17 members, SCULPT has grown to 253 members (Spring 2022). 11 members have served as SCULPT co-chairs; 30-40 have served on the Advisory Board. ➢ SCULPT leaders and members serve on major UVU committees and fill significant roles where they have the power to effect change, including: the current and previous President of the Faculty Senate; 17 current department chairs, 6 assistant chairs, 3 associate deans, and the Deans of The School of Arts and the College of Science, and other key administrators. ➢ SCULPT currently has 3 subcommittees: the SHOWCASE Committee, the Student Recognition Committee, and the Student Outreach Committee. These committees do significant work in facilitating institutional core objectives of academic success, accessible education, and engaged students. ➢ 96 faculty have completed the Mentoring Academy. ➢ In Spring 2022, 76 faculty participated in Learning Circles; hundreds of students were impacted. --- Service Learning has become one of the most widely used HIPs at UVU. Service-learning courses are now taught by more than 250 trained faculty and reach more than 8,000 students annually. ➢ The Center for Social Impact has more than 750 community partners and has contributed to over 1,000 community projects. ➢ Service Learning clearly contributes to increasing student persistence and completion (see Figure 7). ➢ Faculty training for service learning is part of the OTL Teaching Excellence Certification program.

Objective / Closure	Implementation	Institutionalization
1.4 Create mechanisms to track, evaluate, and report on the efficacy of student engagement on measures of student success. **Closed in Year 4** Continues to develop.	Objective 1.4 was implemented primary by the former Project Coordinator, Rasha Qudisat, and the current Project Director, Ala'a Alsarhan under the Office of Engaged Learning (OEL). **The Repository of Engaged Learning Activities** was created to establish a baseline for engagement at UVU. The repository is based on an examination of course catalog descriptions of over 3,500 courses and of lists of HIPs courses taught at UVU. ➢ In total, 507 courses (multi-sections) were designated as courses that engaged students through HIPS. ➢ Administrators could use the repository to determine the kinds of HIPs within their areas of responsibility and plan actions for improvement. **The In-class Engagement Instrument** is a survey developed under this Title III program to measure the level and type of student engagement in UVU courses. ➢ The survey has been piloted and refined to 45 questions that ask students for basic information about the activities and assignments of the course. ➢ UVU plans to conduct the student survey institution-wide – all students, in all courses, each semester. Because of COVID-19, this plan was delayed from Spring 2020 and is now on target for Spring 2023. ➢ In 2017, the instrument was administered to students in 140 courses in the School of the Arts and the Woodbury School of Business (the latter used data from the survey for their accreditation application). ➢ After each administration of the survey, Dr. Alsarhan has sent a report to the deans about the courses surveyed and their level of engagement.	To facilitate this work, the Office of Engaged Curriculum was established as a Pillar of Engagement, charged with assessment of HIPs in the classroom. Dr. Alsarhan was named Director of this office and his position institutionalized within OEL in 2018. He continues his work on the assessment of HIPs in the curriculum. ➢ The characteristics of student engagement and high-impact practices that were established for the creation of the repository are still in use and formed the basis for the In-class Engagement Survey questions. ➢ UVU has demonstrated its commitment to the institution-wide roll out of the In-Class Engagement Instrument in Spring 2023 by the purchase of servers dedicated to this project. Deans, chairs, and others have been trained. ➢ An **In-Class Engagement Dashboard** has been created as a graphic representation of courses' engagement and as a tool for analyzing the engagement level of courses across campus. ➢ **Collective Impact of High-Impact Practices** tool has been created to analyze student outcomes for students who take one or more HIPs. The tool has been piloted on the HIPs courses that are under OEL, namely global/intercultural, service learning, study abroad, internships, and undergraduate research. ➢ Together, the In-class Engagement Instrument and the Collective Impact of HIPs tool are able to report on the efficacy of student engagement on measures of students success. Data from these tools will be used to apply for reaccreditation and for renewal of UVU's Carnegie Classification as an Engaged Institution. ➢ Dr. Alsarhan participates in the Utah System of Higher Education's High-Impact Practices group, where he regularly gives presentations about his work.

Objective / Closure	Implementation	Institutionalization
1.5 Strengthen the institutional capacity to sustain long-term student engaged learning and scholarly activities by providing training and support to faculty in student-engaged, external grant writing activities. **Closed in Year 6**	In the first 6 years of the award, Title III funding boosted efforts of the Office of Sponsored Programs (OSP) to provide training and support to faculty and staff in grant and contract development with an emphasis on external funding that supports student engagement. OSP implemented the following activities to address this objective: Operational Support – ➢ Provided administrative support for OSP activities. ➢ Funded a professional grant writer to help train faculty and to work with them on their proposals. Faculty Training – ➢ Conducted focused grant seeking, grant preparation sessions for faculty groups within the colleges and departments of the university. ➢ Conducted an annual Summer Grant Writing Seminar with stipends for faculty who submit proposals. ➢ Provided individual coaching and mentoring of faculty from previous summer seminars who were continuing proposal submission activities. Faculty Support – ➢ Hosted guest speakers and program officers; hosted the Grant Professionals Association Meeting. ➢ Developed faculty grant writing clusters. ➢ Supported faculty in networking with potential funders. ➢ Accompanied a group of 7-11 faculty grant writers to Washington, D.C. annually (except during COVID-19) to meet with various funding agencies. ➢ Made grant-writing and grant-award-management resources available on an OSP website.	Title III assistance has strengthened OSP's capacity to provide training and support to faculty efforts to obtain external grants that support student engagement. Over 6 years, 86 faculty members participated in the Summer Grant Writing Seminar; 42 faculty members went on group trips to Washington, D.C.; about 120 faculty members were mentored in grant writing; hundreds participated in grant training activities. Since 2014, annual grant acquisitions have increased 49.5% from $14.4MM to $21.6MM in 2020, exceeding the target for this objective. About 64% of new grant awards involve student engaged learning. While Title III funding to OSP continued through Year 9, Objective 1.5 was institutionalized gradually over the course of the project as follows: • The OSP Administrative Assistant was permanently funded in Year 3. • The professional grant writer was permanently funded in Year 4. • The annual trip to Washington, D.C. for selected faculty has been funded on an annual basis, except during COVID, and is expected to continue. • The faculty training and support activities will continue and are supported by OSP and some supplemental institutional funds; this includes the Summer Grant Writing Seminar, individual coaching and mentoring, focused grant seeking and preparation sessions, and website maintenance. Title III funds have helped OSP facilitate an increase in the number of faculty-submitting grant proposals and receiving awards from external funders for student engagement opportunities (see Figure 13 for recently funded projects across many disciplines).

Area 2 Goal: Increase student completion by strengthening academic advising and improving course scheduling.		
Objective / Closure	**Implementation**	**Institutionalization**
2.1 Use the PSI advising model to assist students to prepare a graduation plan (utilizing Wolverine Track), improve their academic outcomes, and take advantage of engagement opportunities. **Closed in Year 2**	This objective was implemented by Academic Advising which was under Student Affairs in 2014, but moved to Academic Affairs (with dotted-line reporting to Student Affairs) in 2015. This objective was completed and institutionalized by the end of Year 2. • During Year 1, all advisors had completed the New Advisor Training Program that integrated PSI (personalized, seamless, intentional advising) through-out. The training format of 4 10-hour in-person sessions included a module on relationship building. • To facilitate student planning, all bachelor's and associate's degrees had a graduation template entered into Wolverine Track, an online tracking system for student degree auditing. • By the end of Year 2, all advisors were trained on using Wolverine Track to help students plan what courses they would need for graduation and when to take them. • A process was set in place to encourage students to meet with their advisor each semester and to require students to meet with their advisor annually. An academic hold is placed on students' records requiring them to meet with their academic advisor.	This objective was institutionalized in Year 2. • According to Wade Oliver, Director of University Advising, even though the format of the advising program has changed to a blended format of online and in-person training, PSI is still one of the foundational principles in the advising, training, and certification program. • 100% of degree programs have a graduation template built into Wolverine Track. Students are introduced to it during New Student Orientation. • In 2014, there was a problem with getting Academic Advisors to use the planning features of Wolverine Track. Under this program, training was ramped up so that all advisors have been trained to use these tools with students. New reporting structures also made advisors more accountable for implementing planning with students. • Students are now required to have graduation plans and to update them annually with their Academic Advisors. • With the help of the Title III, the Academic Advising is now recognized on campus as a high priority and impactful for students.
2.2 Provide tools and reports for Academic Advising to support informed decision making by students and advisors, including decisions about taking classes that emphasize engagement; implement additional	A non-cognitive assessment tool (Beacon), specifically targeting first-year students, was implemented over the first two years of the project. The assessment helped advisors focus their outreach and intervention efforts. • Advisors and deans received summative reports on students who have taken the non-cognitive assessments and their needs.	Since 2014, all academic advisors have tools that provide them with current, easy-to-access information they need to inform students' decision making. Advisors are trained on the use of these tools. • UVU institutionalized the non-cognitive assessment in the form of Civitas, a predictive analytics platform, which has proved to be a more powerful tool for data-informed outreach.

accountability measures through electronic reporting. **Closed in Year 2**	• Evaluation of the instrument in operation showed that it was helpful, but not robust enough to meet UVU's advisement needs. • This foundational experience led to the institution's investment in Civitas, which is proving to be a game-changer for student advising. The Repository of Engaged Learning Activities, described earlier, was intended to become a resource that would allow advisors and students to know what engaged-learning courses were available. • In addition, the project funded "Student Engagement through Attendance Tracking," to develop a catalog of engaged learning activities (extra-curricular) so that students would know what activities were available. The project used OrgSync to track students participation in events that required a UV-ID. Academic Affairs and Student Affairs worked together to restructure the Academic Advising program and make advisors more accountable for their efforts.	• Michelle Kearns, Associate Vice President for Enrollment Management reports that "Civitas has been fully implemented and is being used by advisors. They are trained on Civitas and the majority of them are using it to supplement their other tools and expertise in helping to support students." Using Repository of Engaged Learning Activities as a tool for Academic Advising proved to be somewhat impractical. It is a more useful tool for administrators. • However, OEL's efforts to inform the UVU community about the potential impact of student engagement on retention and persistence have led to advisors become more aware of engagement options and to present them to their students. Other tools also help. According to Wade Oliver, data to advisors has increased significantly, which is important, because UVU's advising pool has grown from about 50 in 2014 to 108 in 2021. He says that some of what was done through Title III became necessary stepping stones to other interventions and provided greater direction.
2.3 Provide tools and reports from student gradation plans to course scheduling personnel in the schools and colleges so they can anticipate student needs and schedule courses to keep students on track for graduation. **Closed in Year 2 or 3**	This Title III project sought to improve course scheduling because many students' graduation plans were delayed because they could not schedule the courses they needed. Objective 2.1 above sought to have students enter graduation plans into Wolverine Track in part so the plans could be used to predict university needs in course scheduling. ➢ A problem was that while students do complete the graduation plans, they are reluctant to "lock them in," at which point data becomes available for scheduling future needs. So while the graduation plans have been helpful to students and advisors, they have not been as helpful to course scheduling as anticipated. ➢ Other means, such as an increased number of hybrid and online courses, have helped alleviate scheduling problems.	Objective 2.3 was closed in Year 2 or 3 as the problem was alleviated through other means. Michelle Kearns reports that scheduling has definitely improved since 2014, but there is still work to be done. The increase of UVU's headcount enrollment from 31,332 students in 2014 to 41,262 students in 2022 has exacerbated the problem. However, now that more students are locking in their graduation plans, this approach may be revisited.

PART II: EVALUATION OF AREA 1 OBJECTIVES

Area 1 Goal: To increase completion rates by expanding opportunities for meaningful student engaged learning and scholarly activities.

Engaged Learning, High-Impact Practices, and the Five Pillars of Engagement

Charged with expanding opportunities for meaningful student engaged learning and scholarly activities, the project team leadership set about the task set forth as Activity 1.4.1: *to determine the criteria required to label a course or an activity*, or to refine the definition of engaged learning based on current scholarship and actual practice at UVU and determine the scope of what engagement could be addressed through the project. Both the Project Director (Richard Tafalla) and the Coordinator (Rasha Qudisat) were administratively within the Office of Engaged Learning (OEL), under direction of the Associate Vice President (AVP) for Engaged Learning. A new AVP (Frederick White) came into this office about the time the Title III project was awarded funding, and he took an active role in this refining process because it impacted the offices under his administration.

It soon became clear that the definition of engaged learning or student engagement went hand-in-hand with the implementation of expanding engaged learning activity (Objective1.1), with faculty training and mentoring (Objective 1.2 and 1.3), and with assessment (Objective 1.4). In an article entitled "Measurement and Evaluation of HIPs within a Centralized Model," Rasha Qudisat and Frederick White write:

> "UVU is an open-enrollment institution with more than 41,000 students enrolled as of fall 2019. As a comprehensive teaching university, UVU addressed the daunting challenge of retaining and graduating our students by establishing an Office of Engaged Learning (OEL) in 2010. UVU had been recognized at that point with Carnegie Designations as both a community-engaged and curricularly-engaged institution. As an institution, UVU had fully embraced a commitment to student engagement, beyond a branding slogan. The questions that we faced in moving from theory to practice were those stated above. How could we go beyond commitment and move to a campus-wide plan that was measured and assessed, while maintaining quality and consistency across the university?" (2022).

While High-Impact Practices (HIPs) were mentioned and referenced in the project proposal, they were not explicit in the details of the grant. However, as the project team studied the HIP literature, particularly the work of George Kuh and CUR (Council on Undergraduate Research) recommendations, they determined to frame *engagement* in terms of these defined High-Impact Practices within the context of UVU. Most of the HIPs described by Kuh were being implemented in various courses and programs at UVU, however, several were already well-established in offices under the umbrella of OEL, namely Internships, Undergraduate Research & Creative Works, Community Engagement (Service Learning), and Global & Intercultural. These were chosen to be the specific HIPs to target in the first stage of a university-wide plan and became designated as "Pillars of Engagement." Under the direction of AVP White, the mission of these four offices became more focused and their efforts more centralized within the institution. In addition, at the suggestion of UVU President Matthew Holland, a fifth pillar, Engaged Curriculum, tied to the Title III project, was named and an office created to manage its work.

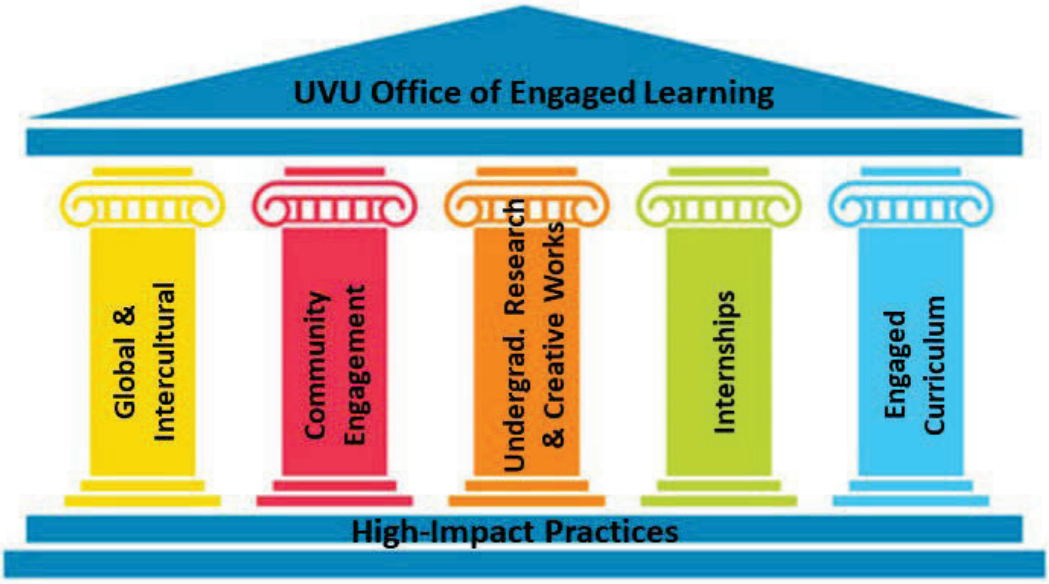


Figure 2: Five Pillars of Engagement

Engaged Curriculum (see Figure 2) addresses what is being done in the classroom, in addition to what is being done by the offices under OEL. However, since OEL would not have control over the classrooms – which is the responsibility of the faculty, the department chairs, and the deans – it was decided that OEL would provide a tool so that faculty and administrators could assess the level of engagement in a course and make adjustments, thus utilizing and institutionalizing the assessment tools developed under the Title III project and sustaining their development and usefulness. Qudisat and White explain in their article:

> "We took the approach that each one of the schools and colleges could embrace at least one of the pillars for their programs without significantly disrupting their curriculum. It was suggested that once they designated one or two pillars, then each school or college must strengthen those existing efforts. This worked very well. Business embraced internships and community engagement; Social Sciences and Humanities selected study abroad programs and increased their internship opportunities; Science was deeply committed to faculty-led undergraduate research; Arts was invested in undergraduate creative works; University College continued their efforts with internships and expanded their global and intercultural programming; Technology & Computing, Education and Public Safety all had substantial, long-standing experience with community engagement and internships. Every dean, more specifically, was interested in strengthening the engaging curriculum of the classroom [the focus of Title III project efforts], and this is where we may have made our most significant innovations."

By year 4 of the project, the Office Engaged Curriculum (OEC) became the central hub of the Title III project. The Title III Project Director, Ala'a Alsarhan, was also named Director of the Office of Engaged Curriculum. The internal grants funded by Objective 1.1 – HIELG, GREEN, and URSIG grants – were administered by (OEC). The OEC Director was also responsible for the creation and implementation of assessment of student engagement, including the creation and implementation of new tools for assessment. The OEC Director position and its assessment responsibilities were institutionalized in 2018. (See the evaluation of Objective 1.4 for a discussion of the implementation and contribution of assessment to the project.)

OBJECTIVE 1.1 Expand engaged learning activity that focuses on effective models of engagement with high to moderated evidence for increased retention and completion.

Implementation

The major vehicle for expanding engaged learning activity through the Title III project has been through internal grants. The funded proposal specified that internal grants would be awarded to faculty for *the model high-impact grants for engaged learning* program, that a submission and selection process would be established, and that faulty would submit final reports and assessments of their activities for review. This objective and its related activities were initiated in Year 1 of the project and have been carried out in all subsequent years.

The internal grant program began with High Impact Engaged Learning Grants (HIELG) which began operation in Year 2 and focused on revising curriculum. As additional needs for support of faculty in student engagement were recognized, two additional grant programs were developed: Undergraduate Research Summer Institution Grants (URSIG), initiated in Year 3; and Grants for Engaged Educators and Novices (GREEN), initiated in Year 4 (see Figure 3).

Figure 3: HIELG, GREEN, and URSIG Grant Programs

HIELG

The purpose of the High Impact Engaged Learning Grant (HIELG) projects is to leverage High-Impact Practice (HIP) learning in the classroom aimed at improving student retention & completion.

Grants awarded: 27
Faculty implementers: 116
Student assistants: 84
Courses modified: 91
Classroom students impacted: 15,707

GREEN

The purpose of the Grants of Research for Engaged Educators and Novices (GREEN) is to assist junior faculty on their track to tenure by conducting faculty/ student research on HIP implementation.

Grants awarded: 16
Faculty researchers: 38
Student researchers: 118
Courses modified: 20
Classroom students impacted: 2,109

URSIG

The purpose of the Undergraduate Research Summer Institute Grant (URSIG) is to make progress on a significant research project relevant to the faculty that is done by faculty/student teams.

Grants awarded: 30
Faculty researchers: 52
Student researchers: 123
Courses modified: 0
Classroom students impacted: 0

In total, 73 grants were awarded; at least 206 faculty participated; 111 courses were modified and an estimated 467 sections of these modified courses sections were taught during the award period; at least 17,816 classroom students were taught with the modified courses and another 325 students participated as assistants, fellows, researchers, technicians. (Detailed list in Appendix A.)

Appendices Relevant to the Evaluation of Objective 1.1:

Appendix A lists all HIELG, GREEN, and URSIG grants. It includes an annual summary statement and a project summary statement on page A-18.

Appendix B re-prints the in-depth evaluation of the internal grants, including evaluators questions and examples from projects, that was part of the Evaluator's Report for Year 5. This evaluation is still relevant and useful to this overall evaluation.

Appendix C provides transcripts of interviews with faculty members who conducted HIELG, GREEN, or URSIG projects are provided in Appendix C.

Appendix E lists many of the publication and presentations that came from the grants.

Administration

The internal grants were awarded and overseen first by the Office of Engaged Learning (OEL), and later by the Office of Engaged Curriculum (OEC) under OEL. Each of these competitive grant mechanisms were awarded to faculty to design and implement effective student engagement activities, although the requirements and expectations of each funding program is different, as described in their applications.

Application process. The application process was rigorous and required faculty to describe in detail what would be done, as well as the underlying rationale grounded in effective evidence-based practices for engaged learning with a high probability of impacting student retention and completion. Applicants were also asked to describe their evaluation methodology including how data would be gathered, the potential number of students affected, appropriate comparison groups, test instruments of questionnaires to be used for assessment, and the process of data analysis. Applicants were to submit a logic model, project timetable, and a budget.

Selection. Selection of HIELG and GREEN grants was done by an independent committee of 6 faculty and staff. The selection of the URSIG grants was by a committee of 5 faculty. The committees developed scoring criteria and a rubric to review the proposals. The committees often made suggestions to enhance or change some aspect of the application. The Project Director worked with many applicants to improve the proposal before the project was funded, depending on the comments from the committee. *Critique:* This process seemed adequate to ensure the funding of high quality projects. Of the projects reviewed through interviews and final report review, all were of very high quality.

Participation. Overall participation from UVU's academic colleges and schools is recorded in the accompanying table. Some subject areas seem to lend themselves more readily to the kinds of engagement activities that can be supported by grants, or at least faculty in these programs seem to believe so. The College of Science is heavily

Table 6: Institution-wide Participation in HIELG, GREEN, and URSIG Grants

	7-Year Total
College of Science	23
College of Humanities & Social Sciences	18
College of Engineering & Technology	14
School of Business	12
Other Offices	5
University College	5
College of Health & Public Service	3
School of Education	2
School of the Arts	1
Total	83*
*10 grants have involved two or more colleges or departments.	

represented, especially with the summer research grants. The Colleges of Humanities and of Engineering and Technology and the Woodbury School of Business also have a high number of awards. Those with the fewest are the School of Education, School of the Arts, and the College of Health & Public Service. Also, grants in the College Humanities and Social Sciences were mostly for the Social Sciences. Some course revisions conducted under HIELG grants, however, have been for general education courses that affect students from all disciplines. It should be noted that grant awards were made on the quality of the application and not the school or college.

Support. The Program Director, Ala'a Alsarhan, supported the projects that were funded through external grants by reviewing their budgets, helping in the process of hiring student workers, purchasing supplies, processing expenditures, facilitating coordination with UVU offices and entities, and in other ways aiding their work. He also assisted project directors in designing evaluations for their projects. Proposals were to include a logic model and timetable that the Program Director used to see that projects were on track to complete and to meet their objectives. To aid in this, project directors were required to submit end-of-semester reports to update the Program Director the progress of their projects. The Program Director worked individually with project directors to address particular challenges they may be having. Some faculty were not cooperative in submitting timely reports, but most were.

Evaluation. Projects were individually evaluated by the Program Director. He evaluated them by the logic models initially submitted to see that activities and outputs had been realized, and that the short-term outcomes were achieved. The initial project Evaluation Plan proposed indicated that these activities would be evaluated using the new tool for evaluating engaged learning – the In-Class Engagement Instrument (survey). This was not used initially, however, because there were not enough classes yet for comparison. Also, COVID-19 slowed the largescale implantation of the survey. In the future, the In-Class Engagement Instrument will be appropriate for evaluating some similar internal grants. *Critique:* The evaluation of projects seems appropriate for gaging the success and impact of the internal grant projects in relation to the Title III project objectives. Projects were of high quality, based on best practices in student engagement, and faculty were accountable to the Title III Project Director for their work.

HIELG Grants

HIELG Grants of up to $30,000 each aimed at leveraging high-impact engaged learning in the classroom to increase student retention and completion.

> *Application Form Description:* The purpose of the HIELG projects is to leverage high-impact engaged learning academic practices aimed at improving student retention and completion. Funded by a Department of Education, Title III grant, we are seeking several projects aimed at improving student retention and/or completion that will each be funded up to $30,000 per year.

Funded projects were expected to be sustainable and long-term projects aimed at achieving a significant effect across multiple sections, programs, or student populations. Over a 6-year period, 27 HIELG grants were awarded and 16 unique projects funded (see Appendix A). Except for the Gateway Project, HIELG grants focused on the implementation of a specific type of High Impact Practice – service learning, collaborative assignments & projects, ePortolios, and undergraduate research, or other very promising forms of engaged learning. Several of the HIELG grants are described below. (Interview transcripts are included in Appendix C.)

Gateway Project. The Gateway Course Initiative was a three year project aimed at reducing the percentage of D, F, UW (D-grade, F-grade, or Unofficial Withdrawal) outcomes in multi-section, general education or "gateway" courses and promoting engaged learning practices within courses. The Office of Teaching and Learning (OTL) administered the project and conducted faculty training (see Objective 1.2). An institution-wide committee recruited courses for redevelopment. Recruitment and acceptance into the program took place in Spring 2016 with training of the initial "2016 Gateway Cohort" taking place in Summer 2016. Redesigned courses were piloted in Fall 2016 and Spring 2017. The "2017 Gateway Cohort began in Spring 2017 (see Figure 4 below).

The project included 13 course redesigns in 5 colleges with 90 sections taught in Fall 2017/Spring 2018 to at least 2,250 students. An additional 216 sections were taught in Fall 2018 to about 5,000 students. Pass rates for the revised courses varied by department and course, but early indicators of the pilot study was that the course redesigns were instrumental in decreasing failure rates by as much as 6.7%. Courses were institutionalized under OTL and continued to be taught, refined, and assessed.

Evaluation of the Gateway courses with the In-Class Engagement Instrument (see Objective 1.4), however, indicated the courses, as a whole, were not "highly engaged," which was the focus of this grant project. Thus, funding for Gateway through the Title III grant, which had been initially planned to continue throughout the project, was discontinued in 2018 and funds used to support high-impact student engagement activities.

Gateway Project Timeline

Figure 4

		2016			2017			2018		
	Course:	Spring	Summer	Fall	Spring	Summer	Fall	Spring	Summer	Fall (Projected)
2016 Gateway Cohort	COMM 1020	Accepted	Training	Pilot	Pilot		All Online	All Online		All
	ENGH 0890	Accepted	Training	Pilot/All	All		All	All		All
	PHIL 2050	Accepted	Training	Pilot	Pilot		* 3 out of 55	* 8 out of 58		* 13 out of 55
	MUSC 1010	Accepted	Training		Pilot		All Online	All Online		All Online
	POLS 1100	Accepted	Training		Pilot		* 1 out of 13	* 1 out of 13		* 1 out of 13
2017 Gateway Cohort	TECH 1010			Accepted		Training	Pilot/All	All		All
	PSY 1100			Accepted		Training	Pilot	Pilot		All
	MATH 1055				Accepted	Training	Pilot/All	All		All
	MAT 0950				Accepted	Training	Pilot/All	Pilot/All		All
	MAT 1000				Accepted	Training	Pilot/All	Pilot/All		All
	BIOL 1010				Accepted	Training	Pilot	Pilot		All
	BIOL 1610				Accepted	Training		Pilot		All
	BIOL 1615				Accepted	Training		Pilot/All		All

* Individual sections that adopted the Gateway course redesign

Utilizing Service-Learning to Foster Increased Engaged Educational Experiences (Jon Westover). See Objective 1.2 for a description of this very successful project that involved multiple courses across multiple colleges.

Team ePortfolios (Maureen Andrade). This project implemented and evaluated the use of team ePortfolios in Management 3000 (Introduction to Organizational Behavior). Dr. Andrade indicated that Team ePortfolios offer advantages beyond individual *ePortfolios* in terms of fostering learning outcomes and integrating multiple High-Impact Practices. They are a *collaborative assignment*, *writing intensive*, and in this case, provide a platform for reporting on a *service learning* consulting project (*italics* here and below indicates High-Impact Practices identified by George D. Kuh). The team ePortfolio assignment provides students with the opportunity to apply the organizational behavior concepts and theories they are learning such as communication, conflict resolution, benefits of diversity, understanding personality differences, effective teamwork, and leadership. The assignment is also designed to help students develop the learning outcomes desired of higher education graduates (e.g., written communication, critical thinking, application of learning, teamwork).

Refocused Engaged Design for Discipline-Specific Introduction to Engineering (Amanda Bordelon). This project sought to embed discipline-specific engaged-learning activities into different sections of Introduction to Engineering specific to Mechanical Engineering, Electrical Engineering, and Civil Engineering. Six faculty were involved. The course had already been redesigned to have teams of students work on one group project over the semester (primarily outside of class); in addition, this project aimed to utilize classroom time more fully with hands-on projects that showed students what it is like to be an engineer in their field. For example, Dr. Bordelon, a Civil Engineer, had students measure water quality and the flow of water from a faucet and see how this relates to city planning. Title III funds were used to purchase equipment for the hands-on projects. Although three discipline-specific courses were implemented, course scheduling failed to label the courses by discipline, so students from various disciplines took each course. However, evaluation of the project indicated that students enjoyed the class regardless of whether or not it focused on their own discipline – they just liked the hands-on activities, and they remembered them as they advanced in their programs. Effective strategies included real-world *collaborative projects* and *first-year experiences*.

Embedded Tutoring Support for Writing Enriched Courses (Leigh Ann Copas). Ms. Copas indicates that the Writing Center, which she directs, had a hard time adapting a national model effectively at UVU because it is an open enrollment institution. This project merged the popular model of SI (Supplemental Instruction) from University of North Carolina with the idea of Writing Fellows, which is the one-on-one, discipline focused, kind of Writing Center tutoring. The students working on this project were called Writing Fellows (WFs) and were assigned to specific sections of HIST 1700, a *writing-intensive*, general education course with a high failure rate. WFs attend classes and worked with both the professor and the students. Over 3 semesters, 10 WFs provided embedded writing tutoring support to about 1,500 students in 15 sections of HIST 1700. Both the Writing Fellows and the HIST 1700 students participated in effective engaged-learning activities.

GREEN Grants

GREEN Grants, or Grants of Research for Engaged Educators and Novices, were designed to assist junior faculty on their track to tenure. GREEN grants of up to $30,000 allowed faculty (engaged educators) and students (novices) to collaborate and work on impactful projects and research.

> *Application Form Description:* The purpose of the Grants of Research for Engaged Educators and Novices (GREEN) is to assist faculty, particularly junior faculty, on their track to tenure. GREEN incorporates research and the High-Impact Practices (HIP) to improve academic, student and community engagement. GREEN projects must include at least two students. Applicants must be full-time faculty members and are required to fill out the application form. The roles of each student should be specified in the application. Projects should last up to a year.

The rationale behind the GREEN Grants is that faculty applying for tenure are expected to demonstrate competence in three areas: teaching, scholarly and/or creative work, and service. GREEN supports engaging curriculum and junior faculty's competence in teaching by developing superior and innovative teaching techniques, course curriculum through the implementation of rigorous and effective techniques to promote learning, and promotes continuous improvement as a teacher. All junior faculty applying for tenure are expected to be engaged in academic discourse (scholarly & creative work and service) beyond the classroom to contribute to their respective field(s) of study. GREEN provides opportunities for junior faculty to develop competence in these two areas.

Funded projects were expected to be sustainable and long-term projects aimed at achieving a significant effect across multiple sections, programs, or student populations. All projects were required to have a robust assessment plan. Over a 4-year period, 16 GREEN grants were awarded and 9 unique projects funded; 38 faculty were involved in these projects and 118 student researchers, assistants, and technicians (see Appendix A). Projects were varied and included an educational gamification platform for courses in Technology Management; an opportunity for pre-service teachers to host an annual professional conference for local Secondary Education teachers; a catalog and assessment of undergraduate research opportunities across all colleges at UVU; student research on how Blockchain and Artificial Intelligence (AI) affect financial software; and the establishment of an inter-departmental AI lab. Four other projects are described below. (Interview transcripts are in Appendix C.)

Students in a local elementary school participate in a math project during a STEM Fair organized by undergraduate students in the UVU Elementary Education Program.

Integrating the "M" in STEM Across the Content Areas in a Teacher Preparation Program (Krista Ruggles). Under the project director's supervision, three student assistants taught UVU faculty in six content areas of Elementary Education (EE) to integrate math into their curriculum. The faculty then redesigned 8 upper-division courses and then, in turn, taught the math-integrated curriculum to 409 EE majors in their classes. The EE majors then applied what

they were learning by conducting math-focused activities in STEM Fairs at 10 elementary schools involving 1,635 K-6 students. The Design Thinking Process was used to plan the project and to prepare lesson plans. Other effective strategies included a focus on real-word problems, hands-on inquiry, open-ended exploration, productive teamwork, and rigorous application of the math principles being taught.

Tuberculosis Drug Discovery (Nathan Goldfarb). The objective of this project was to engage undergraduate students in hypothesis-driven drug discovery research. Specifically, students learned how to express, purify, and crystallize the novel Tuberculosis drug target, Hip1. Additionally, they learned how to measure enzymatic activity and to keep a detailed lab notebook. The main objective of the project was to crystalize NS-049-2, their lead compound, with Hip1 to map the active site of the enzyme. *They successfully determined the cocrystal structure of Hip1 bound with NS-049-2 to 2.7 Angstroms resolution.* The ultimate goal is to translate this inhibitor into a therapeutic for TB. Three students were involved on this grant. They gained skills in protein expression, purification and characterization and gained an intimate understanding of the modern drug discovery paradigm. Students learned how to collect, analyze, and interpret biochemical and structural data and learned how to keep a detailed scientific notebook. Students learned how to deliver scientific presentations, as well as how to construct a scientific poster for presentation at UVU. Students learned how to write a scientific abstract and gained critical thinking skills.

Micro-Plastics Pollution in Utah Valley (Sally Rocks). A team of 5 students in Chemistry worked with a student in Forensic Science and a student in Earth Science to quantify micro-plastic pollution in air samples and in the surface water and sediments of Utah Lake. The project targeted freshmen and sophomores in Chemistry because an effective model for student retention is getting students in scientific fields into research as soon as possible. A challenge is that they don't have the discipline-centric knowledge yet to be effective researchers, so Dr. Rocks chose a topic appropriate for novice researchers. Various strategies were designed to assist novice researchers. For example, every student researcher had ownership of a piece of the project so they could all make contributions independently toward the greater goal. Students created protocols for sample collection, separating the plastics, and analyzing the plastics – all informed by scholarship. Dr. Rocks said she had her own ideas about how this could be done, but let the students work it out for themselves. She said: "I want students to be able to approach a problem and be able to logically and creatively find a solution." She indicates that this took more time and great patience on her part, but was very worthwhile in helping students understand scientific processes and in develop problem solving skills. The application of research to a local problem *integrates two High-Impact Practices – undergraduate research and service learning*.

Dr. Rock and her students gather micro-plastics samples from Utah Lake near Utah Valley University.

Integrating Virtual Reality into Traditional STEM Curriculum (Armen Ilikchyan & Elena Laricheva). Dr. Laricheva noticed that many of her students in general Chemistry struggle with concepts they cannot visualize. She said she had also struggled as a student with the visualization aspect of Chemistry. To address the problem, she partnered with Dr. Ilikchyan in Technology Management who has expertise in virtual reality (VR). Their project had three goals: (1) to assemble two multi-component VR-enhanced molecular visualization systems that can be used in any STEM classroom or during any STEM event; (2) to develop VR instructional materials using the Unity game development platform and molecular modeling packages to illustrate traditionally hard to comprehend chemistry concepts; (3) to explore the effectiveness of the VR-enhanced instruction on student learning in CHEM 1210. Two teams of 3 students worked on the project. They had complementary backgrounds in Digital Media, Computer Engineering/Computer Science, Physics, Biotechnology, and Chemistry. Although the project met delays due to the COVID-19 pandemic, all three goals were accomplished. Data collection on students in the VR-enhanced Chemistry class was promising, but to date inconclusive. This project is a good example of *multidisciplinary undergraduate research.*

URSIG Grants

The Undergraduate Research Summer Institute Grants (URSIG) was an undergraduate research program with the purpose of making progress on a significant research project relevant to the faculty and the region that was done in a team of a faculty and students.

> *Application Form Description:* The purpose of the UVU Undergraduate Research Summer Institute Grant (URSIG) is to enhance and support undergraduate research. UVU believes that exceptionally capable and well-motivated students should have the opportunity to participate in innovative research within their field of study. This grant is designed to support students by engaging them in meaningful scholarly and creative activities with the help of a faculty mentor over the summer. A faculty member must complete this application.

Student-faculty teams collaborated to conduct in-depth research or creative work related to their chosen field of study during the summer. A limited number of projects were be funded each summer in amounts ranging from $5,000 to $15,000. Over a 5-year period, 30 URSIG grants were awarded and 29 unique projects funded; 52 faculty researchers participated and 123 student researchers and technicians were funded for their participation (see Appendix A). Dozens of additional unfunded students also participated. Several projects are described below. (Interview transcripts are included in Appendix C.)

Raman Hyperspectral Imaging of Biological Cells and Tissues (Dustin Shipp). The focus of this summer research project was to improve the new Raman spectroscopy system and the software controlling it in preparation for imaging applications. The Raman Spectroscopy system was purchased in pieces rather than pre-assembled. Not only did this strategy reduce the cost, but assembling and configuring the system provided greater opportunity for student learning. Students worked in teams and individually. They established procedures for preparing cancer cells, bacteria, and tissue phantoms for measurement by this system. Dr. Shipp organized this *faculty-mentored undergraduate research* project utilizing effective strategies for structuring communication, discerning student needs, organizing the project, and managing expectations for the research and the mentoring relationship. He also employed strategies for evaluating the effectiveness of his mentoring. The project funded the participation of 5 students and facilitated the volunteer efforts of 3 others.

Endurance Race Team Tire and Brake Research (Matt Hasara). Students in this project worked to prepare a car to compete in an endurance race, and while racing, to test tire and brake wear. (The car had been built by students working on two previously funded HIELG grants.) A primary pedagogical strategy for this project was the organization of the students into two teams, each with a team leader. Each team of 5 or 6 students was responsible for certain tasks. Necessary tasks were determined in an initial group meeting and divided among the groups. The Project Director keeps an eye on everything to see that the groups are going well and that the work is correct. The car was raced 4 times with students manning the pit stops. The team won the Champcar Endurance Series and was invited to participate in the Laguna Seca race in Monterey in December 2019. Mr. Hasara says the project is designed to engage students in something they are passionate about while teaching them about car technologies and teamwork applicable to their careers.

UVU Endurance Race Team Pulls Off Shocking Win! "Utah Valley University's Endurance Race Team picked up a stunning upset victory in the ChampCar Endurance series race held Sunday, July 28, at the Utah Motorsports track in Tooele, Utah. The win is not only the first for the UVU team, it's the first time in the 10-year ChampCar Series history that an entry from any college won an endurance race." *UVU News, July 30, 2019*

Identifying Sexual Harassment in Organizations: Outdoor Guiding Community (Maria Blevins). This project is an ethnographic study of the outdoor guiding industry to investigate the strategies women enact against sexual harassment in this male-dominated industry, a level of harassment rarely present in a typical work environment. The combination of long hours, high-adrenaline activities, close living quarters, and easy access to alcohol creates a unique atmosphere where some might say the lines of sexual harassment are hazy. The project had begun the previous summer with other funding. The researcher had conduct interviews and participant observations, as well as keep a research diary. Guides shared narratives about their experiences in the industry, described the culture of the industry, and identified the strategies they used to negotiate gender roles. For this project two student researchers coded the observation notes, recordings, and transcriptions into themes to facilitate analysis. They also conducted additional interviews because as word spread about the project, additional women guides requested to be interviewed. Both student researchers gained valuable experience in coding and analyzing ethnographic data. One researcher used the project data for a senior paper on an original topic; she is applying to graduate school.

Micropropagation studies of *Lepidium ostleri* and *Arctomecon humilis* (Olga Kopp). In this project, students worked on micropropagating and ex-vitro rooting of two endagered plant species inginous to Utah. Preserving these species is important for the ecosystems where they live. Student researchers were involved in the entire research process, not just a single aspect, so they would have a more complete understanding of the scientific projcess. Students conducted literature review, experimental design, setting up and carrying out experiments and work on propagation, and analysis of data. The team was able to obtain callus and a shoot from leaf explants of A. humilis. This is a great step because this is the first time this species has been propagated. Title III funds paid for the student researchers and the chemicals needed to start the project. This was a new project, but it continued for several additional years, for, as Dr. Kopp said, "plants don't grow in six months or a year; they decide when they want to grow and how." Two paid students and two unpaid students worked on thie summer project. This undergraduate research project addressed an issue of local and regional concern.

Arctomecon humilis, or the dwarf bearclaw poppy

Accomplishments of the HIELG, GREEN, and URSIG Grants

As part of the Year 5 evaluation, the evaluator conducted interviews with a sample of faculty who had received the internal grants. That section of the evaluation report includes the evaluators questions and specific examples from the project, as well as an assessment of each topic. That portion of the evaluation report is relevant to this final report and appears in *Appendix C: Evaluation of HIELG, GREEN, and URSIG Grants*. A summary, without specific examples, is given in this section.

► How were the students engaged in the projects? What did they do? How did they learn?

The projects that were evaluated by interview engaged students with multiple evidence-based activities capable of producing outcomes of significant value to them as students, as individuals, and in their future careers. The undergraduates in the other internally funded projects were similarly engaged (see the project descriptions in Appendix A). The projects were organized thoughtfully and included proven High-Impact Practices. Common elements of the projects, in addition to those described above, were that they required student effort, they demanded interaction with faculty and peers on substantive matters, and they challenged student participants in meaningful ways.

- Students became experts in their fields and topics, teaching other students or faculty.
- Students were team leaders on projects.
- Students were given significant responsibilities on the project.
- Students engaged in significant problem solving and the in processes of problem solving.
- Students were involved in-depth exploration of academic concepts, theories, and scholarly literature and its application to real-world problems.
- Students reflected on that they had done and what they had learned.

► **Were the internal grants effective and beneficial in increasing student engagement across the institution?**

In addition, to providing numerous opportunities for high-quality student engagement, the funded projects have increased student engagement opportunities across the institution in the following ways:

- Internal grants laid a foundation for continued research for other students.
- Internal grants prepared educators to incorporate stronger student engagement into future classes and projects.
- Internal grants established high-quality projects and models for engagement that will continue into the future.
- Internal grants established collaborative relationships that will generate new engagement opportunities.
- Internal grants provided evidence of effectiveness to decision-making administration.

► **What lessons were learned by faculty about planning and conducting student engagement activities that they will carry into the future?**

Some lessons learned by faculty were specific to their particular projects, but other lessons were more generalizable and are summarized below:

- Project-based learning is more engaging to students than lectures.

  "I know by *how* my students talk about my courses that they are excited to come to class. So I will continue to do project-based learning. My students are responding much better to having opportunities to be creative than to me just lecturing." – Krista Ruggles

- Students need time to develop processes, conduct problem solving, and develop solutions.

  "I learned that if you let students direct their research, the benefit to them is immense. The cost is on the project timeline. You have to let students explore and struggle a bit with problems, and that will make things go more slowly than if I just said, 'I'll do it.' But then they wouldn't learn anything. So I learned to patient." – Sally Rocks

- Engaged learning benefits from supervision and structure.

  "I've continued to make changes every semester based on student feedback. . . I keep refining and structuring it to help make students more successful, since it's really new to them." – Maureen Andrade

- Students can benefit from being allowed to follow their own interests on a project.

  "I learned a bit about mentoring students. I appreciate the space and time this grant created for me to learn how to follow a student's interests." – Gregory Jackson

- Students respond well to innovative pedagogical approaches when they see the value.
- Faculty who are new to engaged learning benefit from having a mentor.
- Participation in undergraduate research is broader when students are paid for summer work.

Figure 5: Faculty Grant Recipients Speak about the Value of the Title III-Funded Internal Grants

Evaluator interviews conducted in 2019 and 2021 asked faculty grant recipients about the value of the internal grants to themselves and their students. Here are their replies, extracted from the interview transcripts found in Appendix C:

► **The Title III-funded grants were a relatively small investment in student engagement.**

- Matt Hasara – "I've had three funded projects that have involved well over 100 students in serious engaged learning. There was a HUGE impact for a very small financial investment."
- Leigh Ann Copas – "Not only did it benefit about 10 Writing Fellows who worked through funding for this grant and the 1,500 students they worked with, through our assessment efforts, we were able to show the institution through PBA that this is a valuable program. With the funding we received through PBA, we can expand the program and serve more students.
- Sally Rocks – From the student perspective, there are no research opportunities available for such inexperienced students in chemistry. So when I approached general chemistry students and advertised this project, I was actually so overwhelmed with the number of students who wanted to work on it that I had to have them write up a paragraph on why they thought they'd be a good fit. Then I tried to take into account if they were underrepresented, if this would help them."

The Title III-funded grants invested in faculty creativity.

- Maureen Andrade – "There are a lot of creative faculty here who are very dedicated to teaching. Sometimes they just need a little funding to facilitate their activities, but they don't really need a huge grant proposal to external funders to accomplish this."
- Maria Blevins – "I would say that [the grant opportunities are] something that makes me feel valued by UVU and, you know, I do. Because while the teaching is the most important thing to me, I do like having a research agenda, particularly if it's applied, and knowing that the institution supports me feels nice. . . . It motivates me to do that project and to do more applicable work. If I know I can go and ask for a little support to go do the work I want to do, I feel like the possibilities are much extended."
- Trevor Warburton – "It helped me get involved with students in ways that I wasn't before, as well as again making those professional connections in the local education community, both of which are things that are valued in the School of Education and will be helpful for tenure. . . . And honestly, this is not something that I would have attempted without the grant. And it was something that I was interested in, but I certainly would not have tried it that early in my career in higher education."
- Jonathan Westover – "I think faculty are chasing money to support innovative projects all the time. And so having funding like this allows us to do things that otherwise we wouldn't be able to do. You know, getting PBA funding at first can be really hard. And so having an opportunity to get the HIELG grant allowed us to build a case to demonstrate the value of the project."

► **The Title III-funded grants helped establish a foundation for continued research.**

- Sally Rocks – "From a faculty perspective, without this grant, I would not have been able to attempt this project at all, because this is brand new research for the university and brand new research for me. So it was instrumental in getting the project going.
- Armen Ilikchyan – "I think these grants are extremely helpful, especially for new faculty – for someone who is just starting and trying to establish a foundation for their research and for their projects. Because I'm not very experienced with external grants, but my understanding is that with external grants, it's always good to demonstrate some kind of foundational work that's been done and these internal grants are extremely helpful exactly for that."
- Olga Kopp – "These grants definitely make a difference. Without that money, we would not publish. Without that money, we would not have had the foundation, for example, the chemicals that we needed to be able to start the project. And UVU is an undergraduate institution. I teach 12 credit hours and it's very demanding. This allowed me to have the students be able to work on the projects all day. Students even volunteer on the projects because they know it benefits them." [Of the 10 students who worked with Dr. Kopp on the URSIG project, 8 have now graduated, 4 are in medical or graduate school and 3 are employed in laboratories.]
- Dustin Shipp – "At research institutions, summers are always for research, so here, it was nice to have a mechanism to do a summer research project and support a good number of students on that. It would be very hard [to find external funding my first year]. In one year I'm not going to get the preliminary data I need to qualify for a grant. Even if right when I got to UVU [a year ago], I submitted a grant then, the money probably wouldn't even be in by the summer. To have some funding for research in my first summer – I can't think of any other way it would have happened."

► **The Title III-funded grants provided essential resources for student engagement.**

- Claudia Jorgensen – "Jessi Hill and I went to two POGIL [Process-Oriented Guided Inquiry Learning] trainings. We got the foundational training in the summer of 2016, and then we went to another POGIL training in 2017 that was paid for as well, where we got additional training on how to write high quality POGIL activities. We also had release time to pay for writing those POGIL activities. And we got specific POGIL equipment. I have a model of a brain right here – we had to have 10 of them for the class, and we are still using them."
- Amanda Bordelon – "These grants are small enough that I can do something with it – like actually have real projects where I get students involved. With the bigger grants, there are a lot of hurdles. But these internal grants are nice because it's a good chunk of money to get an actual project done. Even for this HIELG grant, we got small equipment that we can use them for many years to come."
- Elena Laricheva – "This grant allowed us to have an interdisciplinary project with researchers from several disciplines [which is something SAC grants from the colleges don't generally do]. We were able to engage students on both sides – lower-division students in the classroom and upper-division students who wanted to get exposure to conducting educational research."

Institutionalization

- The Office of Engaged Curriculum (now the Office of Assessment & Analytics) was established as a direct result of this project and the final Title III Project Director, Dr. Ala'a Alsarhan, employed as the director of that office. Another new OEL office, Undergraduate Research & Creative Works, was established during the period of the grant under the Associate VP of Engaged Learning who provided administrative oversight to the Title III project, an example of the change in climate fostered by the Title III award.
- The Gateway Project aimed to reduce the fail rate in key general education courses. Title III funded faculty training, course redesign, and piloting of 13 multi-section courses, and then was institutionalized under the Office of Teaching learning.
- URSIG grants were sustained for one year. Additional grant funds will be requested through PBA (UVU's Planning, Budget, and Assessment process). Evaluation of this grant has supplied administrators with evidence that these internal grant programs are valuable to faculty and students for increasing student engagement with high impact.
- The increased number of sponsored external grants awarded through the Office of Sponsored Programs, due in great part to Title III support for faculty in grant-writing efforts, has helped institutionalize funding for student engagement activities, both curricular and co-curricular (see Objective 1.5).
- Engaged-learning, and particularly High-Impact Practices, have become part of the culture and conversation of UVU. For example:
  - A new program called HIPS-4-US! (High-Impact Practices for Underserved Students) in OEL has been launched for UVU students who are members of a state or federally recognized Native American tribe called.
  - At the college level, several colleges have Scholarly Activities Committees (or similar) that award internal grants to their faculty and students.
  - In some departments, faculty participation in engaged learning is being included in RTP (rank, tenure, promotion).
  - The Faculty Senate's Re-envisioning the Undergraduate Experience Committee, with a subcommittee on High-Impact Practices, submitted a report in 2020 that includes the following recommendations:

Re-envisioning the Undergraduate Experience:
Recommendations and Activities, Feb 21, 2020

Vote 3: Create a Graduation Distinction for undergraduate research and other scholarly or professional work. We ask that the Faculty Senate endorse the recommendation that Academic Affairs implement a significantly expanded tracking of HIPs by OEL to include all HIPs being implemented at the section level for each course. This will allow UVU to identify individual students engaging in HIPS as required by USHE. RUEC recommends that HIPs be identified on student transcripts. We also recommend that OTL offer faculty development courses and stipends for faculty members who implement HIPs in their courses, particularly GE courses that reach large numbers of students.

Short-term Impacts

Institutional Impacts

- As mentioned previously, in the 7 years of the Title III project, 206 faculty have received a total of 73 grants for increased student engagement in 111 courses (with multiple sections) with over 17,816 classroom students and 325 student assistants and mentored researchers who have directly benefited. This does not calculate the numbers of students who continue to be impacted and benefited by faculty who have been trained and/or acquired experience through this program, or the research projects that have been established and continue to benefit other students.
- According to evaluation developed under this Title III project, in Fall 2020, 84% students of students who participated in Title III/HIPs activities persisted to the next semester compared to 75% of students who did not participate. Also, 72% of freshmen students who participated in Title III/HIPs activities persisted to the next year compared to 68% of students who did not participate.
- Through the efforts to catalog, fund, and evaluate engaged-learning under this Title III project, the Office of Engaged Learning has a definition that informs priorities of OEL. encouraged the UVU community to do the same.
- The strength and innovation of the internal grant projects seem to demonstrate that faculty-based initiatives, within the framework of evidence-based practices and assessment, can be very effective means of increasing student engagement.

Faculty Impacts

- Faculty who have received Title-III-funded internal grants report gaining invaluable experience in conducting student engagement activities which they carry forward to their future work and share with others as models.
- Faculty involved in the internal grants and their students have produced many presentations and publications (some of which are listed in Appendix E). These speak to the power of the grants to advance knowledge within disciplines as well as advance the careers of faculty members.
- Faculty conducting the internal grants report that the projects have assisted then in RTP. The GREEN grants, specifically, were aimed assisting junior faculty in gaining tenure, but all three grant programs had this potential. Some faculty interviewed mentioned this specifically as a benefit to them of the grants.
- Several faculty and administrators indicated that involvement in the Title III internal grant program fostered more collaboration between departments. At least 13 projects involved two or more UVU colleges or schools and 21 were collaborative within a department. At least 3 involved collaborations with other universities.
- The grants funded essential resources, including external training for faculty participants, release time for re-writing curriculum, and small equipment, that can have an impact on students in other classes or projects.

Student Impacts

- "Having students engaged with a project they really love and are interested in keeps them going in the program and teaches them a lot that will be useful in their careers." – Matt Hasara
- Students in classes impacted by the internal grants, as have the students who have participated as assistants, fellow, researchers, and technicians. Leigh Ann Copas explains:

  "For the students receiving writing tutoring, we have looked at the grades and student disposition toward writing (pre- and post-surveys). We are finding that what they learn in tutoring transfers into other courses as well. In fact, tutoring has positive effects in three critical areas – social, application, and community building. Studies show a lift in persistence and an increase in retention and graduation. They receive A's in key courses at a higher rate, which is a known indicator of student success. They also have shown (in the History course) a decrease in DFW grades.

  "For the Writing Fellows themselves, they experience a level of satisfaction with their university experience. It also prepares them for their future work. Writing Fellow alumni report that tutoring prepared them to teach in the classroom, to work one-on-one with students, and to control a group. About 99% of our Writing Fellows are placed in a job or go onto graduate school after receiving their bachelor's degrees."
- Students, with their faculty mentors, have prepared presentations for local, regional, national, and international conferences – both general conferences for undergraduate students (like UCUR and NCUR) and discipline-specific conferences (see Appendix E). These experiences provide tremendous growth opportunities for students.
- Students' work on research projects has let to senior thesis, senior research projects, capstone projects, and other works.

  "One of my student researchers and I presented a paper at the School of Global and International Studies at the University of Indiana on September 10, 2020. It was very well received. This academic success was a part of the process in his being selected as Integrated Studies' Outstanding Student of the Year at his graduation. He is now gainfully employed by UVU and about to jump into industry with a high-paying career related to his degree." – Gregory Jackson
- Students have been better prepared for careers and post-baccalaureate education. Many students who participated in these internal grants are reported to be working in the fields of their degrees, currently attending graduate or medical programs, or in the application process.

Long-Term Impact

Funded activities advanced the HIP definitions for UVU. Fred White, former Associate Vice President for Engaged Learning, indicates that Title III funds for internal grants was well spent because it allowed the program to fund engaged learning activities that conformed to the refined definition of engagement. He remarked: UVU is not a research-based university, right? And so when you want to do something innovative, different, change something, it has to be connected to students. So those mini-grants were really the moment where a faculty member with a project idea was forced to consider how to include students in

that project. They are forced to say: 'Hey, how am I going to do engaged learning, High-Impact Practice stuff and include my students in it?' . . . No one in graduate school is telling them to consider how they are going to include their students in their research. So those mini-grants are that moment where we can say, 'Yeah, we've got money and we're happy to support you, but how is that going to be positive for our students?' And that's a mental cultural change for many of our faculty. Which I think is important."

Internal grant awards have helped create a culture of evaluation. Rasha Qudisat, former Title III Project Coordinator observed that: "People are now measuring more and capturing more data about the students' engagement in the class. Well, our requirement for Title III sub-awards was that every funded project had to have an evaluation component. The evaluation component of their proposals was minimum – there were like 2 to 3 lines in the evaluation section. And that's where the evaluation culture grew. With every project that was refunded, the faculty became more interested in the data collection and with the utilization of lessons learned and reporting. So I saw that the culture of evaluation grew with the faculty, and that they became more interested. The evaluation component became embedded in all of the funded projects." Several faculty reported that they have been excited by the process of evaluating their projects and refining them and seeing their students improve. More robust project evaluations have helped faculty with peer-reviewed presentations and publications.

The internal grants are opening doors for continued or ongoing support. One of the funded projects has received a provisional patent. Several innovative projects may lead to commercialization. Several projects have been able to demonstrate their value to UVU and have been given continuing funds through PBA. Several projects have been stepping stones to external funding, or their faculty are planning to seek external funding in the next year or so. These mechanisms have the potential to provide additional opportunities high-impact engagement.

Increased student engagement at UVU. The overall Title III project has sought to increase student engagement across the institution, which has been gaged by the extent to which students are participants rather than audience and the extent to which the emphasis is on processes and problems rather than on content (Healy & Jenkins, 2009). The internally funded grant opportunities were highly effective and instrumental in accomplishing this for students who directly participated in HIP-supported classes and co-curricular activities. However, an unknown, but likely greater number of students will be impacted because the project invested in faculty – faculty who can continue to improve and engage students in creative ways.

HIPs are improving student outcomes for retention and persistence. The increases in retention and persistence tied to student engagement in HIPs as shown throughout this report, are reliable measures. When UVU began preparation for this project in 2013, the Director of Institutional research indicated that he could not say with any certainty what impact engaged-learning was having on UVU students. Now, through the efforts described under Objective 1.4, we know that certain types of engaged learning, particularly HIPs that have been evaluated under this project, are impacting retention and persistence, and therefore, likely, impacting graduation rates. The scholarly works cited in preparation of this proposal suggested that they would; now we can substantiate that they do work at a UVU, a comprehensive, open-admission institution. [Faculty who participated in the internal grants give their own experiences about how their projects assisted in improving retention and completion (see Appendix B, p. 11).] These findings should give UVU confidence in investing in student engagement in high-impact practices.

OBJECTIVE 1.2 Increase the effectiveness of faculty in designing and implementing engaged learning via curricular and co-curricular engagement activities through professional development, exposure to models of best practices, and support.

Activity 1.2.1: Provide professional development through the Faculty Center for Teaching Excellence (FCTE) focusing on increasing and enhancing classroom and co-curricular engagement.

Activity 1.2.3d: Work with existing community outreach structures at UVU to establish and maintain community engagement.

Implementation

Objective 1.2 was implemented under the two UVU entities: the Office of Teaching and Learning (OTL) and Center for Social Impact (CSI). OTL had been titled the Faculty Center for Teaching Excellence (FCTE) when the proposal was written and changed titles about the time the proposal was funded. CSI had previously been titled the Volunteer and Service Learning Center and changed titles at about the same time. The change in titles also lead to some changes in mission and vision that lead to CSI being more suited to co-address this objective than been initially envisioned.

Implementation through the Office of Teaching and Learning

In Year 1 of the project, OTL conducted a significant amount of professional development to increase the effectiveness of faculty in designing and implementing engaged learning in the classroom. OTL focused on training to increase and enhance engaged learning activities, integrating undergraduate research, scholarship, and creative activities (URSCA). In Year 2, some faculty who had received training in Year 1 became part of the Gateway Project, a HIELG-funded project conducted under the direction of OTL, to redesign key general education courses with a high failure rate to improve student outcomes and include more student engagement. Some 13 multi-section courses among six colleges were redesigned and taught before the project was institutionalized within OTL (see page 18).

At the same time, the Office of Engaged Learning, and those heading this project in that office, formulated a clearer definition of engaged learning and high-impact practices (HIPs) for UVU. In Year 3, through assessment conducted under Objective 1.4, some of this training was found not to be very effective in preparing teachers to design highly engaged learning courses that impacted student outcomes, so new training was developed.

In time, OTL began the *Teaching Excellence Program for HIPs*, which are generally overseen by OEL. Faculty members receive preparation for teaching with HIPs in one of six pathways: global/intercultural, service learning, writing enriched, undergraduate research, first-year experiences, and team-based learning (see Figure 6). These HIPs align with AAC&U standards for HIPs (although some titles vary).

The Teaching Excellence Program is aligned to the Professional Standards Framework (UKPSF) of Advance HE. The UKPSF is an internationally recognized framework that represents the activities, knowledge, and values that should be held by anyone who teaches or supports learning in higher education. AdvanceHE has accredited UVU's Teaching Excellence Program to award Associate Fellowships upon successful completion of one of the certification paths. (Other paths to advancement are available as well.)

Figure 6: Office of Teaching & Learning Sponsored Training
High Impact Practices (HIPs) Certifications | Fall 2021

Earn certification in one of five high impact teaching practices (HIPs) which are research-proven methods that improve student learning outcomes, then engage with the HIPS Communities of Practice throughout the year.

Global/Intercultural

Develop and teach a G/I course through lenses of cultural identity and relevance, equity, global/intercultural, gender, race, and religion/ worldview.

Estimated hours: 12.5
Stipend: $500

Writing Enriched

Advance pedagogical skills in support of disciplinary writing and WE graduation requirements. Develop high- and low-stakes writing assignments that provide revision feedback so students can practice the conventions of discipline-specific genres.

Estimated hours: 12.5
Stipend: $500

Service Learning

Design and teach service-learning courses through the lenses of Roles, Relevance, Reciprocity, Reflection, Risk Management, and Reporting

Estimated hours: 12.5
Stipend: $500

Undergraduate Research

Improve mentoring skills and engagement in inquiry-based learning, in and out of the classroom. (This is the Mentoring Academy facilitated by SCULPT.)

Estimated hours: 12.5
Stipend: $500

www.uvu.edu/otl/calendar/index.html#hips

Teaching First-Year Students

Best practices for teaching the first-year student including making early and often connections with students, learning to learn strategies, metacognition, and growth mindset, embedded FY content into your course.

Estimated hours: 12.5
Stipend: $500

Implementation through the Center for Social Impact

The Center for Social Impact (CSI) implements service learning as a high impact practice under the Director of Academic Service Learning, Jonathan Westover. In Year 2 of the project, Dr. Westover received a $30,000 HIELG grant (funded under Objective 1.1) for funding faculty training in academic service learning. Twelve faculty were trained on service-learning pedagogy, course design, and community-engaged project development and implementation, and 14 new service-learning courses were developed. In a recent interview, Dr. Westover recalled that this "influx of funding allowed us to expand our training and get more faculty on board."

Service-learning, as advanced by CSI at UVU, is an engaged teaching and learning strategy in which students participate in specific structured service activities that:

- Meet community-identified needs
- Enhance discipline-based knowledge and skills
- Strengthen the community
- Encourage in-depth understanding of course content and a broader appreciation of the discipline
- Immerse students in the subject matter and its application
- Enhance the students' sense of civic responsibility and community engagement.

Faculty who participate in the service learning training attend workshops on:

- Roles, Relevance: Service Learning vs. Community Volunteerism
- Reciprocity, Reflection: Community Partnerships
- Risk Management, Reporting: Meaningful Reflection about Authentic Learning.

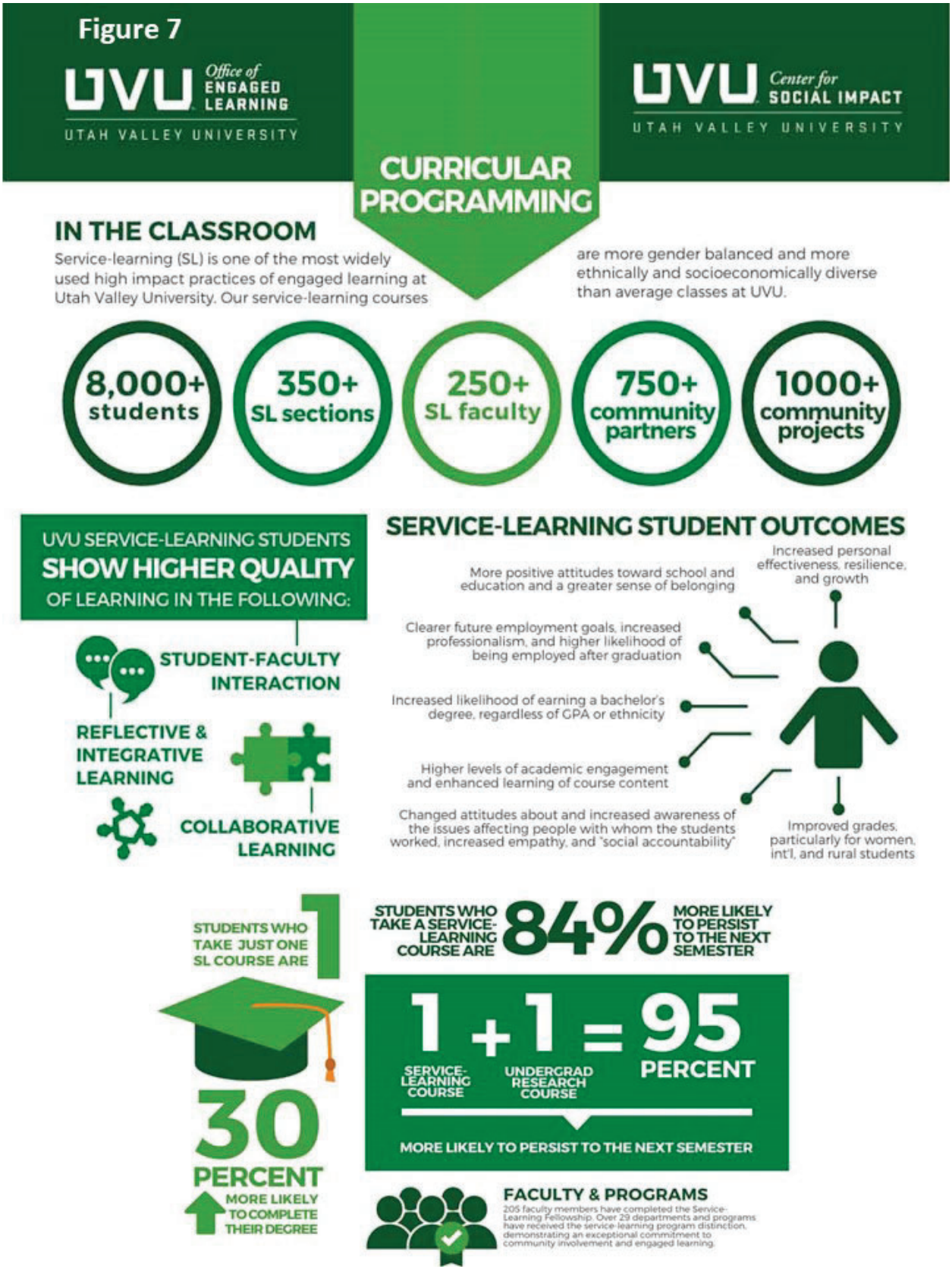
They also submit three personal reflections and submit a syllabus outlining and implementing a new or revised course that utilizes service-learning principles to the Academic Service Learning Committee. Those who complete the training, commit to incorporate service-learning in at least one class for the following semester. The training takes an estimated 12.5 hours of work and pays participants a stipend of $500. Only courses where faculty have received this training and have been certified receive the Service Learning HIP designation at UVU.

To assess the success and impact of courses taught by funded faculty, Dr. Westover required project assessments, that included:

- A student pre/post-test attitudinal survey (each course, each semester)
- Qualitative interviews with faculty participating in the project (before, during and after the project)
- Student learner reflections (each course, each semester)
- Community partner evaluations (each course, each semester)
- The tracking of student retention and completion rates over time (ensuring the protection and anonymity of participants).

Dr. Westover explains that he had created the survey instruments prior to the HEILG award, but through the award, the survey could be administered to a large number of faculty, students, and community partners because it was a requirement for receiving the stipend. Drs. Alsarhan and Qudisat conducted a holistic evaluation of the data. Some of the results are reported in Figure 7.

Figure 7


UVU Office of ENGAGED LEARNING
UTAH VALLEY UNIVERSITY
UVU Center for SOCIAL IMPACT
UTAH VALLEY UNIVERSITY
CURRICULAR PROGRAMMING
IN THE CLASSROOM
Service-learning (SL) is one of the most widely used high impact practices of engaged learning at Utah Valley University. Our service-learning courses are more gender balanced and more ethnically and socioeconomically diverse than average classes at UVU.
8,000+ students
350+ SL sections
250+ SL faculty
750+ community partners
1000+ community projects
UVU SERVICE-LEARNING STUDENTS SHOW HIGHER QUALITY OF LEARNING IN THE FOLLOWING:
STUDENT-FACULTY INTERACTION
REFLECTIVE & INTEGRATIVE LEARNING
COLLABORATIVE LEARNING
SERVICE-LEARNING STUDENT OUTCOMES
More positive attitudes toward school and education and a greater sense of belonging
Increased personal effectiveness, resilience, and growth
Clearer future employment goals, increased professionalism, and higher likelihood of being employed after graduation
Increased likelihood of earning a bachelor's degree, regardless of GPA or ethnicity
Higher levels of academic engagement and enhanced learning of course content
Changed attitudes about and increased awareness of the issues affecting people with whom the students worked, increased empathy, and "social accountability"
Improved grades, particularly for women, int'l, and rural students
STUDENTS WHO TAKE JUST ONE SL COURSE ARE 1
30 PERCENT MORE LIKELY TO COMPLETE THEIR DEGREE
STUDENTS WHO TAKE A SERVICE-LEARNING COURSE ARE 84% MORE LIKELY TO PERSIST TO THE NEXT SEMESTER
1 + 1 = 95 PERCENT
SERVICE-LEARNING COURSE
UNDERGRAD RESEARCH COURSE
MORE LIKELY TO PERSIST TO THE NEXT SEMESTER
FACULTY & PROGRAMS
205 faculty members have completed the Service-Learning Fellowship. Over 29 departments and programs have received the service-learning program distinction, demonstrating an exceptional commitment to community involvement and engaged learning.

Institutionalization

Institutionalization through the Office of Teaching and Learning

Professional development that trains faculty in the development and implementation of effective use of HIPs in curricular and co-curricular education, has been institutionalized under OTL in collaboration with OEL, SCULPT, and CSI. *The Teaching Excellence Program* continues to be a strong vehicle for providing faculty training, mentoring, and assessment of HIP implementation. As of September 2021, the following certifications have been awarded:

Global/intercultural	63 faculty
Service learning	224 faculty
Writing enriched	65 faculty
Undergraduate research	113 faculty
Teaching first-year students	62 faculty
Team-based learning	52 faculty
	579 faculty

Faculty who complete each 12.5 hour training course receive a certification in the HIP and a $500 stipend (funded by UVU); they become members of a *Community of Practice* for where they can collaborate with other faculty teaching with that HIP and mentor new faculty. Access to training and materials is available through the OTL website.

In addition, several closely related activities in OTL are indicators of the institutionalization of this objective for professional development focused on designing and implementing highly engaged learning in the classroom. Two are described below:

- ***Participation in the NSSE-sponsored National Quality of HIP Implementation Study.*** Faculty who have been certified in at least one HIP will be invited by OTL to be part of the national HIPs analysis being conduct by the center that conducts the *National Survey of Student Engagement (NSSE)*. The survey will be administered to students in the classes of HIPS-certified faculty who chose to participate. The results of this *Quality HIP Implementation Study* will become part of the national study, as well as be reported to participating faculty and to UVU Institutional Research.

  OTL is working with UVU's Institutional Research office to ready the survey, which is copyrighted by the Center for Postsecondary Research at Indiana University (that administers NSSE). As per agreement, the survey has been tailored slightly for UVU. UVU's license for the survey will be paid for by Institutional Research, who will receive the report from NSSE, add their own analysis, and report the data at UVU.

  The FSSE survey (Faculty Survey of Student Engagement) focuses on the primary elements of HIPs that have been shown to be most effective for each specific HIP (see *Assessing Quality and Equity in High-Impact Practices: Comprehensive Report,* Jillian Kinzie, et al., 2020.) The Quality HIP Implementation Survey is different from the In-Class Student Engagement Instrument in that the former assesses how the HIP class is taught, while the latter focuses on how students are engaged. Together, the two instruments should give a robust assessment of student engagement through HIPs at UVU and its impact on student persistence and retention.

- **Integration of Student Engagement into Online Course Design Training and Review.** With the onset of COVID-19, OTL increased and refined faculty training for

teaching online courses at UVU. The faculty mandated that all faculty (both full-time and adjunct) earn an Online Teaching Academy Certification by Fall 2021. The training includes student engagement in the online classroom, as evidenced by the Online Course Design Rubric (see Table 7) used by the Flexible Learning Council of each college or school to evaluate the quality and readiness of new online courses.

Table 7: UVU Online Course Design Rubric
Office of Teaching and Learning

	Sufficient Evidence	Some Evidence	Little/ No Evidence	Not Applicable	Notes
5. CONTENT AND ACTIVITIES					
17. Course contains activities that provide opportunities for engaging in higher-order thinking as appropriate*. (Examples: Problem-solving, critical thinking, reflection, and analysis.)					
18. Course contains engaging learning activities*. (Examples: real-world applications, experiential learning opportunities, case studies, and problem-based activities, as appropriate).					
https://docs.google.com/document/d/192iZn-wc_Q6qtAv8oFw1uXYgNlHll45lutPmT87IpUU/edit					

Institutionalization through the Center for Social Impact

Objective 1.2 was institutionalized under the Academic Service Learning arm of CSI in Year 3 of the project. Funding for faculty training stipends of $500 each have continued to be funded by the university. UVU has also funded several additional, related activities. First CSI received a $25,000 GEL grant (Grants for Engaged Learning) from OEL for funding community matching grants. The following year, this amount was institutionalized through the UVU's budgeting and resources allocation process called PBA. This funding is used to support faculty-led service-learning courses that require a local organization to contribute to the project. Then UVU matches that amount up to $5,000. This funding for service-learning projects continues currently. The PBA funding was received because CSI was able to demonstrate the value of the service-learning courses to the institution, based on the assessments cited previously.

Second, CSI staff also established the SIM Lab – the Social Impact Metrics Lab – that does outward facing community-based projects (https://www.uvu.edu/socialimpact/simlab/html). The faculty mentoring students and the students being mentored work on these community-based research projects with local nonprofits. That has been quite successful as well.

Another indication of institutionalization is that there has been a high retention rate of trained faculty in teaching service-learning classes. Dr. Westover commented: "Most faculty continue to teach service-learning courses semester after semester. They're continuing to do what we trained them to do. This is actually a nice outcome from the training we offered – that we didn't have a lot of attrition in terms of faculty teaching those courses."

Short-term / Long-term Impacts

Growing Momentum of the Teaching Excellence HIPS Certification Program and the affiliated Communities of Practice. Wendy Athens, Director of OTL – "So, last year we started the Communities of Practice and then we tried to put in a lot more undergirding this year. With the Communities of Practice, we're really trying to get those certified faculty (on that spreadsheet) to stay in community with each other and talk about what they're learning about ways to optimize the HIP. Because, you can say it's a High Impact Practice class, but if you don't implement it effectively, it isn't high impact." Certifications will be most impactful if included in RTP.

Continued Collaboration between the Office of Teaching and Learning and the Office of Engaged Learning. OTL and OEL have forged a strong collaborative relationship, even though they are now organized under different Associate Provosts within Academic Affairs.

- In October 2021, the OTL and OEL jointly hosted Jillian Kinzie, Director of the National Survey of Student Engagement (NSSE) to visit and speak at UVU.
- In March 2022, OTL is beginning a new HIPs certification program in Project-Based Learning. At the same time, OEL is beginning sponsorship of a summer bridge program that features Project-Based Learning and involves incoming first-year students according to OEL Director Tammy Clark.
- As OTL implements the FSSE survey, they will coordinate with OEL. According to Wendy Athens, "addition to [the FSSE] survey questions, which give the instructor feedback about their teaching practices, they will get the student outcomes through the Office of Engaged Learning [the In-Class Engagement instrument]. And so the instructors will have multiple datatypes coming back to them. OTL will help faculty understand this data and make adjustments to their teaching.

Title III Boosted Academic Service Learning at a Critical Period. The HIELG project provided an influx of funding that allowed CSI to expand its training and get more faculty on board quickly. It jumpstarted academic service learning under the new Center for Social Impact.

Continued Growth of Academic Service-Learning. When this program was institutionalized in 2017, CSI reported that over 500 students were enrolled in service-learning courses and that the program supported 86 community partnerships. In 2021, CSI reports the service-learning is the most highly used high impact practice of engaged learning, with over 8,000 students enrolled and 750 community partners. Over 250 faculty teach service-learning in over 350 course sections (see Figure 7). This has been accomplished with only a small amount of additional institutional funding. CSI and OEL experience shows that additional funding for stipends would increase faculty participation and, thus, student participation.

Academic Service Learning: A *Very* High-Impact Practice. Assessment of the academic service learning courses with tools developed under this project (see Objective 1.4) show the clear impact of service learning on persistence and completion. Students who take a service-learning course are 84% more likely to persist to the next semester and 30% more likely to complete a degree. Dr. Westover indicates that CSI and OEL have gathered a tremendous amount of evidence for the effectiveness of service learning. Dr. White indicates that all of the data, both our own data and national data, point to the fact that if a student does an academic service learning project, completion and retention rates go sky high. This is very important information for UVU. It indicates that an investment in academic service-learning would benefit students and the institution with higher rates of persistence and completion.

OBJECTIVE 1.3 Expand and strengthen faculty effectiveness in mentoring students for scholarly and creative work especially with regard to extracurricular project teams by exploring models and best practices with an emphasis on early involvement by students.

Activity 1.3.2: Provide faculty mentors with in-depth training focused on best practices, models, engaged learning tools and support as they develop their proposals and begin implementation.

Activity 1.3.3: Cultivate a culture of faculty mentorship with faculty workshops and learning circles on relevant topics, and encouragement of faculty mentors to share their experiences with others.

Implementation

Creation of SCULPT

Objective 1.3 was implemented under SCUPLT – the Scholarly Creative Undergraduate Learning Partnership – which was developed under this Title III grant. SCULPT was designed to facilitate greater faculty participation and mentoring in undergraduate research and creative activity. Dr. Anton Tolman, recently released Director of the Faculty Center for Teaching Excellence (FCTE), worked with the Title III Program Director, Dr. Richard Tafalla, in Year 1 to initiate action on this objective. Dr. Tolman served as the first chair of the group and helped recruit the faculty participants from across campus and create faculty teams. It was planned that, with Title III funding, four teams would attend a Council on Undergraduate Research (CUR) institutes and come back to UVU with a proposal, plan, or discussion about things they learned that could be implemented at UVU. This related to Objective 1.3.2 to "provide faculty mentors with in-depth training focused on best practices, models, engaged learning tools." CUR institutes attended were as follows:

SCULPT is a faculty-led resource for teaching through inquiry-based learning, which includes research, scholarship, and creative activity inside and outside the classroom.

- Institutionalizing Undergraduate Research (Apr, 2015, San Diego, CA)

  Five faculty members from Developmental Math, Technology Management, Biology, English & Literature, and Finance & Economics.

- Climbing the Ladder to Funding Success: Diverse Sources, Diverse Pathways (Feb. 2015, Arlington, VA)

  Four faculty members from Earth Science, Chemistry, Exercise Science, and Physics.

- Integrating Undergraduate Research in the Curriculum (March 2015, Washington, DC)

  Four faculty members from Dance, Behavioral Science, Aviation, and Physics.

- Undergraduate Research in the Social Science Institute (March 2015, Celebration, FL)

  Six faculty members from Behavioral Science, History, Communication, English & Literature, Student Leadership & Success Studies, and Business Management

The goal of sending teams to these interactive institute trainings was to increase inter-departmental discussions regarding inquiry-based learning (IBL) and to promote enhanced understanding among participants of the value that increasing the scale and impact of IBL could have on student learning. Participation in the Institute provided the attendees with examples of successful models and feedback about educational approaches in use across the country. As part of the institute process, these faculty and department chairs were asked to develop specific plans customized to UVU's specific institutional context to increase the chances that their learning would be implemented on their return.

Based on ongoing discussions of how to incorporate the scholarly and creative results and learning from these institutes to UVU, the group of faculty members who attended the CUR conferences determined that a formal and ongoing affinity group needed to be created to promote and implement best practices. Thus, in the early summer of 2015, SCULPT was born. SCULPT stands for Scholarly & Creative Undergraduate Learning Partnership Team and its founding membership included approximately 30 faculty members from every college and school on campus. (See SCULPT Whitepaper, pp. 15-16.)

In a 2019 interview, Dr. Tolman explained that the teams were coming back to report about the same time he was diagnosed with cancer. He recalls: "So that spring, we held the first meeting of what was to become SCULPT. I was in Salt Lake City in the hospital. I had my laptop and was participating from my hermetically sealed room. We had everybody there – as many who could get there who were from those teams – to talk about what we should do next. And the decision was to create SCULPT, though we didn't have the name yet. . . . By the end of that Spring term, when I came home and couldn't do anything, I said I couldn't lead SCULPT. We created co-chairs who were members of the Advisory Board, and they took over leading SCULPT, and I fell back to the Advisory Board so I could still have input there."

SCULPT was designed to be a faculty-led organization rather than a staff-led office. Faculty members from across campus comprise the membership and leadership of SCULPT. Bylaws and election procedures were created early on. SCULPT was organized with two (and then three) Co-Chairs, an Advisory Board, and several subcommittees. The Co-Chairs are over the finances, the day-to-day operations, communications, members, strategic planning, and the subcommittees. The Advisory Board is the governing board of SCULPT. Faculty members who have completed a term as a Co-Chair return to the Advisory Board so that SCULPT does not lose the knowledge and experience they've acquired. Title III paid a stipend for the Co-Chairs, but service on the Advisory Board and in other activities has been entirely donated by the faculty members. Title III funding for leadership and activities of SCULPT continued through Year 5 of the project and was gradually institutionalized under the Office of Teaching and Learning.

This faculty group has defined their role and mission as follows: SCULPT is a resource for teaching through inquiry-based learning, inside and outside of the classroom, which includes research, scholarship, and creative activity. SCULPT provides resources for: a) developing inquiry-based pedagogy, b) encouraging undergraduate research, c) developing programs, d) mentoring students, e) developing skills and traits in students, and f) helping identify and pursue funding.

Activities of SCULPT

Title III funded the major activities of SCULPT, which include the following:

Learning Circles – A small faculty community that meets about every other week during a semester to deepen and enhance their understanding of best practices and key ideas for applying inquiry-based learning and other High-Impact Practices in their courses. Discussions center on ideas from a resource, such as a book or readings (which vary each semester), and draw on the experience of faculty who are part of the community. In Year 5, 18 faculty members participated, 2,094 students in their classes were impacted, and 84 students participated as research mentees under faculty in the Learning Circles.

Mentoring Academy –The Mentoring Academy is a collaborative workshop where faculty come to discuss *best practices* in mentoring student scholarly work and customizing those practices to their own discipline and fields of interest. The Academy is a considerable investment of a faculty member's time – at least 16 hours. Each group reads and discusses the book *Entering Mentoring*. Faculty also articulate a mentoring philosophy and then design a plan of how to implement it in their classes. They also peer review of each other's work. In Year 5, about 40 faculty completed the Mentoring Academy.

Research Collaborations – SCULPT has sought to promote faculty networking in teams on "big questions" or ideas that can drive multiple ongoing scholarly projects across time. In Year 5, SCULPT supported four research collaborations: Autism Spectrum Collaborative, Behavioral & Cognitive Neuroscience Collaborative, Student Metacognition & Resistance to Learning Collaborative, & Community Survey Collaborative.

Micro-Grants to Support Faculty – Several thousand dollars were awarded as micro-grants to faculty for small equipment and supplies needed for engaged-learning activities. Grants typically range from $200 to $500 for items that can be purchased through the Wolverine Market Place. These items are not generally funded by other internal grants, but greatly facilitate undergraduate research and student engagement.

CUR Institute Trainings – Team travel continued to be funded by SCULPT as funds were available with the expectation that when teams return, they do something to spread what they've learned, like write a proposal or present a seminar to faculty. In 2018, for example a team from the College of Science attended a CUR institute on inclusion in research at Washington State University. They prepared a document of recommendations which they pursued with the new Dean of the College of Science.

SHOWCASE – The Student SHOWCASE of Creative and Scholarly Work is a one-day, on-campus opportunity to present some of students' best artistic performances, visual arts, writings, and poster presentations of original research. SHOWCASE is co-sponsored by SCULPT and OTL. Faculty members themselves do not present, but they help organize and participate in the event. Thousands of UVU students and faculty attended and interacted with presenters. Expenses involve student awards, printing costs, and food.

Website resource for faculty and students at https://www.uvu.edu/sculpt/. The website provides access to resources for inquiry-based learning (which includes research, scholarship, and creative activity inside and outside the classroom) for faculty and students. Some resources are those supported by SCULTP (such as those listed above) and others are available through other offices and programs at UVU. A new resource this year is the inclusion on the website (with permission) of several chapters of "The Indispensable Guide to Undergraduate Research," a book written for students, aimed particularly at first-generation and minority students about how and why to do undergraduate research.

Figure 8

SCULPT.

Scholarly & Creative Undergraduate Learning Partnership Team

Utah Valley University

http://www.uvu.edu/sculpt/

Inquiry-Based Learning as Pedagogy

SCULPT provides resources for:
- developing inquiry-based pedagogy,
- encouraging undergraduate research,
- developing programs,
- mentoring students,
- developing skills and traits in students,
- helping identify and pursue funding.

White Paper

White paper can be found at
http://bit.ly/formatted-sculpt-whitepaper

This paper addresses the impact of undergraduate research and inquiry based learning on student engagement, learning, retention, and persistence to graduation with a focus on undergraduate research as an engaged pedagogy with application across all disciplines and all academic levels.

Similar Projects

University of Michigan institutionalized research to improve retention. They found that the retention rates of African Americans increased from 65% to 81% with a degree of completion from 56.2% to 75.3%, they were more likely to go to graduate school--from 56% to 82%, and to pursue medical, law or Ph.D. degrees--from 56.6% to 78.5% (Gregerman, n.d.).

Yaffe, Bender & Sechrest found that, undergraduate research experience can impact career trajectories. "Most of the [Undergraduate Biology Research Program] group felt their research experience had an effect on their choice of career and level of career satisfaction. Over 80% believed that their undergraduate research experience had a substantial effect, including 46% who felt that it was critical in their career choice" (2014, p. 5).

The Raising Achievement in Mathematics and Science" (RAMS) project at Winston-Salem State University (WSSU), found that early and continued exposure to undergraduate research and related activities will benefit the students throughout their academic careers and beyond. The retention rate of RAMS scholars of 98.8% was maintained year 1, and also year 2, year 3, and year 4. In fact, less than 1% of the 88 RAMS Scholar program participants dropped out of the program due to GPA, research schedule problems, or change in full-time status. (Fakayode et al., 2014, p. 663)

Scholarly & Creative Undergraduate Learning Partnership Team

SCULPT is a resource for teaching through inquiry-based learning. Inquiry-based learning, inside and outside the classroom, is **research, scholarship, and creative activity.**

What we need to succeed:

- Shared teaching approach
- Faculty driven
- Resources & support
- Advocacy & promotion
- Incorporation at all levels
- Incorporation in all departments
- Direct student involvement

By creating a culture and structures supportive of IBL and by expanding the reach of IBL to all students on campus, UVU's dedication to student engagement, inclusion, rigor, and student success will be enhanced. We hope to expand and strengthen UVU tradition of IBL by working together.

IBL promotes all four of UVU's core themes and is centered on student success

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Gregerman, S. R. (n.d.) The Role o f undergraduate research in student retention, academic engagement, and the pursuit of graduate education. Retrieved from the National Academy of Science website: http://goo.gl/Hsm2Cs

Yaffe, K., Bender, C. B., & Sechrest, L. (2014). How does undergraduate research experience impact career trajectories and level of career satisfaction: A comparative survey. Journal of College Science Teaching, 44(1), 25-33. Retrieved from http://goo.gl/cDDdu7

Institutionalization

Institutional Support & Funding. SCULPT was institutionalized under the Office of Teaching and Learning (OTL) in Year 5 (2019). OTL supplies administrative and support services for SCULPT as needed. SCULPT works cooperatively with OTL and OEL within Academic Affairs. SCULPT has been successful each year since 2019 in securing funding through Academic Affairs and the PBA (Planning, Budgeting, and Accountability) process to maintain most of the programs it developed under Title III funding. Academic Affairs has funded the Co-PI stipends and the Mentoring Academy and Learning Circles (stipends for the facilitators and participants). PBA funding has also been received for materials, student awards, and micro-grants." SCULPT leadership plans to continue to approaching the institution during each annual PBA cycle to continue developing and strengthening its programs.

Sustainable Organization. SCULPT is a faculty-led autonomous entity housed within Academic Affairs. The dedication and commitment of the faculty members has made SCULPT sustainable within the university community. In a 2019 interview, Dr. Joe Jensen, a previous Co-Chair, explains: "We have a core group of active members – the Advisory Board – who are willing to donate their time, basically, to maintain SCULPT initiatives." Members of the Advisory Board serve on the subcommittees that carry out the mission of SCULPT. Current subcommittees are the SHOWCASE Committee that organizes the annual SHOWCASE event, the Student Recognition Committee that is working on how to recognize students for doing undergraduate engaged work of significant weight, and the Student Outreach Committee that works to broaden participation and find ways to include more students in undergraduate research. There have been other groups before, including a Bylaws Committee and the Assessment of Undergraduate Research Committee.

Broad Participation Across the Institution. From the beginning, SCULPT leadership has sought for broad inclusion across the campus community. This started with the initial selection of team members to participate in the CUR institute trainings. An examination of current participants in SCULPT and its activities indicates that the broad participation is still being sought and generally achieved. Table 8 shows current participation in SCULPT by college.

Table 8 – SCULPT Membership, Spring 2022

College of Engineering & Technology	College of Health & Public Services	College of Science	School of the Arts	School of Education
35	27	62	9	7
College of Humanities and Social Sciences	**Woodbury School of Business**	**University College**	**Administrators**	**Key Staff**
59	22	19	5	8

The three current Co-Chairs are from the Departments of Computer Science, Nursing, and Literacies & Composition. The Advisory Board currently includes faculty members from each of the colleges or schools except the School of Education. An examination of the lists of faculty participating in the Mentoring Academy and the Learning Circles is equally broad, although the School of the Arts and the School of Education are less well represented.

Short-term Impact

- **Continued growth of SCULPT and SCULPT-sponsored programs:**
  - Initiated in Year 1 with 17 members, SCULPT has grown to 253 members (Spring 2022). In that time, 11 members have served as SCULPT Co-Chair, and 30-40 members have served on the Advisory Board, which now comprises 14 members.
  - 96 faculty members have completed the Mentoring Academy. This includes one third of the faculty who received HIELG, GREEN, or URSIG grants, as well as 14 faculty who have received external funding for inquiry-based learning/engaged learning projects on grants from the National Science Foundation.
  - Last year 18 faculty participated in Learning Circles; 2,094 students in their classes were impacted. This Spring, 76 faculty are participating in 7 Learning Circles on different topics (see https://www.uvu.edu/academicaffairs/admin-faculty/faculty_development/learningcircles.html).
  - In the October 2019 SHOWCASE, students gave 38 poster presentations, 7 readings, 4 dance performances, 2 visual arts presentation, and 2 technology & automotive demonstrations; 34 faculty members participated as judges. This year's SHOWCASE will be held April 5th and include oral presentations as well as poster presentations, visual arts presentations, readings, and performing arts, film, video, and other media presentations. Thousands of students are expected to attend.
- **Previous SCULPT Co-Chairs speak to the greatest successes of SCULPT:**
  - Joe Jensen – "The SHOWCASE has been very successful. Its format has evolved so that student involvement has increased. It's held in several places across campus – the science atrium, the dance studio, and the library. Instead of students just hearing or seeing presentations, they get involved, asking questions and engaging with other students."
  - Anton Tolman – "The Mentoring Academy. I think that is really making a lasting difference in the way the faculty who participate think about and work with students. Unlike, say, if they were just to take a two-hour workshop, this gives them a real chance to think about the problems of mentoring over time and with colleagues, and to apply it to their classes and students."
  - Jessie Hill – The Learning Circles "change the way people think and how they interact with students. And that has ongoing ripples going out." She points out that many faculty have worked hard to change their curriculum and to make departmental changes as well.
  - Olga Kopp – "Our website lists sources of funding, which are not located in one single place. We also have information for students on why they should do research and how they can get started. Normally, I have gathered this information by myself. I have spent a lot of time going to different departments gathering information about the faculty and which type of research they are doing and possible sources of funding. I think having something centralized helps students. I'm very passionate about getting students involved in research and internships.

- Anton Tolman – On the 2nd year anniversary of SCULPT, we requested a meeting with UVU President Matthew Holland. We went in there, and we had probably 30 faculty – the Advisory Board and other people. They came from all over campus. We met with the President and his Executive Committee. We all wore our SCULPT shirts. We explained what SCULPT is and talked about what we were doing, and he his jaw dropped, because he hadn't seen this kind of faculty group that's so successful before. And the fact that we had so many people and from all over campus (not just an isolated group), was amazing to him. So that was pretty fun.
- Olga Kopp – "When things come from faculty instead of coming from above, people are more invested and that's what we wanted! We wanted to make sure that this remains a grassroots organization so that all the faculty know that this comes from the faculty for the faculty and for the students."

Long-Term Impact

► Impact on Students

SCULPT focuses on faculty members in an effort to strengthen their impact on students. Students are at the center of the effort. The Mentoring Academy, Learning Circles, SHOWCASE, and other efforts all focus on enhancing evidence-based practices the lead to increased educational and career outcomes for students. Not only should these efforts assist in raising student persistence and completion rates, they will produce students with deeper understanding of their disciplines, greater capacity to address complex problems, more experience with collaboration, stronger credentials for graduate school and careers, and an increased potential to be successful in their careers.

► Institutional Climate for Engaged Learning

SCULPT leaders and members now fill significant positions and serve on committees where they have the ability to effect change, including: the current and previous President of the Faculty Senate; members of the Re-envisioning the Undergraduate Experience Committee (and its subcommittee on High-Impact Practices); 17 current department chairs, 6 assistant chairs, 3 Associate Deans, the Dean of the College of Science and the Dean of the School of Arts, the Vice President for Student Affairs, and the Associate Provost for Academic Affairs. All department chairs in the College of Science are members of SCULPT. They will have broad impact across the campus, from hiring, to RTP, to shaping institutional vision.

OBJECTIVE 1.4 Create mechanisms to track, evaluate, and report on the efficacy of student engagement on measures of student success.

Activity 1.4.2: Place engaged attribute markers on appropriate courses in the Course Catalog for courses being taught.

Activity 2.2.4: Create a repository of engaged learning activities so that advisors can better assist students and students will know what is available.

Activity 1.4.7: Determine to what extent participation in engagement impacts retention and graduation. Provide reports to the deans and chairs about engaged learning and its relationship to retention and graduation so that this information can be used in planning and budgeting.

Implementation

Repository of Engaged Learning Activities

In order to address Activities 1.4.2 and 2.2.4 above, and to establish a baseline for engagement at the university, a comprehensive study of existing efforts and curricular programming was conducted by Rasha Qudisat and Ala'a Alsarhan, both of whom hold Ph.Ds. in Educational Inquiry, Measurement and Evaluation from Brigham Young University. Rasha explains:

> "This [project] was challenging in the beginning because UVU did not have a definition for student engagement, even though the motto of UVU was 'engaged.' ENGAGE had recently become a theme of the university – a pillar. So we started working on the definition of engagement, which we basically came to defined as engagement with all of the High-Impact Practices (HIPs). They were very popular in other universities, but it was a fairly new concept at UVU to use this terminology."

Qudisat and Alsarhan reviewed the course catalog descriptions of over 3,500 courses looking for components of HIPs. They acquired lists of courses taught under the Center for Global/Intercultural Engagement (G/I) and the Center for Community Engagement (service-learning – SL). They worked to determine which courses offered internships, capstone projects, undergraduate research, and ePortfolios. They also looked for courses with significant time dedicated to collaborative projects, intensive writing, and first-year experiences. As shown in Table 9 below, of 3,563 courses, 507 were designated as courses that engaged students through HIPs. Notably, the most prominent types of HIPs were Service Learning (120 courses), Global/ Intercultural (117 courses), and Internships (104 courses). These are courses related to offices or centers to which significant institutional resources and efforts had been devoted.

The repository showed which types of HIPs were employed by which colleges or schools of the institution. For instance, the Woodbury School of Business focused primarily on service learning with some internships and global/intercultural experiences, while the College of Technology and Computing focused heavily on collaborative projects, internships, capstone projects, and service learning. (For the complete breakdown by College, see the *Repository of Engaged Learning Activities* dashboard in Appendix D.) University and college administrators could then look at the map of HIPs in their areas and determine where they might place more effort.

Table 9 – Repository of Engaged Learning Activities					
Summary of Courses					
Courses	Inactive Courses	Active Courses	Active Courses with 1 HIP	Active Courses with 2+ HIPs	Active Courses with no HIPs
3,563	563	3,000	422	85	2,493
HIPs by Category					
Study Abroad	Writing Intensive	Global / Intercultural	Capstone Project	Internship	Undergraduate Research
61	36	117	35	104	41
Common Intellectual	Learning Community	Service Learning	Collaborative Projects	First-Year Experience	
25	22	120	58	3	

Limitations faced in compiling the repository that reflected on its overall quality were that the course catalog descriptions were not always up-to-date and the descriptions may not have been accurate. Also, it was difficult to get agreement among faculty about the definition of particular HIPs. Furthermore, the catalog could not reflect what was actually happening in the classroom, especially from the student perspective. The repository did served as a snap-shot baseline for engagement and a foundation for the other assessment tools that were to be created. It did not, however, become a tool for advisors to use with students, nor was it updated in future years, because of its inherent limitations. It was planned that a repository for advisors would be created from the *In-Class Engagement Instrument* once it had been implemented across the institution (see below.)

Another use of the repository was to initiate work on Activity 1.4.7 (to determine the impact of engagement on retention and graduation). In conjunction with Institutional Research, the repository allowed the researchers to conduct comparative analysis of students who had taken courses with one or more HIPs against those who had not. Preliminary analysis was promising, and lead to the creation of the *Collective Impact of High-Impact Practices Tool* (see below).

In-class Engagement Instrument

What is it? The *In-class Engagement Instrument* is a student survey developed under this Title III program to measure the level and type of engagement at the course level. The survey produces robust data on current levels of engagement students experience in their classes, which can analyzed and reported. Courses can be designated as *high*, *medium* or *low* engagement.

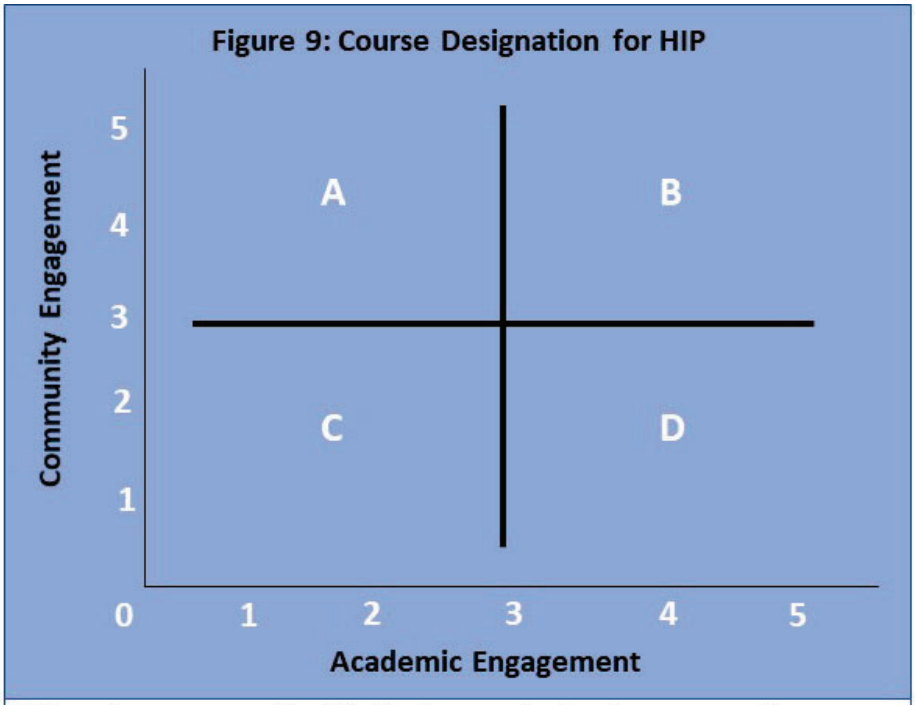
How it was developed? The In-Class Engagement Instrument was created to measure and evaluate academic engagement, specifically students' experiences in the classroom. In designing this assessment tool, Rasha Qudisat explains: "We looked closely at: 'What is in-class engagement?' 'What are the factors that affect student engagement?' I talked to the faculty. I talked to the leadership to gather ideas and possibilities of how to measure students' engagement." She also referenced the research of Hung, et al., 2006, to identify the main factors of engaged learning, and examined reliable and valid instruments from scholarly literature.

The survey instrument started with over 200 items and was piloted in the Woodbury School of Business and the School of the Arts courses and across all HIELG-funded courses. Feedback was collected from the faculty who had administered the survey and from the student

respondents. An Exploratory Factor Analysis (EFA) was used to eliminate from the survey any redundancies, badly worded questions, and highly correlated items. Information reflecting the student and the faculty teacher were also factored out. The instrument has now been refined to 45 questions that ask students for basic information about the activities and assignments of a course that have been deemed significant for academic and community engagement. For example, "Did a course require a presentation?" which represents the active collaborative learning factor; "Did the course involve input from a client or professional expert?" which represents the client interaction factor. Qudisat & White explain that: "The point was to ask those students who were taking a course if the intended design (how it was represented in the catalog or the syllabus) was what was experienced inside and outside of the classroom." (See the article by Qudisat & White, 2022, for a more complete explanation of the development process.) The development process was completed by the end of Year 4 of the project, and the instrument, along with any further development, institutionalized under the Officed of Engaged Curriculum.

When the In-class Engagement Survey was first administered to select HIPs courses, the results indicated that HIPs vary with their level of engaged learning on a scale of 1-5, which reflect their different purposes and implementation in the classrooms. Thus, a graph was utilized that plots the courses according to the average of the academic engagement scores of their enrolled students vs. the average of the students' community engagement score (Figure 9).

Figure 9: Course Designation for HIP



Where does a course fit within the four quadrants of engagement?
Quadrant A – high Community Engagement, low Academic Engagement
Quadrant B – high Community Engagement, high Academic Engagement
Quadrant C – low Community Engagement, low Academic Engagement
Quadrant D – low Community Engagement, high Academic Engagement

The model is designed to designate courses with their level and type of engagement on a two-dimensional continuum across the four quadrants of engagement and to locate each within the academic and community engagement definition.

What development has happened following Objective 1.4 institutionalization? To make the data produced by this instrument more usable and valuable to the UVU community, complementary software called the *In-Class Engagement Dashboard* was developed after this objective was institutionalized. The data produced by the survey are used to populate the dashboard, a graphic representation of the courses' engagement and thus a tool for analyzing the engagement level of courses across the curriculum. The dashboard aggregates engagement activities on the course level, not the section level. Administrators and faculty can access this dashboard to evaluate the engagement level of courses for which they hold responsibility. The In-Class Engagement Dashboard provides useful information to university administrators about the level and type of engagement of the courses on the university level, college level, department level, and course level. Selection-level information can be requested by individual faculty members. This tool can also provide information by students groups, such as gender, ethnicity, full-time/part-time, employment status, etc. (See screen shots of the In-Class Engagement Dashboard in Appendix D.)

How is the In-Class Engagement Dashboard useful to UVU?

It should be noted that while the features of the Dashboard, are fully operational, it will not provide all the information it was designed to until the In-class Engagement Instrument (survey) is administered to all students in all classes across campus. (It can now only display data gathered in pilot studies with select courses or programs.)

The Dashboard will being made available to administrators and faculty across the campus. It has been customized to present different levels of information according to the access level of the person using the instrument. For instance, deans will be able to see the level of engagement across their college or school, and department chairs for their departments. Faculty will be able to request engagement levels for their own courses. Others uses of the instrument include:

- The Dashboard indicates *why* a course is engaging or not engaging. It can help pinpoint problems so courses can be improved. The instrument can save time and money in course redesign.
- Administrators can see how courses are distributed around the university by engagement type, where there might be opportunity for collaboration or increased effort. They can review programs and courses to keep track of engaged learning and plan strategies for improvement.
- Faculty can enhance engagement activities within their courses. They can request assistance with course redesigns from the Office of Teaching and Learning.
- The Office of Engaged Learning/Engaged Curriculum can conduct periodic studies of the effect of engaged learning on students' success as part of the overall scope of OEL.
- This instrument will help UVU substantiate its claims that it is an engaged university. This impacts national accreditation of the institution and of individual programs. It will also be a significant tool in supporting UVU's Carnegie Classification as a Community Engaged Institution, which UVU will be required to renew again in 2025.

How does the In-Class Engagement Instrument differ from the NSSE? Both the In-class Engagement Instrument and the National Survey of Student Engagement (NSSE) are student surveys about engagement participation in college. The widely-used National Survey of

Student Engagement (NSSE) collects a broad range of information, including the students' participation in dozens of educationally purposeful activities. NSSE surveys students in their freshman year – what they think, what expectations they have, what kinds of engagement activities they have or intent to participate in, etc. Then it surveys that same cohort of students in their senior year about what their impressions are about what they received and what they did over the last four-plus years. Questions are about students' experiences in general and may be far-removed in time from when the experience actually occurred. This pre-/post-snap-shot method of assessment is does not facilitate course or institutional improvement that impacts the student taking the survey.

The In-Class Engagement Assessment, on the other hand, asks students specific questions about courses they are currently taking. It focuses on classes, and not on a broad range of activities. It provides pertinent, relevant information about how a course can be improved both during the current semester and the next time it is offered. Since the questions are about a specific, current course, they are far more granular and relevant to the student, and students should have sufficient knowledge to accurately answer the questions. In this way, assessment provides timely information that can be used by faculty and administrators to improve the education of present students. It gives a clearer understanding of the level and quality of engagement at the course-level.

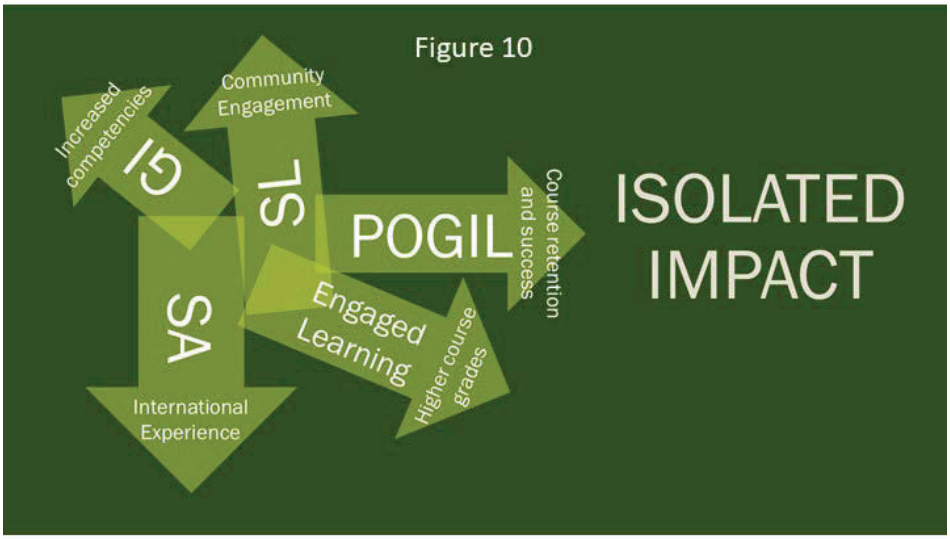
Collective Impact of High-Impact Practices Tool

What is it? An outgrowth of initial efforts to demonstrate the impact of one or more HIPs on student outcomes is a new tool called Collective Impact of HIPs, developed after Objective 1.4 had been institutionalized. This tool tracks student outcomes for those who participate in the High-Impact Practices that are under the Office of Engaged Learning (OEL). This includes the global/intercultural courses, service learning courses, research activities funded through OEL (including all the internal grants through the Title III), internship activities (with a focus on for credit internship), study abroad activities, and any activities related to the Capitol Reef Field Station. HIP courses administered by OEL have been chosen for this tool because they are known to be consistent in design and implementation and because OEL has influence over them. In the future, additional HIP courses and activities may be added. A database has been built which now consists of student information for the last four years, from Fall 2017 to the present, with all the students who participated in these HIPs at UVU by semester.

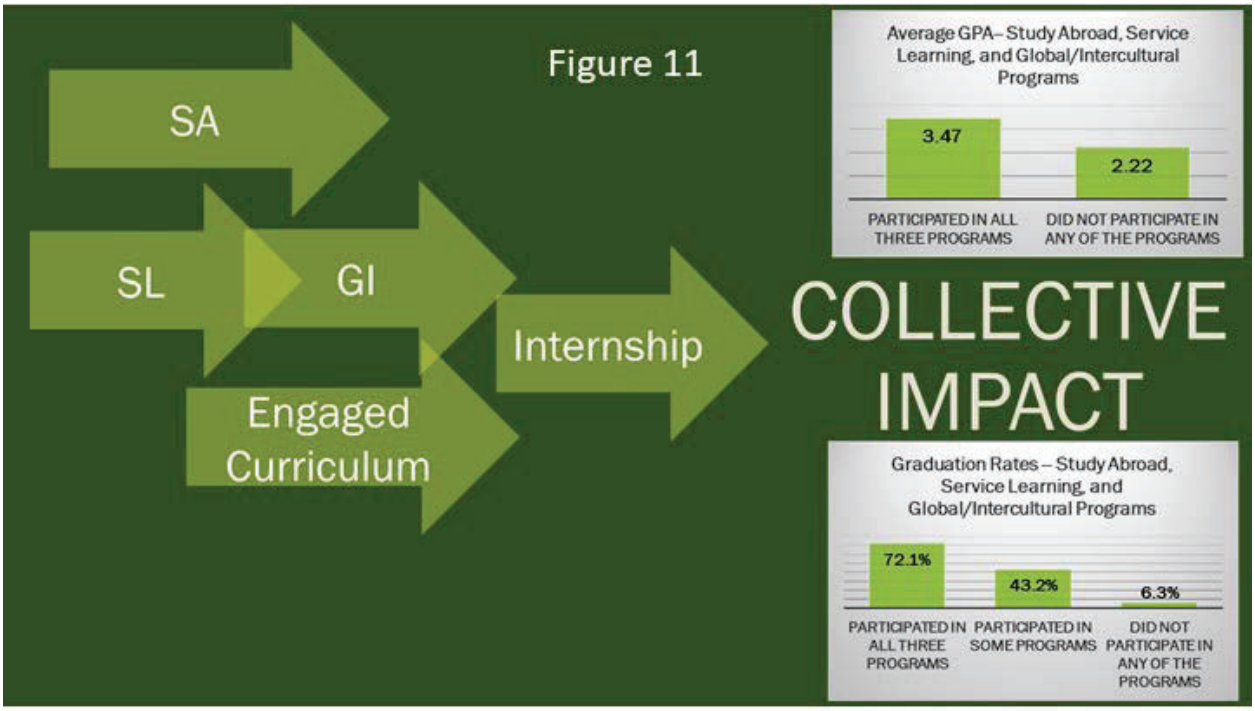
The Collective Impact of HIPs Dashboard is used to demonstrate whether HIP interventions have impacted students' persistence from semester-to-semester, their retention from fall-to-fall, and their GPA. Students who have participated in at least one HIP are compared with students who have not during the same semester to determine if there is a significance in the average persistence rate, retention rate, and GPA using the T-test. Furthermore, from the Collective Impact of HIPs Database, the impact of one, two, three, or more HIPs can be calculated for the above variables as well as the impact of specific HIPs, such as service learning or undergraduate research.

What is Collective Impact? In assessing academic outcomes for students who participate in HIPs, Qudisat & Alsarhan, like other HIPs researchers, focused on the impact of singular HIPs or engagement experiences. They gathered and analyzed data about Service Learning courses, about Global/Intercultural courses, Internships, and other HIPs organized under OEL. They had not considered how these HIPs work together. But they soon realized that the students at UVU, or any other university, don't take just one singular experience – they have multiple experiences. In

fall 2017, UVU had begun requiring that students take at least two HIPs, based on national research that two HIPs helped students to graduate, but did not focus on analyzing the collective impact of two or more HIPs. Moreover, the UVU researchers observed that each office or group of faculty was focused on their own efforts, but they were not talking or working together to promote common student outcomes (see Figure 10 on Isolated Impact).



In a presentation in Fall 2017 to UVU administrators, Qudisat encouraged offices to work together to promote student participation in HIPs, and to gather data on the benefits of doing so. She presented the graphic in Figure 11 on Collective Impact to illustrate her findings.



The small charts in Figure 11 show that: 1) the average GPA was 1.25 higher for students who had taken Study Abroad, Service Learning, and a Global/Intercultural course; and 2) the

graduation rate was 66% higher for those who participated in three HIPs compared to none (from 72.1% to 6.3%). In this cause, the results were partially confounded because taking a G/I course was a graduation requirement, which probably explains the drastic decrease in graduation rates for those who did not participate in any of these three engagement opportunities, but even compared to the institutional graduation rate in 2017 of 26%, we see a remarkable increase in graduation rate for those taking 3 HIPs.

How is the Collective Impact of HIPs tool useful to UVU? This tool shows the impact of single and multiple HIPs on student retention and persistence. It quantifies an answer to the pressing question, "Does student engagement in HIPs increase student outcomes for retention, persistence, and GPA?" Findings of the Collective Impact of HIPs tool can inform decision making about where to direct resources, how to structure academic programs, what to advise students about taking HIPs, etc. (See the discussion under Short-Term and Long-Term Impacts.)

Findings on Collective Impact of HIPs. In Fall 2020, Dr. Alsarhan conducted a collective impact evaluation for the Pillars of Engagement (HIPs) structured under the Office of Engaged Learning, namely Global and Intercultural, Internship, Service Learning, Study Abroad, Undergrad Research, and engagement activities conducted at the Capitol Reef Field Station, on students' success. He ran the analysis by students' demographics to assess the equity and accessibility to engaged learning opportunities. The tool shows that students enrolled in HIPs and activities funded through Title III (like the HIELG, GREEN, and URSIG grants) are most likely to persist, as shown in Table 10.

Table 10: Collective Impact Evaluation for the Pillars of Engagement
Structured under the Office of Engaged Learning
(Global and Intercultural, Internship, Service Learning, Study Abroad, & Undergrad Research)

Semester	Fall 2019 to Spring 2020		Spring 2020 to Fall 2020	
	All Students	Freshmen	All Students	Freshmen
HIP Participation	80.5%	75.0%	79.5%	63.3%
No HIP Participation	73.7%	69.0%	68.5%	57.6%
Evaluation conducted for Year 6 Title III Report by Dr. Alsarhan, Fall 2020				

Other significant findings on the collective impact of HIPs include the following:

- Results indicated that the number of OEL pillars in which a student participates is a significant predictor for students' persistence. While one HIP is great for improving student outcomes, two is even better, and three HIPs is a massive accelerator, especially if one of the three is service learning. Each additional OEL pillar participation increases the odds of persistence by 47%, and the critical value of OEL participation to persist to the next semester is four OEL pillars (Qudisat & White, 2022).
- Out of six possible 2-way interactions among the four HIPs studied, only two interactions proved to be significant predictors of students' persistence: service-learning with global/intercultural and service-learning with research. A combination of service-learning

and global/intercultural courses will increase the odds of persistence by 63% and a combination of service-learning with research courses by 95% (Qudisat & White, 2022).

- Service-learning has the most effect on students' graduation and academic performance.

Accomplishments in Assessment Instrument Development

Accomplishments with Title III Funding:

- The ***Repository of Engaged Learning Activities*** was compiled by Dr. Qudisat and Dr. Alsarhan from 1) examining the course catalog descriptions for components of HIPs; and 2) lists of HIP-related courses taught under the Office of Engaged Learning (OEL), including the Center for Global/ Intercultural Engagement (G/I) courses and the Center for Community Engagement (SL) courses.
- The data compiled in the Repository of Engaged Learning was shared with stakeholders at UVU, including deans, chairs, and other administrators.
- The characteristics of student engagement and definitions high-impact practices that were established for the creation of the repository are still in use and formed the basis for the In-class Engagement Survey questions.
- Data on the HIP-related courses taught under OEL, including G/I, SL, Internship, and writing-intensive courses and all research courses funded by Title III internal grants (HEILG, GREEN, and URSIG), eventually became the basis for the Collective Impact of HIPS tool. Data from these sources continue to be gathered.
- The ***In-class Engagement Instrument*** was piloted in project years 4 and 5 (Fall 2017 to Fall 2019). At the beginning of Fall 2017, the student survey was integrated into Canvas (UVU's Learning Management System) to facilitate delivery and administered to students in 140 courses in the School of Business and the School of the Arts.
- After each administration of the survey, Dr. Alsarhan has sent a report to the deans about the courses surveyed and their level of engagement. He has provided further information when requested.
- The School of Business used data from the In-class Engagement Instrument for their accreditation application.
- Two different presentations on assessment of High-Impact Practices (HIPs) were given in 2019 to the Utah System of Higher Education (USUE) High-Impact Practices Committee, on which Dr. Alsarhan served. Interest and feedback from other members was excellent.
- By the end of Year 4, Sep. 2018, the In-class Engagement Instrument, in conjunction with the comparative analysis of students who had taken courses with one or more HIPs against those who had not, had met the requirements of Objective 1.4 to create mechanisms to track, evaluate, and report on the efficacy of student engagement on measures of student success.

Accomplishments since Institutionalization:

- Objective 1.4 was institutionalized at the end of Project Year 4 (September 2018). Dr. Alsarhan's work on the project has been institutionalized within the Office of Engaged Learning. He is now an employee assigned to work on this ongoing project.
- In October 2018, Dr. Alsarhan presented the In-class Engagement Instrument to all of the deans and department chairs. The deans and other people at the higher levels have received reports and feedback about the level and type of engaged activities in their classes.
- The ***In-class Engagement Dashboard*** was created by Dr. Alsarhan using Tableau's Dashboard Builder and based on the survey data obtained from the 140 courses. This prototype dashboard is built from 4,601 voluntary student responses to the In-Class Engagement Survey, although there were 28,876 students (not unique) enrolled in the 140 courses that were served.
- In preparation for campus-wide administration, the PI initiated a media campaign in early 2020 to encourage faculty work with the program and to encourage student participation. The campaign included 6,000 brochures and digital posters were designed for the electronic bulletin boards around campus. The media campaign was postponed due to COVID-19.
- The In-class Engagement Instrument was to be administered campus-wide in Spring 2020. However, due to the pandemic, the decision was made to postpone the survey to Fall 2021 and then again to Spring 2023.
- To alleviate faculty concerns that administrators might use the tool to evaluate faculty, Dr. Alsarhan works to communicate the message that the engagement measure is tool to assess the level of engagement activities within courses – regardless of who is teaching the class. He is working with administrators to teach them to use the tool properly.
- The USHE is aware of the work UVU is doing in this respect. Dr. Alsarhan has been a member of the USHE HIPs group and gives updates to them. The group is interested in out what he has done. The other institutions want his help in this area and ask questions.
- During the 2019-2020 project year, Dr. Alsarhan worked on developing a companion tool, ***Collective Impact of HIPs Tool***. This tool provides information about the impact of HIPs on student persistence and retention. See Table 10 for data he prepared with this tool for the 2019-2020 Annual Performance Report.
- Rasha Qudisat and Frederick H. White have prepared an article entitled "Measurement and Evaluation of HIPs within a Centralized Model." The article is being included as a chapter of the 2022 book *Delivering on the Promise of High-Impact Practices,* AAC&U, June 2022. Jillian Kinzie, Associate Director of the National Survey of Student Engagement (NSSE), is one of the book's editors.

Plans for campus-wide implementation. Preparation is being made for the In-class Engagement survey to be administered to every student in every course across the university. (Individual students will take the survey for each of their courses.) There are about 3,500 courses at UVU, so this will be a huge administration. The 45-question survey will be given two-thirds of the way through the semester. Participation will be a required assignment in all classes. Faculty will not be involved in the administration of the survey, which will be delivered through Canvas.

The data from the survey will then be used to populate the In-class Engagement Dashboard. The "prototype" dashboard was built from 4,601 voluntary student responses, but the complete dashboard will require and utilize responses from all students (currently about 29,000 students when high-school concurrent enrollment students and graduate students are excluded) in all classes, which will make it a much more powerful tool. The dashboard will then be able to display and compare data from across the university. The compiled data will establish an institutional benchmark to measure future engagement by.

To prepare for the institution-wide administration of the survey and roll-out of the completed dashboard, servers have been purchased. Cheryl Hanewicz, former Interim Associate Provost for Engaged Learning, was actively involved in these preparations and took forward funding requests through PBA. Dedicated servers are required because the project is data intensive, and customizing access to the Dashboard will require considerable computing power.

The target is to establish access to the Dashboard to every dean, department chair, and faculty member, depending on their level of responsibility. Then, deans and chairs, chairs and faculty will use it together to strengthen student engagement across the institution. When faculty have access to the tool and can start seeing how different elements of their classes are impacting students, and when they can see that what they are doing in the classroom is really making a difference, it will become very dynamic.

How has COVIID-19 impacted the rollout of the assessment instruments? It was planned that the In-class Engagement survey would be administered for the first time to every student in every course across the university in Spring 2020. Due to the impact of the COVID 19 pandemic, this campus-wide administration has been delayed until Spring 2023. This has meant a delay in populating the dashboard with campus-wide data and a loss of momentum that was built in 2019 in preparation for the Spring 2020 rollout. To again build momentum for the Spring 2023 rollout, deans and chairs have been briefed on the rollout.

Institutionalization

As mentioned previously, Objective 1.4 was institutionalized at the end of Project Year 4 (Fall 2018) by permanently funding Dr. Alsarhan as the Director of Engaged Curriculum (now Assessment and Analytics), under OEL, to continue his work the assessment of HIPs within the UVU curriculum. In addition, UVU is showing its commitment to the institution-wide roll out of the In-Class Engagement Instrument in Spring 2023 by the purchase of servers dedicated to this project. Human resources are also being committed to the project in the form of student time each semester to take the survey, faculty time to facilitate the survey and learn how to use it to improve their classes, and the administrative time to train to use the dashboard. In an interview for this evaluation, Dr. Cheryl Hanewicz, Dean of the College of Health and Public Service, said: "I'm certainly going to be using it in my college."

Short-Term Impacts

Because We Can Measure It, We Can Manage It. A stated institutional problem in UVU's Title III proposal was: "Although UVU has implemented engaged learning widely, the institution has been unable to assess the effectiveness of engaged learning at meeting institutional objectives." Contributing problems cited were:

- UVU had developed no specific engagement indicators.

- ❖ UVU was not able to track how much and what kinds of engagement activities were being conducted.
- ❖ UVU was unable to track student participation – as a whole, within colleges or departments, or individually – were participating in engagement-focused classes and activities.
- ❖ UVU was unable to show the relationship between participation in engagement and standard measures of student success.

As has been demonstrated in the discussion above, these problems have been mitigated by the completion of Objective 1.4. Both the In-class Engagement Instrument and the Collective Impact of HIPs tool have had a large impact on the academic community. Dr. Qudisat said: "We now have a new approach on how to measure students' engagement, and because we can measure it, we can manage it. I read somewhere and always believed: 'You cannot manage what you cannot measure.'"

How Assessment of the Value of HIPs at UVU Came at a Critical Juncture. By the 4th year of this Title III project, the assessment of HIPs at UVU was gaining momentum, as was the implementation of HIPs in colleges and universities nation-wide. Then, in November of 2017, the Utah Board of Higher Education, the governing body for USHE, prioritized high-impact practices and set a goal that institutions ensure 100% of their students participate in at least two HIPs, one in the first 30 credits and the second in or within major, and report back to the Board on student access to HIPs. The USHE High-Impact Practices Committee was established to address this initiative through regular meetings of its constituent members. (*How is USHE working to help increase graduation rates?* April 23, 2019). UVU administrators initiated the USHE policy, but the two required HIPs were only a minimum. National research had shown HIPs to be effective in retention and graduation, but would they work at UVU with UVU students?

Dr. Anton Tolman explains that by the time of the USHE initiative, UVU and already been exposed to HIPs and to discussions about them on our own campus through the work of the Title III project. UVU had Dr. Qudisat's work on trying to define what an HIP class is and how the institution knows which of its classes are HIP classes. She had compiled and reported on the Repository of Engaged Learning Practices. Dr. Alsarhan was beginning the pilot of the In-Class Engagement Instrument. Dr. Fredrick White recalls: "Once it had been decided that UVU would focus on the specific HIPs operating under the OEL umbrella, then Drs. Qudisat and Alsarhan decided to look at some of the leading high-impact practice data in scholarly articles and re-run the experiments with our own data, because it's one thing to say, 'Oh, students at Harvard or students at some liberal arts school on the East Coast do HIPs,' but what about UVU students?"

The assessment of HIPs already underway at UVU showed how HIPs apply to UVU. It showed that HIPS could actually have an impact on UVU – a comprehensive, two-tiered, open-admissions university. It provided promising evidence that UVU's low retention and graduation rates could be raised by student participation in well-designed HIPs. It showed how important HIPs could be and that they were worth administrative backing – not just two HIPs, but many HIPs. Anton Tolman recalls: "And so then administration said, OK, well then let's build on what we've already got. And then let's increase our efforts in HIPs. UVU was ahead of most other institutions because of the work on identification and assessment of HIPs that had been done through the Title III grant." The efforts of Dr. Qudisat and Alsarhan under this Title III project made adoption of the USHE HIP priority more meaningful and impactful to UVU.

Demonstrated the Value of Academic Service Learning. Dr. Frederick White reported that in the early work on collective impact, study abroad seemed like the magic elixir – if students participated in study abroad, they were very likely to persist and graduate. "But I immediately said, that's a red herring because most kids who can afford to go on a study abroad are the ones who do are going to be more financially steady [and thus more likely to graduate]. . . But all of the data, both our own data and national data, points to the fact that if a student does an academic service learning project, completion and retention rates go sky high. This is very important, I think, especially for UVU. We can't send every student on study abroad, but we could get every student to do an academic service learning project.

Long-Term Impacts

Institutional Management of Engagement. Asked about the impact of the Title III project on UVU, Rasha Qudisat responded: "Because we have developed this measurement tool, it's a big contribution to engagement management at a university, and even to engagement creation, development, and improvement. This will give also the stakeholders and leadership information about how they're doing and about the gaps in the engagement system. The evaluation approach that we created, we can use it as early warning system of student engagement problems within any course or any department. It allows them to take a step back review, revise, and improve. So that by itself is an early warning about if there is something wrong in the course design or implementation. Even in a particular demographic group, if they are facing some difficulties or challenges being engaged in the classroom, this tool, or this approach will give us a red flag that there's something here you need to pay attention to."

In response to a question about the impact of the Title III project, Dr. White asserted: "Rasha's data provided us with really important strategic information about how UVU can utilize high-impact practices. Not only how we could change the classroom dynamic, but literally how we could change the university curriculum in positive ways so that we could get students to have three high-impact practices, experiences, or pillar experiences, with one of them being academic service learning."

A Common Sense Tool for Faculty to Increase Engagement in the Classroom. Cheryl Hanewicz, former AVP for Engaged Learning and current Dean of CHPS said in an interview: "One of the things I love about this In-Class Engagement analytics tool is that it breaks engagement down to very common sense types of questions, and I think those are going to really resonate with faculty. And for those that maybe don't know how to be more engaged, this will help them because it's very simple: "Do the students do any presentations in class?" for example. And if they don't, then the faculty member might say, "That's something I can easily add to what I'm doing in my class." So yeah, you hear that a lot that faculty don't do more with engagement because they don't have time. Faculty are very busy. They don't have time to read, or to be redoing their class. So breaking this down into those discrete steps of what is engagement, I think, will help them. I'm certainly going to be using it in my college. And you know, not every class has to have this. We're not expecting to have all these things in a class. But what would apply to a class? What would be appropriate? Faculty can choose for themselves.

On the Forefront in Assessing Engagement at Institutions of Higher Education. In October 2021, the Office of Engaged Learning (OEL) and the Office of Teaching & Learning (OTL) jointly invited Jillian Kinzie, Director of the National Survey of Student Engagement

(NSSE), to visit and speak at UVU. Wendy Athens, Director of OTL reported that: "Dr. Kinzie mentioned that in her speech that UVU is ahead of other institutions in assessing and measuring high-impact practices. And to hear that from the Director of NSSE – because they are the main player in this area now among the all the institutions – to hear that from her was a good news." Dr. Kinzie also mentioned that a book that will be published in March for AAC&U (American Association of Colleges & Universities), will include a main chapter by Rasha Qudisat, former Title III Project Coordinator and Frederick White, former AVP for Engaged Learning.

Similarly, Dr. Alsarhan reports that in October, he attended a virtual conference about high-impact practices and assessment called the AAC&U Institute on General Education and Assessment that was hosted by IUPUI (Indiana University–Purdue University, Indianapolis). "There were about 10,000 attendees from all over the world talking about the assessment of high-impact practices. This is the main track of that conference. On the first day, I was in a meeting with the directors of HIPs programs, and Dr. Kinzie from NSSE again mentioned our work. We were asked to present next year about the results of the In-class Engagement Assessment after it has been administered campus wide. So I think we are in a good place where all of the main players in this area (nationally) are aware of what we are doing and how important and significant the work is."

OBJECTIVE 1.5 Strengthen the institutional capacity to sustain long-term student engaged learning and scholarly activities by providing training and support to faculty in student-engaged, external grant writing activities.

Activity 1.5.1 Increase current capacity to support faculty and administration grant writing activities tied to specific colleges, including grant strategies for undergraduate research and student engagement, workshops and individual coaching, long-term funding strategies, and recruiting pre-submission reviewers.

Performance Indicator 1.5 Increase external funding to support student learning and scholarly activities from the current external funding average of $12MM/year to $18MM/year by 2018.

Activity 1.5.2 Create an online grants tutorial on that includes elements of the existing Summer Faculty Grant Writing Workshop and other resources to reach additional faculty and serve as a reference resource.

Implementation

Title III funding augmented efforts of the Office of Sponsored Programs (OSP) to provide training and support to faculty and staff in grant and contract development with an emphasis on external funding that supports student engagement. Many efforts were already in place to provide this training and support, but Title III funding assisted by supplementing key staff positions (an administrative assistant and a professional grant writer), by increasing funding for training activities, and by providing faculty incentives to participate in the demanding activity of grant writing. Activities for this objective were conducted through years 1-6 of the project by which time, key elements were institutionalized, and the objective considered completed. The OSP activities that addressed this objective over the 6-year period are summarized below.

Faculty Training

Grant Training Sessions for College and Departments. The OSP Program Director of Proposal Development (first Cary Boone-Jones and second Dr. Ethan Sproat) conducted focused grant seeking, grant preparation sessions for faculty groups within the colleges and departments of the university. These were generally in the format of grant seeking discussions, training workshops, or round tables conducted for departments, colleges and schools, or specific faculty interest groups. *Lunch was provided with Title III funds.* Many participants were actively involved in seek suitable funding programs and writing proposals.

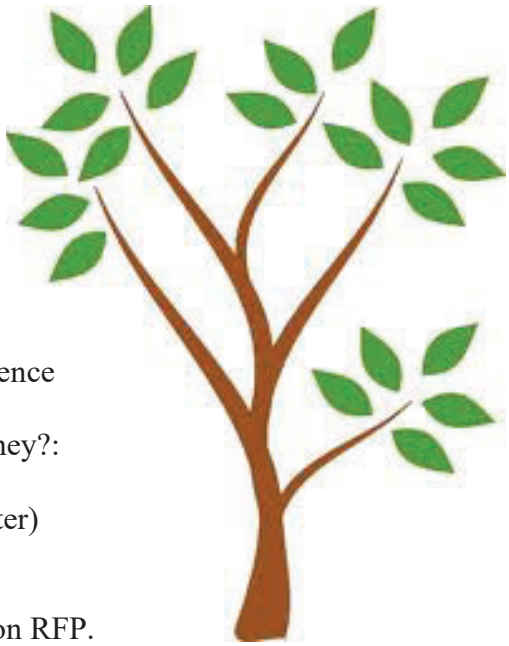
Summer Grant Writing Seminar. A 4-day Grant Writing Seminar was held each summer for UVU faculty and staff with a strong interest in grant writing. The Program Director of Proposal Development organized the seminar and recruited participants far in advance. New faculty were specifically targeted as well as individuals and groups who were currently active in grant seeking and would benefit from training. A general announcement went out to the faculty community as well. Applicants were asked to submit a short summary of their projects. Those who wished to receive a stipend for participation also signed a letter of commitment to submit a proposal in advance of receiving the stipend. *This stipend, typically $2,250, was funded by Title III, as was the work of the professional grant writer.*

The training was conducted by the OSP staff and the professional grant writer, as well as representatives of various offices on campus, including, the Library, Institutional Research,

Figure 12: Faculty Summer Proposal Writing Workshop

Day 1

Grant Administration and Grant Fraud (OSP Staff)
Ethics and Research Policy (OSP Staff)
Literature Review (UVU Research Librarians)
Introduction to the RFP and the OSP Proposal Development Process (OSP Staff)
Funding search workshop (OSP Staff)
Assignment #1: Locate at least one potential funding source for your research or project.



Day 2

Examples of UVU Grants that are Making a Difference (OSP Director)
Why Should Organizations Want to Give You Money?: The Logic Model (OSP Director)
Introduction to Grant Proposal Writing (Grant Writer)
Persuasive Grant Proposal Writing (Grant Writer)
Participant work time, in groups and individually
Assignment #2: One-page project summary based on RFP.

Day 3

Foundation Proposals (OSP Staff)
Sections of a Major Proposal
- Need/Purpose for the Project/Research (Grant Writer)
- Goals, Objectives and Activities (OSP Director)
- Plan of Operation, Methodology, and Management Plan (Grant Writer)
- Evaluation (OSP Director or Grant Writer)

Participant work time, in groups and individually
Assignment #3: Develop project goals (or research hypothesis), objectives and activities.

Day 4

Budget and Budget Narrative (OSP Staff)
Participant work time, in groups and individually
Supporting Documents: Abstract, Project Summary, Letters of Support (Grant Writer)
Overview of the Post-Award and Financial Grant Management and Cost Sharing (OSP Staff)
Post Award Accounting and Expenditure of Funds (Business Office Accountant for Grants)
Institutional Research (Associate Director of IR)
Proposal Review Panel (guest panelists – faculty at UVU who have served on review panels)
Technology Commercialization (Director of Technology Commercialization)
Assignment #4: Create a plan of work for the remainder of the summer

Finance and Business Services, and Technology Commercialization, along with a panel of faculty who have served on grant review boards. A typical program agenda is included in Figure 11). Participants submitted a summary of their project ahead of time, completed daily assignments, shared their work and collaborated with others during the seminar, continued to work with the Program Director of Proposal Development and the grant writer after the seminar, and submitted a substantial proposal to a funding organization. Over the 6-year period of the project, 86 faculty participated in the Summer Seminar. In Year 6, the seminar was revised and conducted virtually due to the COVID-19 pandemic. Of the faculty who have participated, about 90% have submitted at least one proposal within one year of participation. Some have continued to be active in grant proposal writing, and others are just getting started.

Individual Coaching and Mentoring. All of the OSP staff who work in Pre-Award areas – the Program Director of Sponsored Research, the Program Director of Proposal Development, and the Program Director of Contracts and Foundations – train UVU faculty and staff in grant preparation while they assist with proposal preparation and submission. In addition, the professional grant writer augments their efforts by working with faculty and staff to provide this personalized coaching and mentoring. *The grant writer's efforts were largely funded through the Title III award* until the position was institutionalized, and supplemented with Title III funds for additional projects later. Due to the nature of grant writing, faculty frequently submit a proposal several times to a sponsoring agency before it receives funding, so the coaching and mentoring may take place over a period of several years.

Guest Speakers, Workshops, and Meetings. Faculty had additional training and support opportunities through guest speakers, workshop presenters, and conferences on the UVU campus, funded by the Title III award. These include:

- In May 2015 and March 2016, guest presenter Cedrick Williams, a former NSF and NIH Program Officer came to UVU to deliver grant proposal-writing workshops for faculty. He also held consulting interviews with faculty currently involved in proposal development. About 50 faculty participated in these workshops.
- In 2017, OSP convened a panel of UVU faculty who had recently received federal grant awards to speak about the rewards and challenges of grant writing from a faculty perspective. The question and answer period generated many questions from participants.
- In 2018, OSP hosted training on "How to Work with Federal Grant Officers." The presenter was an NSF program officer, assisted by several other program officers.
- In May 2019, OSP hosted a Utah Grant Professionals Association (UGPA) meeting entitled "Evaluations and Outcomes Measures for Grant Writers." Fifty people attended including faculty and staff from across the UVU campus.

Faculty Support

Faculty Grant Writing Clusters. OSP developed and maintained several grant writing clusters annually, from three in early years to six in later years, depending on the interests of faculty. These groups were organized, received training, and were provided ongoing oversight and assistance from the OSP staff. Groups worked on planning projects, seeking external funding, proposal preparation, IRB approval, and submission. Groups frequently collaborated with appropriate members of the community including public schools, federal agencies, other universities and other researchers. The OSP Director of Proposal Development helped organize and train groups. As groups neared submission, the contractual grant writer assisted many groups

to prepare a competitive proposal. The names of groups appear below. Some groups received Title III funding for travel to collaborate or investigate; most received funding for working-group lunches. All groups submitted at least one proposal to a federal agency or a foundation and some groups submitted multiple proposals to varying sources or resubmitted to the same funding program in subsequent years. At least half of these groups received funding from a major federal program and most others received some funding over time.

- Environmental Studies Group
- Utah Lake Research Group
- STEM Initiatives Group
- Utah PREP / UVU PREP Group
- Science/Technology Cluster
- Interaction Design Cluster
- Native American Initiative Cluster
- Capitol Reef Field Station Research Cluster
- NSF INCLUDES Alliance Group
- NSF Major Research Instrumentation Group
- NSF Scholarships in STEM Group
- NSF Noyce Teacher Scholarships Group
- NSF Research Experiences for Undergraduates Group
- Melisa Nellesen Center for Autism Group

Faculty Group Trips to Washington, D.C. In Years 1-5 of the project, groups of 7-11 faculty grant writers traveled to Washington, D.C., accompanied by the OSP Director of Proposal Development and the Senior Director of Sponsored Programs. They meet with program officers for federal programs, coordinators for large non-profit organizations, and colleagues at universities in the beltway who do similar research. To prepare for the trip, the Director of Proposal Development would announce the opportunity campus-wide, and then conducted an application and selection process early in the spring semester. Faculty would complete an application explaining the project, what they had accomplished to date, who they intended to meet with in the D.C. area, and what they hoped to accomplish. Selected participants then planned their objectives for the trip and set appointments for those they planned to meet with. The Director of Proposal Development would then met with each faculty member individually to plan strategies, and assist them in preparing brief summaries to explain their projects.

Title III funding supported travel, lodging, and per diem for this annual trip. Those who lead the trip and participated in it found the activity to be very productive at getting specific help, ideas, and direction for their grant projects. One faculty member said it helped her "gain a grant-seeking, grant-development mindset." Another indicated that: "Going to D.C. helped me build a vocabulary for having these sorts of conversations and seeking external of funding. I have been talking to program officers and becoming more confident in pursing funding more aggressively." Another faculty member who attended and was a recipient of an NSF award became very productive in his department for grant conversations. He reports that the as Chairman of the Rank, Tenure, and Promotion committee in his department, having gone through this D.C. training augmented his role as a mentor for junior faculty who are pursing grant projects. Most faculty members submitted a proposal within a year of participating, and about 50% received funding.

This activity was planned but cancelled in Year 5 (spring 2020) due to COVID-19. However, plans to network with potential funders did continued by phone, ZOOM, and Teams. Faculty prepared 1-2 page summaries of their projects to share with potential funders. All of the planned faculty participants did have conversations with at least one program officer or grants coordinator. These conversations were productive in shaping the grant-writing activities that followed. Again in 2021, faculty were assisted in making virtual contact with program officers.

Grant-Preparation and Grant-Award-Management Resources on Online. OSP oversaw the creation of a website during the project period at https://www.uvu.edu/osp/. The website provides resources for grant writing and grant-award management. As part of the website, *The Grant Life Process: An Online Manual for Grant Preparation* was completed in Year 5. A series of Online Training Modules were also developed to help new faculty and staff learn about grant writing through OSP, find funding sources, and initiate proposal writing. This online course was completed in Year 4 of the project and used in the Summer Grant Writing Seminars. In addition, other grant-preparation and grant-award-management resources have been created or gathered and made available on the website. Title III funded the contractual grant writer's efforts in co-writing the manual and preparing website materials.

Operational Support

Administrative Support. With Title III funds, a full-time Administrative Assistant was hired to provide support to OSP staff and activities. This position has been invaluable in organizing the work of the office and freeing more time for OSP staff to work directly with faculty. Funding for this position continued over the first three years of the project.

Contractual Grant Writer. During project years 1-4, a contractual, professional grant writer was hired to facilitate the grant writing efforts of faculty and staff, particularly in relation to student engagement activities. The grant writer served as both the principal writer of grants and as editor and coach to other writers. She has taught much of the Summer Grant Writing Seminar and prepared resource materials. During the 4-year period, the grant writer's efforts led to 80 proposals being submitted, of which 32 were funded. Funded awards totaled $34.9MM (one multi-institutional award for $24.5MM and all others totaling $10.4MM). The contractual grant writer position was institutionalized in July 2018, though some additional funds from Title III have paid for projects beyond the institutionalized salary. The efforts of the contractual grant writer have been focused primarily on grants that fund student engagement, either directly or indirectly.

Staff Training Conferences. During the grant award period, the Office of Sponsored Programs became responsible for the post-award aspect of sponsored programs (previously the responsibility of another department). This service is critical to negotiating, facilitating, and maintaining government grants and contracts for the University, and for training, mentoring, and assisting new grant awardees in successfully meeting the requirements of their grants. While these staff positions were not funded by the Title III project, its funding did help provide resources for the new post-award staff to be trained quickly in complex financial management issues.

Institutionalization

While Title III funding continued through Year 6, Objective 1.5 was institutionalized gradually over the course of the project as follows:

- The OSP Administrative Assistant was permanently funded in Year 3.
- The contractual grant writer was permanently funded in Year 4.
- The annual trip to Washington, D.C. for selected faculty has been funded on an annual basis, except during COVID, and is expected to continue.
- The faculty training and support activities will continue, supported by OSP and some supplemental institutional funds; this includes the Summer Grant Writing Seminar, individual coaching and mentoring, focused grant seeking and preparation sessions.

Short-term Impacts

A stated institutional problem in UVU's Title III proposal was that "while UVU has invested heavily in student engagement, funding to make UVU's goal of engagement for all students a meaningful reality is insufficient for the size of its student population." It recognized that increased funding through grants could directly support many engagement activities as well as provide increased indirect funds to the institution. The proposal also acknowledged that, according to the 2010 Accreditation Report, "many faculty do not have experience in requesting external funding to support their scholarly and student engagement activities."

The Senior Director of Sponsored Programs, Curtis Pendleton, says Title III funding has made a huge difference over the grant period because it has enabled OSP to get more faculty involved. Title III strengthened OSP's staffing and capacity to train and assist faculty. Funding provided resources and incentives to facilitate broader participation. Since faculty do not generally receive compensation for their grant preparation activities, and often little to no compensation for conducting grant projects, the seemingly small incentives for faculty participation were significant. For instance, the stipends for participation in the Summer Grant Writing Seminar encouraged more faculty to attend and complete the seminar and to actually submit a proposal (in the months that followed). Luncheons served at grant seeking sessions for faculty groups in colleges and departments encouraged faculty come and get involved. The annual trip to Washington DC has been a huge incentive for faculty to develop a clear presentation about their project ideas and to open a productive dialog with grant funders. The Director of Proposal Development, Ethan Sproat, says the experience gives faculty a grant-seeking, grant-developing mindset that influences their work long into the future.

Mr. Pendleton reports that grants submitted by faculty to support student engagement are increasing, due in large part to OSP activities funded by Title III. Almost without exception, grants written by faculty involve student engagement. Although these faculty-led grants related to engaged learning are often for smaller amounts of funding than other institutional grants, they are very effective at involving students. Last year, 64% of new grant awards received involved student engagement, and over 50% were clearly for HIP projects, such as capstone projects, undergraduate research, service learning, mentoring, and collaborative, often interdisciplinary, projects. Some have developed out of the internally-funded HEILG, GREEN, or URSIG grants, and other UVU supported grants.

Grants awarded from external funding sources are of high quality because of the very competitive nature of grant competitions. Funding rates for the National Science Foundation, for instance, are about 20%. The grant evaluation and resubmission process makes funded programs stronger than they would have been. Awarded projects are innovative, well-designed, and based on current scholarly literature and best-practices; they have clear goals and objectives, strong management and evaluation plans, and a strong potential to advance knowledge or serve as models to other programs. Student participation in such programs can be stepping-stones to career jobs or graduate school programs. Thus, Title III funds have strengthen the institutional capacity to sustain long-term student engaged learning and scholarly activities that directly impact students.

Figure 14 provides a Sample of External Grant Awards that Support Engaged Learning, 2019 – 2021, and indicates the type of student engagement they support. These projects come from colleges and schools across campus.

Figure 13: Sample of External Grant Awards that Support Engaged Learning, 2019 - 2021

► **College of Engineering and Technology**

- National Science Foundation. RUI: Non-Orthogonal Multiple Access Pricing for Wireless Multimedia Communication, *student research*.
- Utah Film Commission. Females Empowered by Movie Making Experiences (FEMME), *women student film-making experiences.*
- ACI Concrete Research Council & UDOT. Long-Term Performance of Concrete for Structures at the Salt Lake City Airport parking structure, *student research*.
- Rocky Mountain Power Foundation. Industrial Robotics equipment, *student projects & USA Skills competitions*
- Utah System of Higher Education. Automated Drone-based AI Training for Online Monitoring and Reliability Prediction of Wind Turbine Blades, *student research.*
- National Science Foundation, Scholarships in STEM. For students in Computing and Electrical Engineering, *scholarships, capstone projects, internships, collaborative projects.*
- Utah Department of Transportation (UDOT). Long-Term Performance of Low Permeable Concrete for Structures, *student research & field experience.*
- Rocky Mountain Power Foundation. A Mixed Reality Future: Capstone Project for Upper-level Web Design and Development degree students*;* Virtual Reality in the Classroom. *Capstone projects.*

► **College of Humanities and Social Sciences**

- National Science Foundation. Enhancing Internships with Professional Ethics Training, with Florida Polytechnic University, *student internships.*
- National Endowment for the Humanities. Digital Modeling of Western State Constitutional Conventions by Undergraduates, *student participation and leadership.*
- The Teagle Foundation. Civic Approaches to Teaching About Religious Diversity in General Education award, *service learning.*
- International Writing Center Association. Experiences of Leaders of Color in Writing Center, *peer tutors and student researchers.*

► **College of Science**

- National Institutes of Health. Determining role of Sox 10 in feather color variation in domestic rock pigeon, *student research.*
- Western North American Naturalist (WNAN). Impact of Climate Change on Western North American Ecosystems Symposium, *student participation and presentation.*
- Utah Department of Natural Resources. Drone-based Population Assessment & Genetic Characterization for Threatened Welsh's Milkweed, *student research.*

- Utah Native Plant Society. The Population History, Conservation Genetics and Ecological Niche Modeling of Pediomelum pariense, *field experience.*
- National Science Foundation, IUSE-GEOPaths. Undergraduate Preparation through Multidisciplinary Service Learning at Utah Lake, *student service learning & research*
- NASA Space Telescope Science Institute. Distances to Galaxies using Surface Brightness Fluctuations, *student researchers.*
- US Fish and Wildlife Service. Evaluating Multiple Threats to Dwarf Bear Poppy Population Persistence, *student field work*.
- US Department of Agriculture Epidemiology of Barley Yellow Dwarf viruses PAS and PAV, *student research*.
- National Science Foundation, Robert Noyce Teacher Scholarship Program. For Students in Math & Science Education, *hands-on training, conference participation.*
- Utah Department of Natural Resources. Algae Harvesting Boat to Prevent or Mitigate Harmful Blooms on Utah Lake and beyond, *student research & field work.*
- Bureau of Land Management. Curating and Identifying BLM plants, *field work & museum experience.*

► **Woodbury School of Business**

- Utah Department of Transportation. UVU MBA program, *capstone projects.*

► **School of Education**

- Utah STEM Action Center. Empowering Inventors with Micro:bits, *student teachers*
- US Department of Education – Transition Programs for Students with Intellectual Disabilities into Higher Education. Nellesen Center for Autism, *peer mentors.*
- State Farm. Read-A-Difference, *student assistants in elementary education.*
- Art Works for Kids. Arts Engage Professional Development, *student assistants.*
- Micron and Facebook. Inspiring K-12 Students to Discover Science and Engineering Education (for SEEdPODS to transport science lesson plans and materials to classrooms). *pre-service student lesson plan creation & demonstration*

► **College of Health and Public Service**

- Department of Homeland Security (FEMA). FY 2020 State Fire Training Systems Grant Program, *student training.*
- Dermatology Physician Assistant Foundation (DPAF). Identify and refer clients at risk for skin cancer, *student training and service learning.*
- Federal Emergency Management Agency (FEMA). Utah Fire & Rescue Academy Command Training Centers, *first responder training*.
- Church of Jesus Christ of Latter-day Saints Foundation. UVU Dental Hygiene, Dental Caries Prevention Program, *student service learning & training.*
- Utah Commission on Criminal and Juvenile Justice. Purchasing a Fourier Transform Infrared Microscope (FTIR) for Forensic Science, *student training and research.*
- Utah State Legislature. Intermountain Intelligence, Industry and Security Consortium, with UVU's Center for National Security Studies, *student training and internships.*

Long-Term Impacts

The Title III investment in OSP for funding for training and support has strengthened OPS services already provided, including considerable time meeting personally with faculty about their projects and providing incentives for participation. Through these efforts, more faculty are participating in grant preparation and submission. Mr. Pendleton explains that these efforts do not immediately mean more money, but they will. It takes time for a faculty member to participate in training, find the right grant opportunity, prepare a proposal, submit at the appointed deadline, wait for review, and, if declined, to get reviewer comments, re-resubmit at the next deadline, and wait for the review and award process before getting funded. This may take months for foundations and two or three years for federal programs. But as faculty become more experienced in grantsmanship and the institutional culture shifts to support more student engagement through grants, UVU will see the benefit of these investments.

Since the receipt of the Title III award, grant acquisitions have seen a steady increase. In 2014, annual institutional revenue from external grants was $14,483,048. Last year (2020), institutional revenue from grants was $21,647,100, a 49.5% increase over the six year period of the award. Not only is this amount higher than targeted, it is a strong indicator that the programs and services that were implemented because of the Title III project have been successful, and are continuing to make a substantial difference in bringing additional resources into UVU. In aggregate, grant funding makes a substantial contribution to the overall institution far outweighing the cost of operation. Last year, OSP's operating costs were $750,216. Compared to the revenue generated from grants in the same year, this indicates that the institutional return on investment for the OSP is 2,885%. Some of the contributions from external grants last year included: student scholarships from grants: $1,094,165 (164 scholarships); student employment wages from grants: $241,926 (158 jobs); and faculty and staff employment from grants: $7,185,085 (551 jobs effected).

PART III: EVALUATION OF AREA 2 OBJECTIVES

Area 2 Goal: Increase student completion by strengthening academic advising and improving course scheduling.

OBJECTIVE 2.1 Use the PSI advising model to assist students to prepare a graduation plan (utilizing Wolverine Track), improve their academic outcomes, and take advantage of engagement opportunities.

Activity 2.1.1 Enhance the existing advisor training program by:

a. Creating and integrating a module on relationship building

b. Enhancing training on Wolverine Track, Stoplight, and the Advisor Dashboard to emphasize advising that integrates all appropriate tools.

Activity 2.1.2 Enhance the existing advisor training program by:

a. Creating and integrating a module on the value of planning engagement activities into student graduation plans and the use of the new engagement dashboard;

b. Creating and integrating a module on the new noncognitive assessment tool and BCSSE (Beginning College Student Survey of Engagement) into advising.

Activity 2.1.3 Administer the non-cognitive assessment and the BCSSE to all incoming students at freshman orientation.

Activity 2.1.4 Place a registration hold on each student's record requiring them to meet with their academic advisor once a year. Advising sessions will accomplish:

a. Review graduation plans for all students and help students enter their plans in Wolverine Track; well-prepared, full-time students will receive info on "15 to Finish" beginning in their first year;

b. Review student information from the non-cognitive assessment, Stoplight, and other advising tools as appropriate.

Implementation

This objective was implemented by Academic Advising which was under Student Affairs in 2014, but moved to Academic Affairs (with dotted-line reporting to Student Affairs) in 2015. This objective was completed and institutionalized by the end of Year 2.

- During Year 1, all advisors had completed the New Advisor Training Program that integrated PSI (personalized, seamless, intentional advising) through-out. The training format of 4 10-hour in-person sessions included a module on relationship building.
- In Year 2, all advisors were trained on using the Planner feature in Wolverine Track to help students plan what courses they would need for graduation and when to take them. Advisors were trained on using the non-cognitive evaluation and BCSSE survey data in student advising.

- A non-cognitive assessment (Beacon) and the BCSSE survey were administered to freshmen to help determine at-risk factors for UVU students.
- A process was set in place to encourage students to meet with their advisor each semester and to require students to meet with their advisor annually. An academic hold was placed on students' records requiring them to meet with their academic advisor annually.
- All of the above components that advisors were trained on were implemented in student advising: PSI and relationship building, use of the Advisor Dashboard and the Planner feature in Wolverine Track, use of the non-cognitive surveys. Students were meeting with their advisors annually and entering their graduation plans into Wolverine Track by the end of Year 2.

Institutionalization

This objective was institutionalized under University Advising by the end of project Year 2, that is, by September 2016.

- All of the training elements, within a PSI framework, were incorporated into Advisor Training and remain there. These include relationship building, the use of advisor tools, and assisting students in planning, including using Wolverine Track.
- The requirement for students to meet with their advisors at least every year, enforced by a registration hold, continues to be in place.
- The requirement to have students enter their graduation plans into Wolverine Track was implemented and continues. Students and their advisors are using Wolverine Track and its Planner feature to plan for future semesters. This effort has been aided by having each department enter a graduation plan template into Wolverine Track (Objective 2.2).
- The non-cognitive assessment was replaced after Year 3 by services provided by Civitas, but the element of non-cognitive data is still important in advising.

Short-term Impact

Student advising has continued to move forward since this objective was institutionalized in 2016; however, what was accomplished under the Title III project has been foundational for the what has come after.

- According to Wade Oliver, Director of University Advising, even though the format of the advising program has changed to a blended format of online and in-person training, PSI is still one of the foundational principles in the advising, training, and certification program. Use of the Advising Dashboards and related advisor tools are integrated into training.
- In 2014, there was a problem with getting Academic Advisors to use the planning features of Wolverine Track. Not only has training been ramped up so that all advisors have been trained to use these tools with students, but new reporting structures have made advisors more accountable for implementing planning with students.
- 100% of degree programs have a graduation template build into Wolverine Track. Students are introduced to it during New Student Orientation and advisors follow up

and help students make adjustments annually. This change has been made in the UVU Course Catalog as well, so that the requirements for each program are now in the catalog.

- Students now have graduation plans they can discuss with their advisors and use in course selection. As the original proposal presented scholarly research documenting that tying students' graduation plans to their required participation in a PSI advising program is demonstrated to increase graduation rates, it is quite likely that these efforts have contributed to the rise in UVU's graduation rates.
- One of the biggest challenges for Academic Advising was changing the culture of Academic Advising within UVU. With the help of the Title III project, among other institutional efforts, the stakeholders feel that role of academic advising is now recognized on campus as a high priority and acknowledged as impactful for students.

Long-Term Impact

(See Long-Term Impact for Area 2.)

OBJECTIVE 2.2 Provide tools and reports for Academic Advising to support informed decision making by students and advisors, including decisions about taking classes that emphasize engagement; implement additional accountability measures through electronic reporting.

Activity 2.2.1 – Each department will enter a graduation plan template into Wolverine Track (from the remaining 52% of departments).

Activity 2.2.2. – Provide advisors with reports indicating which students have and have not entered an advisor-approved graduation plan into Wolverine Track and the term it was last updated.

Activity 2.2.3 – Customize a non-cognitive assessment report to reflect UVU's systems and interventions and integrate with the advising tools.

Activity 2.2.4 – Create a repository of engaged learning activities so that advisors can better assist students and students will know what is available.

Implementation

This objective was completed and institutionalized by the end of Year 2.

Graduation Templates. To facilitate student planning, all bachelors and associates degrees had a graduation template entered into Wolverine Track, the online tracking system for student degree auditing. The creation of graduation plans was an institution-wide effort that involved every college or school and department. Requirements for each degree program and related Graduation Plans appear now in the online UVU Course Catalog as well (see https://www.uvu.edu/catalog/current/departments/degrees-programs.html). Advisors have access to information about which students have and have not entered graduation plans and when the plans were last updated. They can tell if students are on track to graduate.

A non-cognitive assessment tools – Beacon and NCSSE**,** specifically targeting first-year students, was implemented in the first two year of the project. The BEACON survey was

designed to help determine at-risk factors for UVU students, including "hidden" issues that may put students at risk. This helped advisors focus their outreach and intervention efforts. Advisors and deans received summative reports on students who have taken the non-cognitive assessments and their needs. However, evaluation of the instrument in operation showed that while it was helpful, it was not robust enough to meet UVU's advisement needs, so it was not integrated into the Advisor Dashboard. The NCSSE (Beginning College Student Survey of Engagement) also proved not to be useful, so it was not included in the Advising Dashboard. These experiences laid the foundation for the institution's investment in Civitas, which is proving to be a game-changer for student advising.

The Repository of Engaged Learning Activities, created by the Title III Program Directors and described earlier, was the first step in documenting engaged leaning activities campus-wide. It was intended to become a resource that would allow advisors and students to know what engaged-learning courses were available. Drs. Qudisat and Alsarhan reviewed the course catalog descriptions of over 3,500 courses as well as other course lists looking for components of High-Impact Practices. The database they compiled was useful to administrators in determining what engaged-learning (HIP) courses were being offered in their programs, but it faced limitations that made it less suitable for use as an tool for student and advisor use. For instance, the course catalog descriptions were not always up-to-date and the accuracy of some of the descriptions concerning course engagement was in doubt. Updating the Repository proved to be too cumbersome and time-consuming to be cost-effective. However, the Office of Engaged Learning and Title III's efforts to inform the UVU community about the potential impact of student engagement on retention and persistence lead to advisors becoming more aware of engagement options and to present them to their students.

Accountability in Advising. The Title III proposal planned to implement advisor accountability measures through electronic reporting, which was done. The greater impact on accountability however, was initiated in 2015 outside of the scope of this project. Academic Affairs and Student Affairs worked together to restructure the Academic Advising program and make advisors more accountable for their advising work. Directors were hired in each of the colleges and schools to oversee and supervise the advisors.

Institutionalization

All academic advisors now have tools that provide them with current, easy-to-access information they need to inform students' decision making. Advisors are trained on the use of these tools. Of the tools focused on in this Title III project, the Graduation Templates in Wolverine Track and the accompanying Planner feature have been the most directly beneficial and remain in place.

UVU institutionalization of the non-cognitive assessment has been done by UVU's purchase of Civitas, a predictive analytics platform, which proved to be a more powerful tool for data-informed outreach. Michelle Kearns, Associate Vice President for Enrollment Management reports that: "Civitas has been fully implemented and is being used by advisors. They are trained on Civitas and the majority of them are using it to supplement their other tools and expertise in helping to support students."

Short-term Impact

Wade Oliver indicates that the quality of data to advisors has increased significantly, which is important, because UVU's advising pool has grown from about 50 in 2014 to 108 in 2021. He

says that some of what was done through Title III became necessary stepping stones to other interventions and provided greater direction.

Long-Term Impact

(See Long-Term Impact for Area 2.)

OBJECTIVE 2.3 Provide tools and reports from student gradation plans to course scheduling personnel in the schools and colleges so they can anticipate student needs and schedule courses to keep students on track for graduation.

Activity 2.3.1 – Pilot the creation of tools and reports (6-8 departments) that indicate anticipated student course demand based on the graduation plans they have entered into Wolverine Track.

Activity 2.3.4 – Distribute reports to colleges and schools with tools and reports from student graduation plans to facilitate scheduling; provide training on the use of these tools.

Implementation

This objective project sought to improve course scheduling because many students' graduation plans were delayed because they could not schedule the courses they needed. Objective 2.1 above sought to have students enter graduation plans into Wolverine Track in part so the plans could be used to predict university needs in course scheduling.

A problem has been, however, that while students complete the graduation plans, they are reluctant to "lock in" their plans, at which point data become available for scheduling future needs. So while the graduation plans have been very helpful to students and advisors, they have not been as helpful as anticipated for course scheduling. Other institutional efforts helped alleviate scheduling problems.

Institutionalization

Objective 2.3 was closed in Year 2 or 3. Michelle Kearns reports that scheduling has definitely improved since 2014, especially with the inclusion of more online and hybrid courses, but there is still work to be done. The increase of UVU's headcount enrollment from 31,332 students in 2014 to 41,262 students in 2022 and space shortages have exacerbated the problem. However, now that more students are locking in their graduation plans, this approach may be revisited.

Short-Term Impact

While many institutional efforts have contributed to easing problems in course scheduling, the Title III project may have played a role in this improvement by having students enter their plans for graduation into Wolverine Track and discuss their plans with their advisor. Better student planning may be helping to ameliorate what was perceived as "scheduling problems."

Long-Term Impact for the Area 2 Goal

The primary long-term impact of the Area 2 Goal to "increase student completion by strengthening academic advising and improving course scheduling," has likely been to increase student completion. While no direct evaluation of this objective was done, and while all of the Title III efforts were done in conjunction with other institutional work, the completion of these objectives was significant. They were designed to have a high likelihood of increasing completion rates because the proposers reviewed considerable scholarly research on methods of advising demonstrated to impact completion. The proposal was based on this research and key researchers were cited.

Much of what was implemented, especially under 2.1 has become so foundational to Academic Advising that it is hardly recognized as innovative at UVU anymore. But it was when it was implemented. Additional changes have been built upon this foundation.

When asked about the long-term impacts of the Title III project in separate interviews, Dr. Wade Oliver, Director of University Advising, and Dr. Michelle Kearns, Associate Vice President for Enrollment Management, offered these insights.

Dr. Oliver: "The project served as a catalyst to move us to where we are now. I think just documenting some of these ideas was important. A lot of these plans were things we discussed in those early meetings when I was still in Student Affairs. Michelle and I felt that if we could somehow get our aims down in a grant on paper, that would be a catalyst for seeing something happen and that getting a grant would make it important enough for people to do something. And so I do believe that. Well, maybe not a direct line for the all of it. But putting these initiatives into the framework of a grant, I believe, was a really significant positive step. It changed the accountability for advisors; they were no longer reporting through whomever on campus. They now had a director that knows advising, and that they know was a previous colleague or peer. . . . I believe that the kinds of the things we codified or identified in this grant got things rolling to where we could actually have the Chutzpah and have what we needed to be able to confidently move forward with recommending these changes."

Dr. Kearns: I think the emphasis on High-Impact Practices has become part of the conversation and part of the planning in both curricular and co-curricular opportunities. I think we've become more intentional with our outreach for students. Now that we've implemented Civitas, that tool, I think, has changed the culture so that our efforts are more grounded in the data than just assumptions or historical practices. I do think that we have made some progress on being more student centric in our schedule course scheduling practices, and while there's still room for improvement, I would say that we've made some great strides in that space.

And, you know, there's a million reasons why retention and completion numbers go up and down, but we have seen a significant increase in both retention and our eight year outcome measure since we began this grant. And so I think it wouldn't be too much of a stretch to attribute some of that increase to the to the objectives of this grant.

PART IV: CONCLUSIONS

This Title III project has sought to address UVU's overall completion rate by strengthening student engaged learning and scholarly activities within academic programs, strengthening the institutions' capacity to assess such student engagement, and strengthening academic advising from the first year through to graduation.

Results of this evaluation demonstrate that this purpose was met. The evaluation shows that the project has assisted UVU in increasing the overall institutional graduation rate as well as retention and persistence rates. It has met the U.S. Department of Education's goals for Title III SIP programs by strengthening academic programs, institutional management, and fiscal stability.

Since the project has continued over seven years, with most components being institutionalized (and normalized) several years ago, it may be useful for those within the institution to see again the starting points that were articulated in 2013 by the team of administrators preparing the proposal. The table below gives the objectives of the proposal in the context of the institutional problems being addressed and stated institutional goals at that time. A discussion of each objective follows.

Table from UVU's proposal, written in 2013, for this Title III project:

Table 12: Institutional Goals and Measurable Objectives Based on the CDP Analysis

Significant Problems	Institutional Goals*	Measurable Objectives for this Project
1) UVU's IPEDS* overall graduation rate of 23% (4-year average) is low in relation to comparison institutions. (*Integrated Post-secondary Education Data System)	Increase the IPEDS overall graduation rate to 32% by 2020.	***Project Goal:*** Assist in increasing the IPEDS overall graduation rate to 28% by 2018 by strengthening the institutional environment for engagement and completion.
1a) While UVU's first-year retention rate increased from 47% to 61% through previous Title III activity, it is still low in relation to comparison institutions.	Increase the first-year retention rate to 68% by 2020.	***Benchmark:*** Assist in increasing the overall first-year retention rate to 66% by 2018.
Academic Programs		
2) UVU's implementation of engaged learning has primarily consisted of a variety of methods without systemic consideration of those most likely to improve retention and completion.	*Engaged 1:* Engage students using real-world contexts within the curriculum and activities outside the classroom to increase professional competence and confidence.	***Area 1 Goal:*** *Increase completion by expanding opportunities for meaningful student engaged learning and scholarly activities.* ***Objective 1.1*** Expand engaged learning activity that focuses on effective models of engagement (see 1.2) with high to moderate levels of evidence for increased retention and completion.
3) Effective engagement models are being validated nationwide, but UVU teaching staff has limited opportunity to learn about these in a professional development setting.	*Serious1:* Champion learning through outstanding teaching in an academically rigorous environment.	***Objective 1.2*** Increase the effectiveness of faculty in designing and implementing engaged learning via curricular and co-curricular activities through professional development, exposure to models of best practices, and support.

3a) UVU has a professional advising model, but the faculty-student mentoring relationship has not been formalized as a key component of student engagement and persistence.	*Serious 2:* Support a culture of scholarship and creative work and promote accomplishment in cultural, academic, and co-curricular/extramural endeavors.	***Objective 1.3*** Expand and strengthen faculty effectiveness in mentoring students for scholarly and creative work especially with regard to curricular and co-curricular project teams by exploring models and best practices with an emphasis on early involvement by students.
4) Over 50% of students do not work with their advisors beyond initial course registration; about 60% of students do not have a graduation plan entered in to Wolverine Track; advisors' tools for working with students are incomplete and under-utilized.	*Student Success 1:* Support students' preparation and achievement of academic success. *Strategy 1:* Provide student support for timely graduation.	***Area 2 Goal:*** *Increase student completion by strengthening academic advising and improving course scheduling.* ***Objective 2.1*** Use the PSI advising model to assist students to prepare a graduation plan (utilizing Wolverine Track), improve their academic outcomes, and take advantage of engagement opportunities.
Intuitional Management		
5) There is no systemic means to require all students to establish a graduation plan: about half of departments have not entered a graduation plan template into Wolverine Track; advisors do not have efficient access to student graduation plan information.	*Operate Effectively:* Foster a culture of planning, assessment, improvement and accountability.	***Objective 2.2*** Provide tools and reports for Academic Advising to support informed decision making by students and advisors, including decisions about taking classes that emphasize engagement; implement additional accountability measures through electronic reporting.
6) One-third of non-returning students indicate that course availability is a major or minor reason for not returning; advisors report that some students fail to complete on time because of the unavailability of required classes.	*Inclusive 4:* Utilize a variety of schedules, locations, and delivery methods that best meet students' needs.	***Objective 2.3*** Provide tools and reports from student gradation plans to course scheduling personnel in the schools and colleges so they can anticipate student needs and schedule courses to keep students on track for graduation.
7) Although UVU has implemented engaged learning widely, the institution has been unable to assess the effectiveness of engaged learning at meeting institutional objectives.	*Operate Effectively:* Foster a culture of planning, assessment, improvement and accountability.	***Objective 1.4*** Create mechanisms to track, evaluate, and report on the efficacy of student engagement on measures of student success.
Fiscal Stability		
9) While UVU has invested heavily in student engagement, funding to make UVU's goal of engagement for all students a meaningful reality is insufficient.	*Secure Resources:* Strategically pursue and acquire private and public resources beyond state appropriations.	***Objective 1.5*** Strengthen the institutional capacity to sustain long-term student engaged learning and scholarly activities by providing training and support to faculty in student-engaged, external grant-writing activities.
**Sources:* 1) UVU's Retention and Graduation Goals, 4-22-11; 2) UVU Core Theme Objectives and Administrative Imperatives (there are four Core Objectives – Student Success, Inclusive, Engaged, and Serious and three Administrative Imperatives – Operate Effectively, Manage Growth, and Secure Resources) 3/21/2013; 3) UVU Strategic Plan for Managing Growth, 3/31/2011.		

AREA 1 GOAL: INCREASE COMPLETION BY EXPANDING OPPORTUNITIES FOR MEANINGFUL STUDENT ENGAGED LEARNING AND SCHOLARLY ACTIVITIES.

Obj. 1.1 Expand engaged learning activity that focuses on effective models of engagement

Initial Problem: UVU's implementation of engaged learning has primarily consisted of a variety of methods without systemic consideration of those most likely to improve retention and completion.

Project Achievement: Effective models of engaged learning, specifically High-Impact Practices, were systemically sought, articulated, implemented, tested, and modeled. This was done through efforts to refine the definition and criteria of high-impact student engagement and competitively fund faculty projects that met this criteria through the HIELG, GREEN, and URSIG grants.

Lessons Learned: This evaluation demonstrates that the projects carried out have been of superior quality – even better than the proposers envisioned. Changing the climate of an institution takes time. It requires many knowledgeable people who are excited about doing work that matters to them. Like the faculty who have learned that students need time to study the issue, develop processes, conduct problem solving, and develop solutions, the institution should likewise understand that faculty need time to do the same things as it pertains to developing superior student engagement opportunities. Resources committed to enabling faculty to do this are well spent.

When was asked, if, from her perspective, the Title III funds for internal grants were well spent in strengthening the institution, Cheryl Hanewicz, the former Interim Associate Provost of Engaged Learning replied:

> "Absolutely yes! Because the grants are focused on increasing engagement in the classroom, and that can be a heavy lift for faculty. Sometimes there are resources that are needed that departments can't fund. And it takes time. Like if you're rebuilding curriculum, it takes a lot. And so giving faculty 'permission' and funding to do that, that's what really changes an engaged classroom.
>
> "If you think of traditional grants, it's usually just the same finite people who are working, and it's the same-old, same-old after so many years. But here, we're getting fresh eyes on this every single year. And the quality is increasing. So not only do students talk with each other, faculty do as well. They're bring ideas to the table (probably hundreds of ideas that have come forth over the lifetime of this grant) that in a traditional grant never could have happened. Faculty with limited funds in their classrooms never would have thought of these things."

Often faculty really only need a small amount of funding, comparatively speaking, to develop meaningful projects that engage students, and this isn't often suited to external grants.

> Frederick White (former Associate Vice President of Engaged Learning): "Yeah, yeah I totally agree. I totally agree. You know, especially our faculty. I mean, there's a few of us who, with help from the Office of Sponsored Programs, can go after an NEH grant or the National Science Foundation grants or such, but your average UVU faculty, as you know, does not have the track record to go after those big grants. They just don't, right? Because they're teaching too much, and they don't publish enough. And so if we're not offering them these kind of mini-grant opportunities, how do they continue to develop and grow?"

Obj. 1.2 Professional development with exposure to models of best practices and support

Initial Problem: Effective engagement models are being validated nationwide, but UVU teaching staff has limited opportunity to learn about these in a professional development setting.

Project Achievement: The Office of Teaching and Learning's HIPs Certification Program, including training programs taught by the Center for Social Impact and SCULPT have been effective mechanisms for delivering professional development for faculty on effective models of student engagement. Hundreds of faculty have received training and impacted students with improved teaching methods.

Lessons Learned: These effective programs are designed so they can continue to provide high-quality professional development to meet changing faculty needs and interests in the future. The leaders of all of these programs, however, indicate that faculty incentives, such as stipends, certifications, and recognition through RTP, make a tremendous difference in broadening participation of faculty. The return on investment to UVU is enormous.

Obj. 1.3 Strengthen faculty effectiveness in mentoring students for scholarly & creative work

Initial Problem: UVU has a professional advising model, but the faculty-student mentoring relationship has not been formalized as a key component of student engagement and persistence.

Project Achievement: SCULPT has formalized faculty-student and faculty-faculty mentoring through the Mentoring Academy and the Learning Circles, and OTL has formalized faculty-faculty mentoring through the Communities of Practice associated with the HIPS Certification Programs.

Lessons Learned: Faculty report that the Mentoring Academy significantly changed the way they work with students (see below). This form of mentor training seems to be an effective tool for strengthening student engagement.

> Olga Kopp – "Before the Mentoring Academy, I didn't think about creating a contract with the students and working in a more organized way – saying, this is what I expect from you, and this is what you can expect from me, and having that type of communication. So this has improved for me."
>
> Dustin Shipp – "The Mentoring Academy was especially useful to me. I'm getting a pretty large number of students in my research group. The Mentoring Academy helped me come up with ways to evaluate what kind of help I'm giving them and to structure communication for those students to make sure we're on the same page – that I'm giving them what they need and that we all have the same expectations about what's going to happen in the research and in our mentoring relationship."
>
> Anton Tolman – "When I started mentoring, I never really had a model for how to mentored students. I just kind of did what happened to me when I was a student. . . I think [the Mentoring Academy] is really making a lasting difference in the way the faculty who participate think about and work with students. Unlike, say, if they were just to take a two-hour workshop, this gives them a real chance to think about the problems of mentoring over time and with colleagues, and to apply it to their classes and students."

Obj. 1.4 Create mechanisms to track, evaluate, and report on the efficacy of student engagement on measures of student success

Initial Problem: Although UVU has implemented engaged learning widely, the institution has been unable to assess the effectiveness of engaged learning at meeting institutional objectives.

Project Achievement: The project has helped the institution define what it is to be an engaged institution and demonstrate that for UVU, High-Impact Practices do in fact impact retention, persistence, and graduation. Under Title III funding, the Repository of Engaged Learning Activities was created to establish a baseline for engagement at UVU, and the In-class Engagement Instrument was developed to measure the level and type of student engagement in UVU courses.

After institutionalization, other tools, namely the In-Class Engagement Dashboard and the Collective Impact of High-Impact Practices tool, have been created by Ala'a Alsarhan in the Office of Engaged Curriculum (now Assessment and Analytics) within OEL. While the In-class Engagement survey has yet to be implemented campus-wide, the pilot implementation in two colleges demonstrates great promise for engagement management at UVU. Together, these tool will be able to report on the efficacy of student engagement on measures of students success. Data from these tools will be used to apply for renewal of UVU's Carnegie Classification as an Engaged Institution and for reaccreditation.

Lessons Learned: <u>These tools are on the cutting edge of High-Impact Practice assessment at the national level</u>. To this point, Dr. Alsarhan explains:

> "This past November (2021), I was at a virtual conference about high impact practices and assessment called the AAC&U Institute on General Education and Assessment that was hosted by IUPUI (Indiana University–Purdue University, Indianapolis). There were about 10,000 attendees from all over the world talking about the assessment of high impact practices. This is the main track of that conference. On the first day, I was in a meeting with the directors of HIPS programs, and Jillian from NSSE again mentioned our work.
>
> "It was very interesting to see that tier one universities are doing things or they want to do things that we already did two years ago. Most of the presentations were on something that we did at UVU before. Everything that we had done. We are ahead of a lot of things. . . . I saw that UCLA and Virginia Commonwealth University are doing things, and they are very proud of these things, that we already did two years ago. And they have a team. They have a team with programmers, visual designers team, researchers – a huge team for doing things that one person did alone at UVU. . . . We can do a lot of creative things with support."

Obj. 1.5 Training and support to faculty in student-engaged, external grant-writing activities.

Initial Problem: While UVU has invested heavily in student engagement, funding to make UVU's goal of engagement for all students a meaningful reality is insufficient.

Project Achievement: OSP has been successful in broadening participation of faculty in grant-writing activities and in helping faculty obtain external funding for projects involving student engagement. Since 2014, annual grant acquisitions have increased 49.5% from

$14.4MM to $21.6MM in 2020. About 64% of new grant awards involve student engaged learning. These efforts contribute to meeting the institution's needs to fund HIPs.

Lessons Learned: The kinds of incentives OSP was able to provide faculty in order to encourage and facilitate their participation, such as stipends for the Summer Grant Writing Seminar, guest speakers, and travel for networking opportunities are beyond the typical OSP budget, but were a good investment for involving faculty. When polled, faculty felt supported by OSP in their grant-seeking activities and grant-award management responsibilities. More faculty are submitting and receiving funding for their projects.

AREA 2 GOAL: INCREASE STUDENT COMPLETION BY STRENGTHENING ACADEMIC ADVISING AND IMPROVING COURSE SCHEDULING.

Obj *2.1* Use the PSI advising model to assist students to prepare a graduation plan (utilizing Wolverine Track), improve their academic outcomes, and take advantage of engagement opportunities.

Initial Problem: Over 50% of students do not work with their advisors beyond initial course registration; about 60% of students do not have a graduation plan entered in to Wolverine Track; advisors' tools for working with students are incomplete and under-utilized.

Institutional/Project Achievement: A process was set in place to encourage students to meet with their advisor each semester and to require students to meet with their advisor annually. Students now have graduation plans entered in Wolverine Track; they can discuss these with their advisors using the Planner feature and use them in course selection. All academic advisors have tools that provide them with current, easy-to-access information, and they have been trained on the use of these tools and in the PSI advising model.

Obj 2.2 Provide tools and reports for Academic Advising to support informed decision making by students and advisors, including decisions about taking classes that emphasize engagement; implement additional accountability measures through electronic reporting.

Initial Problem: There is no systemic means to require all students to establish a graduation plan: about half of departments have not entered a graduation plan template into Wolverine Track; advisors do not have efficient access to student graduation plan information.

Institutional/Project Achievement: An academic hold is placed on students' records requiring them to meet with their academic advisor at least annually. 100% of degree programs have a graduation template build into Wolverine Track. Advisors have access to student's graduation plans and to information about which students have and have not entered plans. All academic advisors have tools that provide them with current, easy-to-access information they need to inform students' decision making.

Obj 2.3 Provide tools and reports from student gradation plans to course scheduling personnel in the schools and colleges so they can anticipate student needs.

Initial Problem: One-third of non-returning students indicate that course availability was a major or minor reason for not returning; advisors report that some students fail to complete on time because of the unavailability of required classes. [The actual percentage of non-

returning students cited in the text of the proposal was 35.7% (Non-Returning Student Survey, 2010).]

Institutional/Project Achievement: According to the 2021 Non-Returning Student Survey – 11.4% of students indicated that Class Scheduling Issues were a major or minor reason for not returning. This is an improvement of 24.3% from the earlier report. While many institutional efforts have been made to address course scheduling, the Title III project may have played a role in this improvement by having students enter their plans for graduation into Wolverine Track and discuss their plans with their advisor. Better student planning may be helping to ameliorate what they perceived as "scheduling problems."

APPENDIX A: HIELG, GREEN, AND URSIG GRANT RECIPIENTS

YEARS 2 & 3 (2015-2017) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	**Project Lead**	**Project Title**	**Department/ # Faculty**	**# Student Participants**	**Description**
#1	Office of Teaching & Learning (OTL) (2015-Sp18)	HIELG – Gateway Course Initiative 13 Courses redesigned	13 lead faculty (other faculty involved)	2,500 students 13 courses	The Gateway Course Initiative at UVU is a three year project aimed at reducing the percentage of D, F, UW (D-grade, F-grade, or Unofficial Withdrawal) outcomes in gateway courses. In order to achieve this aim, two objectives were proposed. (1) Engage faculty who teach Gateway Courses in supported course redesign activities. (2) Evaluate the effectiveness of course redesign efforts (D, F, UW outcomes) and qualitative feedback on experience. Courses: COMM 1020 Public Speaking; ENGH 0890 Literacies and Composition Across the University; PHIL 2050 Ethics and Values; MUSC 1010 Introduction to Music; POLS 1100 American National Government; TECH 1010 Understanding Technology; PSY 1100 Human Development Life Span; MATH 1055 College Algebra with Preliminaries; MAT 0950 Foundations for Algebra; MAT 1000 Integrated Beginning & Intermed. Algebra; BIOL 1010 General Biology; BIOL 1610 College Biology I; BIOL 1615 College Biology I Lab.
#2	Jessica Hill (2015-Su18)	HIELG – Improving Retention and Completion in General Psychology an Foundation Psychology Courses through the use of Process-Oriented Guided Inquiry Learning (POGIL)	Psychology 1 faculty researcher 5 faculty trained	460 students 1 course	Creating Process-Oriented Guided Inquiry Learning (POGIL) activities focused on a variety of psychology concepts to be used in PSY 1010 General Psychology.
#3	Claudia Jorgensen** (2015-Su18)	HIELG – Improving Retention and Completion in General Psychology an Foundation Psychology Courses through POGIL	Psychology 1 faculty	50 students 1 course	Creating Process-Oriented Guided Inquiry Learning (POGIL) activities focused on a variety of psychology concepts to be used PSY 2710 Introduction to Brain and Behavior.
* Indicates faculty member interviewed in 2019. ** Indicates faculty member interviewed in 2021. Interview transcripts are in Appendix C.					

YEARS 2 & 3 (2015-2017) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	**Project Lead**	**Project Title**	**Department/ # Faculty**	**# Student Participants**	**Description**
#4	Heather Wilson-Ashworth & Matthew Horn (2016-Su18)	HIELG – Process Oriented Guided Inquiry Learning (POGIL) as a High Impact Engaged Learning Practice for Increasing Retention in STEM Courses.	Biology, Chemistry 2 faculty	350 students 7 courses	The objectives of this work were (1) to increase POGIL usage on campus by (A) training faculty in POGIL pedagogy and (B) providing continuing support for their activities as they transform their classroom practices, and (2) to devise an intervention tool for use in POGIL classrooms. Implemented in BIOL 1010, Chemistry 1210, Psychology 1010; also BIO 3200, BIO 3600, CHEM 1220, and PSY 2010.
#5	Linda Shelton & Ben Moulton** (Sp16-Su18)	HIELG – Environmental Research-Based English Composition	University College 4 faculty	100 students 1 course 200 students 1 course	***Shelton*** - High impact intervention to improve learning and completion in English composition courses by incorporating the products of undergraduate student research into English composition classrooms. ***Moulton*** – used data from real environmental research for students to analyze. Both projects used UVU's field station in Capitol Reef National Park to provides environmental data and an opportunity for high impact experiences.
#6	Marcy Glassford (2016-Su18)	HIELG – Attendance Tracking	Student Success & Retention	2 students researchers	The purpose of this event-tracking project is to provide departments and programs with a way to track and assess engaged learning. By leveraging OrgSync event attendance and card swipe technology, UVU now has the capability to swipe student IDs (or manually enter UVID) at each event to track hours and attendance for students at every event.
#7	Jonathan Westover**	HIELG – Utilizing Service-Learning to Foster Increased Engaged Educational Experiences within the Technology-Enhanced Online Modality	10 faculty	400 students 10 courses	Train a group of faculty in academic service learning: Summer 2015 – Recruit faculty and course specialists; Fall 2015 –Train faculty and develop courses; Spring 2016 – Implement new service-learning online and hybrid courses; Spring/Summer 2016 – Assess new service-learning online and hybrid courses. 10 courses modified.
#8	Matt Hasara & Todd Low	HIELG – Race Team Expansion – 2 years	2 faculty	24 students 1 course	A student team build and race a race car – a Spec Miata – on the Bonneville Salt Flats. Transportation Technology
#9	Jared Chapman	HIELG – Delphinium	1 faculty	100 students 2 courses	This project proposed using an educational gamification platform named Project Delphinium to affect behaviors and attitudes that in turn impact instructional

YEARS 2 & 3 (2015-2017) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	**Project Lead**	**Project Title**	**Department/ # Faculty**	**# Student Participants**	**Description**
					effectiveness and learning outcomes. Tech 1010, MGMT 3000, 4 sections.
#10	Heath Ogden & Emily Holt	USRIG – Assessing mechanisms that improve student performance & completion in General Biology	2 faculty	160 students 1 course 2 student researchers	Assess the different teaching and participation mechanisms used in general biology (BIO 1010) students. Gather empirical evidence of the impact of these mechanisms on student failure and withdrawal.
#11	Timothy Doyle	URSIG – Biomedical Research	1 faculty	2 students researchers	An ultrasonic micro-probe for precision cancer surgery
#12	Marinda Ashman & Janet Colvin	URSIG – UV mentors and Nontraditional Students	2 faculty	2 students researchers	Increase retention and graduation rates for non-traditional students by better involvement with UV Mentors. Survey students in SLSS 1000 and adjust mentoring.
#13	Nancy Tobler & Janet Colvin	URSIG – Helping students succeed in Public Speaking	2 faculty	2 students researchers	Ameliorate 25% failure rate by comparing students those succeed to those who fail in Public Speaking

Year 2 & 3 Totals – Grants: 13 – 9 HIELG, 4 URSIG

Faculty Participants: at least 44 — Course Redesigns: ~37 courses, ~133 sections

Student Participants: In-class students: ~4,320 — Student assistants, fellows, researchers, technicians: 10 students

Year 1 APR Report: Criteria, along with a scoring rubric, were developed for model high impact engaged learning grants (HIELG). The first round of HIELG proposals (agreements) were identified and funded. [The projects had not yet begun.]

Year 2 APR Report: To date, 12 projects were funded. They include course assessment, project-based club (automotive), an undergraduate medical research project, and 18 course redesign (62 sections among six colleges).

Year 3 APR Report: For the year 2016-2017, 14 projects were funded to support and encourage course redesign and included engaged learning activities in the classrooms. We also created two engaged learning grants: 1) Undergraduate Summer Institute Grant (URSIG); we have funded 5 research projects in summer 2016. 2) Grants of Research and Engaged Educators and Novices (GREEN), applications accepted.

YEAR 4 (2017-2018) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	**Project Lead**	**Project Title**	**Department/ # Faculty**	**# Student Participants**	**Description**
4-1	OTL *continued*	HIELG – Gateway Initiative	13 lead faculty	5,000 stud. 13 courses	*Described previously*
4-2	Jessi Hill *continued*	HIELG – Use of Process-Oriented Guided Inquiry Learning (POGIL)	Psychology 1 faculty 5 faculty trained	453 students 1 course	*Described previously*
4-3	C.Jorgensen *continued*	HIELG –Use of Process-Oriented Guided Inquiry Learning (POGIL)	Psychology 1 faculty	50 students 1 course	*Described previously*
4-4	H. Wilson-Ashworth & Matt Horn *continued*	HIELG – POGIL as a HIP for Increasing Retention in STEM Courses.	Biology, Chemistry 2 faculty	350 students 7 courses	*Described previously*
4-5	L. Shelton & B. Moulton** (*continued*	HIELG – Environmental Research-Based English Composition	University College 4 faculty	100 students 1 course 200 students 1 course	*Described previously*
4-6	Marcy Glassford *continued*	HIELG – Attendance Tracking	Student Success & Retention 1 faculty	2 students researchers	*Described previously*
4-7	Matt Hasara & Low *continued*	HIELG – Race Team Expansion	Transportation Technology 2 faculty	24 students 1 course	A student team build and race a race care – a Spec Miata – on the Bonneville Salt Flats.
4-8	Jared Chapman (Sp18-Su19)	GREEN – Project Delphinium, a Unique and Exciting Approach to Student Engagement	Woodbury School of Business 1 faculty	200 students 2 courses 2 student researchers	This project proposed using an educational gamification platform named Project Delphinium to affect behaviors and attitudes that in turn impact instructional effectiveness and learning outcomes. Tech 1010, MGMT 3000
4-9	Armen Ilikchyan & Elena Laricheva** (Sp18-Fa18)	GREEN – Integrating Virtual Reality into Traditional STEM Curriculum	Engineering & Technology; Chemistry 2 faculty	150 students 4 courses 7 assistants	Develop content-based VR-enhanced instructional materials that improve understanding of the abstract physicochemical concepts in low visual-spatial ability students. Chem 1210 and TECH 1010, 2202, 4910

YEAR 4 (2017-2018) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	**Project Lead**	**Project Title**	**Department/ # Faculty**	**# Student Participants**	**Description**
4-10	Jessica Hill (Sp18-Su19)	GREEN – Assessing the Implementation of Under-graduate Research Teams	Psychology Biology Earth Sci. 5 faculty	17 student researchers	Catalog and assess a sample of undergraduate research opportunities across all colleges at UVU in order to determine what models are successful for UVU's student body. Researchers will employ surveys, interviews, and observational data. They will offer meaningful data on the state of undergraduate research at UVU as well as recommendations on the structure and organization of research experiences to faculty members.
4-11	Qianwen Bi & Jingpeng Tang (Su18)	URSIG – Machine Learning (ML) and Artificial Intelligence (AL) Modeling for Market Prediction	Business; Engineering & Technology 2 faculty	5 student researchers	The combination of Machine Learning (ML) and Artificial Intelligence (AI) are reshaping the landscape of predictive analysis in the big data research area, especially in the financial analytics domain. We are concerned primarily on how these technologies will impact on Personal Financial Planning software design in this proposed research.
4-12	Craig Thulin (Su18)	URSIG – Method Development for Identifying Low-abundance Proteins	Science 1 faculty	2 student researchers	Research to enable the observation and identification of proteins of low abundance within particular biological samples, including blood serum and honey. The primary objective with blood serum is to enable the identification of the many proteins within serum that are low in abundance but would be useful as potential biomarkers of disease. The primary objective of understanding the low-abundance proteins found honey would be better understanding of pollination patterns and inherent foodomic properties of honey itself.
4-13	Gregory Jackson & Ryan Vogel (Su18)	URSIG – Reconciling Modernity, Democratic Liberalism, and Islam in the 2014 Tunisian Constitution	Humanities & Social Sciences 2 faculty	3 student researchers	This project will trace the intellectual history of the 2014 Tunisian Constitution. This includes American and European constitutional thought, as well as Qur'anic teachings and Shari'a law. The project will dissect which ideas the Tunisian Constitution's framers chose are of Western origin, which come from the Qur'an, which come from other sources, and how the Constitution blends them together without sacrificing their integrity.

YEAR 4 (2017-2018) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	**Project Lead**	**Project Title**	**Department/ # Faculty**	**# Student Participants**	**Description**
					This project will examine how to implement Tunisia's synthesis of democracy and Islamic thought in other Muslim countries.
4-14	Hilary Demske & Jingpeng Tang (Su18)	URSIG – Online Music Notebook	School of Arts; Engineering & Technology 2 faculty	5 student researchers	The purpose of the Online Piano Notebook project is to increase assessment efficacy for piano teachers and students. The project will disseminate advanced pedagogical resources to community teachers around the world and provide UVU Music and Computer Science students an engaged learning opportunity with real-world application in their respective fields.
4-15	Maureen Andrade (Su18)	URSIG – MBA International Students	Business 1 faculty	2 student researchers	This study gathered insight regarding business schools hosting large numbers of international students who speak English as a second language to understand their perspectives regarding the screening and admissions of international students as well as challenges and opportunities they face in working with many non-native speakers of English. This study targets business school deans of schools which host the greatest number of international students.
4-16	Moana L. Hopoate-Sitake & Craig D. Thulin (Su18)	URSIG – Isolation and Characterization of Endogenous Digitalis-lie Factor Found to Inhibit the NA+/K+ Pump and Modulate Symptoms of Preeclampsia	Chemistry 2 faculty	2 student researchers	Preeclampsia is a significant complication of pregnancy – the number one killer of expectant mothers – about which unfortunately too little is understood at present and too little can currently be done to prevent or treat the disease. A very promising line of research has suggested that modulation of the activity of the Na/K-ATPase in the placenta may be a causal factor in the development of the condition. Nature has produced several compounds – such as digitalis from the foxglove plant and oubain from Strophanthus and Acokanthera plants – that modulate the activity of this critical enzyme.
4-17	Olga Kopp & Cyrill Slezak	URSIG – Optimization of Biofilm Formation in Candida Albicans and Rhizopus	Science / Biology 2 faculty &	2 student researchers	To optimize biofilm formation in two of the most common etiologic agents of fungal disease, namely, Candida albicans and Rhizopus oryzae (both of them are

YEAR 4 (2017-2018) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	**Project Lead**	**Project Title**	**Department/ # Faculty**	**# Student Participants**	**Description**
	(Su18)	Oryzae and Subsequent Biofilm Disruption Using Extracorporeal Shockwave, Laser/LED Photobiomodulation Therapy and Antimicrobial Angents	Dr. Paul Slezak from Ludwig Boltzmann Institute in Vienna, Austria		biosafety level I). Subsequent biofilm disruption will be tested using extracorporeal shockwave therapy, laser/LED photobiomodulation and antimicrobial compounds. To the best of our knowledge, this is the first time that these two methodologies are applied to these species. This is novel research is based on the previous accomplishments of biofilm formation in our lab.
4-18	Steven Sylvester & Jay DeSart (Su18)	URSIG – Surveying Sexuality: Political Attitudes of LGBT Individuals	History & Political Science 2 faculty	2 student researchers	This project undertakes to understand and explain the variation in political behavior, political identification and attitudes toward minority social groups within the American Queer community through data collection and analysis. This project includes four key areas: first, political behavior; second, political identification; third, social attitudes toward minorities; and fourth, the links between social attitudes, political identification, and political behavior.
4-19	Craig Thulin (Su18)	URSIG – Method Development for Identifying Low-abundance Proteins	Science 1 faculty	2 student researchers	Research to enable the observation and identification of proteins of low abundance within particular biological samples, including blood serum and honey. The primary objective with blood serum is to enable the identification of the many proteins within serum that are low in abundance but would be useful as potential biomarkers of disease. The primary objective of understanding the low-abundance proteins found honey would be better understanding of pollination patterns and inherent foodomic properties of honey itself.

Year 4 Totals: Grants: 19 – 7 HIELG, 3 GREEN, 9 URSIG
Faculty Participants: at least 52 **Course Redesigns:** ~31 courses, ~259 sections
Student Participants: In-class students: ~ 6,527 **Student assistants, fellows, researchers, technicians:** 53

Year 4 Report: Had ongoing HIELG Grants, and new GREEN and URSIG grants. "An additional 24 projects were funded for the reporting year 2017-2018, which makes the number of total funded projects 38. They came from 7 colleges, OTL and Office of Student Success and Retention."
Note that the HIELG grants were discontinued in Dec. 2017.

YEAR 5 (2018-2019) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	Project Lead	Project Title	Department/ # Faculty	# Student Participants	Description
5-1	Afsaneh Minaie (Fa18-Fa19)	HIELG – Freshman Practicum Engagement (FPE) Program	Electrical & Computer Engineering 5 faculty	2 student assistants 240 students in class – 7 courses	Established a Freshman Practicum Engagement (FPE) program which employs a series of hands-on experiments. ENGR 1000 - Introduction to Engineering was redesigned and the following courses impacted: ECE 1020 - Computer Engineering Problem Solving, ECE 2700 - Digital Design I, ECE 2705 - Digital Design I Lab, ECE 2250 - Circuit Theory, ECE 2255 - Circuit Theory Lab
5-2	Amanda Bordelon** (Fa18-Su19) *Interviewed 8/26/21*	HIELG – Refocused Engaged Design for Civil-Specific Engineering Students	Civil Engineering 6 faculty	240 students 1 course	**ENGR 1000 for Civil Engineers** was redesigned from the standard 1000 course to better teach and engage students in this unique sub-field of engineering. Students use more appropriate technology to civil engineering; as a course project, they must mold and cast an object in concrete.
5-3	Leigh Ann Copas* (Fa18-Fa19) *Interviewed 10/21/19*	HIELG – Embedded Tutoring Support for Writing Enriched Courses	Writing Ctr. 3 faculty	10 writing fellows (5 at a time) 1,500 students in class (500 per semester) 1 course	Over 3 semesters, about 1,500 students in **15 sections** of **HIST 1700** received embedded writing tutoring support. Working with the faculty teacher, fellows conducted out-of-class workshops, in-class training session, and one-on-one tutoring. They distribute pre-and post-surveys.
5-4	Maureen Andrade* (Fa18-Su19) *Interviewed 10/21/19*	HIELG – Team ePortfolios, MGMT 3000	Business 1 faculty	2 student researchers 300 students in class (avg. 100 per semester) 1 course	Redesigned **MNGT 3000** (Intro to Org. Behavior) to utilize Team ePortfolios – a collaborative, writing intensive platform for reporting on a service-learning consulting project and reflecting on concepts and theories. Students created a team charter outlining their roles and responsibilities on the team. Student researchers conducted a literature review.
5-5	Dustin Shipp* (Su19) *Interviewed 10/21/19*	URSIG – Raman Hyperspectral Imaging of Biological Cells and Tissues	Physics 1 faculty	8 researchers (5 paid; 3 unpaid)	Summer research activity. The focus of work was to improve the new Raman spectroscopy instrument in preparation for imaging applications. Three students aligned the instrument, one wrote programming to control the instrument; others worked on setup for cell and tissue culturing.

YEAR 5 (2018-2019) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	Project Lead	Project Title	Department/ # Faculty	# Student Participants	Description
5-6	Erin Riggs (Su19)	URSIG – DNA Extraction, PCR and Sequencing from Herbarium Specimens	Biology 1 faculty	3 student researchers	Student researchers established extraction protocols and sought answers to foundational questions about DNA extraction kits preliminary to more inclusive collections work in the UVU Herbarium. The project acquired necessary equipment for continued work.
5-7	Jessica Pauly & Stevie Munz (Su19)	URSIG – Understanding Women's Educational Experiences	Communica-tion 2 faculty	5 student researchers (~200 students surveyed and 106 interviewed)	Builds on a current study funded by a UVU SEED grant to explore how students' mental health experiences intersect with the education context, particularly for women who express helplessness, lack of self-worth, and isolation from supported friends. Researchers collect and analyze survey and interview data.
5-8	Maria Blevins** (Su19)	URSIG – Identifying Sexual Harassment in Organizations: Outdoor Guiding Community	Communica-tion 1 faculty	2 student researchers	Research investigating the strategies women enact against sexual harassment in the male-dominated outdoor industry, a level of harassment rarely present in a typical work environment. Researchers conduct interviews and participant observations, as well as keep a research diary. Observation notes, recordings, and transcriptions are coded into themes to facilitate analysis.
5-9	Matt Hasara* (Su2019) *Interviewed 20/21/19*	URSIG – High Performance Tire & Break Wear under Extreme Endurance Racing Conditions	Automotive Technology 1 faculty	14 student technicians	Students tested tire and break wear on a car that other students had built previously with another grant. Students, organized into two teams with a team leader, stripped down the car for racing specs and prepared it for two days of racing. The car won 1st.
5-10	Mohamad Islam (Su19)	URSIG – Simulation Studies of the Tests for Trend Detection	Mathematics 1 faculty	2 student researchers	Study the commonly used standard trend estimation and detection methods by calculating power with Monte Carlo simulation. The properties of the proposed statistics are investigated through analytically and simulation studies.
5-11	Olga Kopp** (Su19)	URSIG – Bacterial Biofilms and Plant Tissue Culture	Biology 1 faculty	4 student researchers	Three students work on optimization of E. coli biofilm formation and evaluation of different concentrations of cells to achieve the best biofilms. These students gain experience on biofilms, use of microscopes, data analysis, writing and presentation of data. One student is working on micro-propagation of the threatened endemic species.

YEAR 5 (2018-2019) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	Project Lead	Project Title	Department/ # Faculty	# Student Participants	Description
					She gains experience designing experiments, preparing media, testing hypothesis and analyzing data.
5-12	Steven Sylvester & Jay DeSart (Su19)	URSIG – Anxiety, School Security Measures and Public Opinion on School Shootings in the U.S.	History & Political Sci. 2 faculty	3 student researchers	Research on how parents view various school security measures their children are exposed to. The project helps inform local school districts within Utah how parents view school security measures and how to improve perceptions among parents. Student researchers design, distribute, collect, and analyze a survey. They interpret the data, write analytical articles with their findings, and submit these articles to academic journals and conferences.
5-13	Susan Madsen (Su19)	URSIG – Utah Women: Finances, Maternal Mental Health, and Leadership Development	Business 3 faculty/staff	2 student researchers	Assist the Utah Women & Leadership Project in laying the foundation for two research snapshots in areas where there is a great need for solid data: Utah women and finances and Utah women and maternal mental health. The researchers locate, collect, read, and annotate relevant research reports to support the creation and writing of the two published snapshots.
5-14	Jessica Hill *(continued)*	GREEN – Assessing the Implementation of Under-graduate Research Teams	Psychology Biology Earth Sci. 5 faculty	17 student researchers	Catalog and assess a sample of undergraduate research opportunities across all colleges at UVU in order to determine what models are successful for UVU's student body. Researchers will employ surveys, interviews, and observational data. They will offer meaningful data on the state of undergraduate research at UVU as well as recommendations on the structure and organization of research experiences to faculty members.
5-15	Krista Ruggles* (Sp18-Su19) *(continued)* *Interviewed 20/21/19*	GREEN – Integrating the "M" in STEM Across the Content Areas in a Teacher Preparation Program	Elementary Education 7 faculty	3 assistants 409 students in classes 1,635 elementary students in science fairs 8 courses	The student assistants taught faculty in Elementary Education (EE) 6 content areas to integrate math into their curriculum. Teachers **redesigned 8 upper-division courses** and then in turn taught this to 409 EE majors. The EE majors conducted science activities in fairs at 8 schools involving 1,635 K-6 students.

YEAR 5 (2018-2019) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	Project Lead	Project Title	Department/ # Faculty	# Student Participants	Description
5-16	Trevor Warburton** (Sp18-Su19)	GREEN – Improving Preservice Teacher Field-Experience through Connection & Collaboration	Secondary Education 1 faculty	5 student assistants approximately 600 students education at EdCamp	Involve secondary education students (preservice teachers) in the development of a local EdCamp. EdCamp is an informal professional conference, sponsored by a national organization. Five student collaborate to organize and publicize the EdCamp both at UVU and in the local area school districts.
5-17	Nathan Goldfarb (Sp18-Fa20)	GREEN – Tuberculosis Drug Discovery: Structural and Biochemical Characterization of novel Hip1 Inhibitors	Chemistry 1 faculty	4 student researchers	Student researchers will assist with the following: Protein quantitation and characterization will be conducted for the expression and purification of Hip1. Protein concentration will be determined, and the enzymatic activity of Hip1 will be recorded. Protein purity will also be assessed. Crystal trials will be assessed by scoring wells. Students will be required to meet with the P.I. and to attend lab meetings on a regular basis; they will be required to present their data at local and national scientific conferences.
5-18	Qianwen Rachel Bi & Jinpeng Tang (Fa18-Sp20)	GREEN – How Blockchain and AI Affect Financial Software FIN 4250 CS2450	Personal Financial Planning, Computer Science 2 faculty	10 student researchers	Build a virtual financial planning software platform incorporating Blockchain and AI technology. Students from PFP will provide domain knowledge in financial planning, perform acceptance testing, explore finance related activities that could incorporate Blockchain and AI technologies, and give feedback on the prototype. Computer Science students conduct research, development, and testing of the prototype.
5-19	Sally Rocks* *(Fa18-Fa19)* *Interviewed 20/22/19*	GREEN – Micro-Plastics Pollution in Utah Valley	Chemistry, Earth Sci., Forensics 3 faculty	7 student researchers	A team of 5 students in Chemistry have worked with a Forensic Science student and an Earth Science student to quantify microplastic pollution in air samples and in the surface water and sediments of Utah Lake. Students are designing their own procedures based on literature precedents, applied to local problems.
5-20	Vern Hart (Fa18-Su19)	GREEN – Establishment of an On-Campus Artificial Intelligence Lab for Inter-Departmental Cooperative Data Science	Physics 1 faculty	12 student researchers	The project establishes an artificial intelligence (AI) laboratory, which will be freely available to all research groups on campus. Students use a spectrophotometer to collect spectroscopic data from mixed cell samples (i.e., 20% pancreatic/80% breast). The collection of these new

YEAR 5 (2018-2019) HIELG, GREEN, AND URSIG GRANT RECIPIENTS					
#	Project Lead	Project Title	Department/ # Faculty	# Student Participants	Description
					data will facilitate further development of the neural network. Participating students are required to present in campus colloquia to raise awareness of the potential for using the AI lab in student research projects.
5-21	Jared Chapman *(continued)*	GREEN – Project Delphinium, a Unique and Exciting Approach to Student Engagement	Woodbury School of Business 1 faculty	600 students 2 courses 2 student researchers	This project proposed using an educational gamification platform named Project Delphinium to affect behaviors and attitudes that in turn impact instructional effectiveness and learning outcomes.
5-22	Armen Ilikchyan & Elena Laricheva (Sp18-Fa18)	GREEN – Integrating Virtual Reality into Traditional STEM Curriculum	Engineering & Technology; Chemistry 2 faculty	150 students 7 assistants 4 courses	Develop content-based VR-enhanced instructional materials that improve understanding of the abstract physicochemical concepts in low visual-spatial ability students. Chem 1210 and TECH 1010, 2202, 4910

Year 5 Totals: ***Grants:*** 4 HIELG, 9 URSIG, and 9 GREEN = 22 grants
Faculty Participants: 51 faculty from 18 departments **Course Redesigns:** 24 **Sections:** ~51
Student Participants: 124 student assistants, fellows, researchers, technicians; 4,039 in class students; 1,635 elementary students

Year 5 Report (2018-2019), the Title III program awarded 4 HIELG, 9 URSIG, and 7 GREEN grants for a total of 20 grants. Grants were awarded in 7 of the 8 the colleges and schools of UVU and involving 48 faculty, over 3,340 UVU students, and 1,635 K-6 students, at a cost of $308,965. Projects include course redesign (to all or most sections), co- or extra-curricular student engagement projects, and undergraduate research projects.

YEAR 6 (2019-2020) HIELG, GREEN, AND URSIG GRANT RECIPIENTS						
Type	**Project Lead**	**Project Title**	**# Courses Benefited**	**Department / Faculty**	**# Students Involved**	**Description**
6-1	Afsaneh Minaie *(continued)*	HIELG – Freshman Practicum Engagement (FPE) Program	1	Engineer. & Technology 3 faculty	2 assistants 35 students in class	Established a Freshman Practicum Engagement (FPE) program which employs a series of hands-on experiments. ENGR 1000 - Introduction to Engineering was redesigned and the following courses impacted: ECE 1020 - Computer Engineering Problem Solving, ECE 2700 - Digital Design I, ECE 2705 - Digital Design I Lab, ECE 2250 - Circuit Theory, ECE 2255 - Circuit Theory Lab.
6-2	Leigh Ann Copas *(continued)*	HIELG – Embedded Tutoring Support for Writing Enriched Courses	10	Writing Center 25 faculty	41 fellows 1,500 students in class	Over 3 semesters, about 1,500 students in 10 sections of HIST 1700 received embedded writing tutoring support. Working with the faculty teacher, fellows conducted out-of-class workshops, in-class training session, and one-on-one tutoring. They promote growth of learning communities.
6-3	Maureen Andrade *(continued)*	HIELG – Team ePortfolios: A High Impact Practice	1	Business 4 faculty	300 students 3 researchers	Previously redesigned **MNGT 3000** (Intro to Org. Behavior) to utilize Team ePortfolios – a collaborative, writing intensive platform for reporting on a service-learning consulting project and reflecting on concepts and theories. Students created a team charter outlining their roles and responsibilities on the team. Here, student researchers analyzed the past years' learning outcomes instrument.
6-4	A.Seibi A.Amin S.Tolman (Fa19-Sp21)	HIELG – Entering an SPE International Competition through the Establishment of a "Drillbotics" Students Club at UVU – A Multidisciplinary Project*	0	Engineer. & Technology 3 faculty	5 researchers	This project aims to build bridges between the various departments in the College of Engineering & Technology by establishing a Drillbotics Club to involve students from different programs (Mechanical, Electrical, Computer Science, Computer Engineering, and Architecture) in a multidisciplinary project related to the design, construction, and commissioning of an automated drilling rig "Drillbotics."
6-5	Yang Huo (Fa19-Su20)	HIELG – A High Impact Engaged Demand Survey: Application of Data Mining in Student Retention Strategy	7	Business 1 faculty	2 researchers	This study aims to identify potential issues on why students want to drop out, why they transfer or leave UVU and to follow up with intervention options and appropriate strategies to enhance student retention. This study applies data mining and decision tree modules to monitor student's

YEAR 6 (2019-2020) HIELG, GREEN, AND URSIG GRANT RECIPIENTS						
Type	**Project Lead**	**Project Title**	**# Courses Benefited**	**Department / Faclulty**	**# Students Involved**	**Description**
						profile, analyze student academic behavior, to provide a basis for efficient intervention strategies.
6-6	Marcy Hehnly (Sp2020)	HIELG – Service Learning in Criminal Justice	1	Health & Public Service 1 faculty	25 students in class	A course was implemented for students in Criminal Justice for students studying about police, courts, corrections, juvenile justice, and victimization to be conducted over spring break. The course has a sizable service-learning component to get students involved in the community, develop leadership skills, and spur students to graduation.
6-7	Nathan Goldfarb *continued*	GREEN – Tuberculosis Drug Discovery: Optimization of Potent Hip1 Inhibitors by Structure-Based Drug Design*	0	Science / Chemistry 1	3 student researchers	Students were engage in hypothesis-driven drug discovery research. Specifically, students learned how to express, purify, and crystallize the novel Tuberculosis drug target, Hip1 and how to measure enzymatic activity and to keep a detailed lab notebook. The main objective of the project was to crystalize NS-049-2, our lead compound, with Hip1 to map the active site of the enzyme. This information is critical to the refinement of NS-049-2 for any pharmaceutical liabilities.
6-8	Qianwen Rachel Bi & Jinpeng Tang *continued*	GREEN – How Blockchain and AI Affect Financial Software	0	Business / Engineer. &Tech. 2 faculty	14 student researchers	Build a virtual financial planning software platform incorporating Blockchain and AI technology. Students from PFP provide domain knowledge in financial planning, perform acceptance testing, explore finance related activities that could incorporate Blockchain and AI technologies, and give feedback on the prototype. Computer Science students conduct research, development, and testing of the prototype.
6-9	Sally Rocks *continued*	GREEN – Microplastic Pollution in Utah Valley	0	Science & Forensics 3 faculty	5 student researchers	A team of 5 students in Chemistry have worked with a Forensic Science student and an Earth Science student to quantify microplastic pollution in air samples and in the surface water, and sediments in Utah Valley, including Utah Lake. Students are designing their own procedures based on literature precedents, applied to local problems.

YEAR 6 (2019-2020) HIELG, GREEN, AND URSIG GRANT RECIPIENTS						
Type	**Project Lead**	**Project Title**	**# Courses Benefited**	**Department / Faclulty**	**# Students Involved**	**Description**
6-10	Erin Riggs (Su20)	URSIG – Art in the Herbarium; a Museum-based Interdisciplinary Pedagogy	0	Science 1 faculty	2 student researchers	The project aims to directly engage participants in museum-based interdisciplinary art projects. This creative, complex project stretches students multi-literacy skills. They are applying art in the service of communicating science. Not just to botanists but the drawings are an excellent tool for the citizen scientists as well, especially the watercolors – people really connect with the vibrancy and depth of that medium.
6-11	Yang Huo (Su20)	URSIG – Bankruptcy Prediction Model in the U.S. Restaurant Firms	0	Business 1 faculty	2 student researchers	Student researchers discusses the current bankruptcy prediction models in the context of pros and cons to determine the appropriate factors or failure phenomenon in cases involving restaurants that have filed for, or are currently in, Chapter 11 bankruptcy. Then they compared these factors to similar restaurants that are either operating successfully (not in bankruptcy) or no longer operating due to financial failure.
6-12	Rachel Arocho (Su20)	URSIG – Content Analysis of Game-Based Learning in Family Science	0	Humanities & Social Sciences 1 faculty	2 student researchers	The project team is researching how game-based and game-related instructional designs and strategies are being used and reported in family science. They have identified and categorized key articles on the topic. They are in the process of applying those codes through a focused-coding process to refine our coding strategy before applying it to the next set of articles.
6-13	Steven Sylvester & Jay DeSart (Su20)	URSIG – Examining Public Attitudes Towards Consent Education in Public Schools	0	Humanities & Social Sciences 2 faculty	3 student researchers	The goal of this project is to help students learn the process one needs to go through to conduct a survey. In addition to learning the process of constructing a survey, the students also learned the art of writing survey questions and writing a literature review. The tested their survey and analyzed its effectiveness.
6-14	Qianwen Rachel Bi &	URSIG – Machine Learning (ML) and Artificial Intelligence (AI)	0	Business / Engineer. & Tech.	7 student researchers	The project explores how the combination of Machine Learning (ML) and Artificial Intelligence (AI) technologies will impact Personal Financing Planning software design. The

YEAR 6 (2019-2020) HIELG, GREEN, AND URSIG GRANT RECIPIENTS						
Type	**Project Lead**	**Project Title**	**# Courses Benefited**	**Department / Faclulty**	**# Students Involved**	**Description**
	Jinpeng Tang (Su20)	Modeling for Market Prediction		2 faculty		research team has developed, implemented, and tested an ML/AI model into personal financial planning software for investment price prediction.
6-15	Jordan Allen (Su2020)	URSIG – Twins in Higher Education: An Examination of Twins' Social and Academic Achievement at UVU	0	Humanities & Social Sciences 1 faculty	4 student researchers	The goal of this project was to collect and analyze the largest in-depth qualitative research project on twins in higher education. Our students collected 68 in-depth interviews, with precision and enthusiasm. Student researchers hone their qualitative analysis skills and refine their findings.
6-16	Ruhul Kudus & Sebastien Tauzin (Su20-Fa20)	URSIG – The Biological Partner Proteins of the Zebra Fish ALR Protein in Liver Regeneration using Zebra Fish Model*	0	2 faculty	4 student researchers	The project aims are (a) to have undergraduate students learn scientific methods and advanced genome technologies to achieve their career goals; (b) to discover genes involved in liver physiology: and (c) develop preliminary data for NSF or NIH grants. They are currently investigating two loci of COX-2 and a locus of COX-1 genes and investigate linkage disequilibrium of the three polymorphic loci of the COX-2 gene.
Year 6 Totals: ***Grants:*** 6 HIELG, 3 GREEN, and 7 URSIG grants = 16 grants ***Faculty Participants:*** 53 faculty from 6 Colleges/Schools **Courses Benefited: 19** ***Student Participants:*** 126 student assistants, fellows, researchers, technicians; 2,930 in class students						

YEAR 7 (2020-2021) HIELG, GREEN, AND URSIG GRANT RECIPIENTS						
Type	**College / Office**	**Project Title**	**# Courses Benefited**	**# Faculty Involved**	**# Students Involved**	**Description**
7-1	A.Seibi A.Amin S.Tolman *continued*	HIELG – Entering an Society of Petroleum Engineers (SPE) International Competition through the Establishment of a "Drillbotics" Students Club at UVU – A Multidisciplinary Project	0	Engineer. & Technology 3 facullty	9 researchers	This project aims to build bridges between the various departments in the College of Engineering & Technology by establishing a Drillbotics Club to involve students from different programs (Mechanical, Electrical, Computer Science, Computer Engineering, and Architecture) in a multidisciplinary project related to the design, construction, and commissioning of an automated drilling rig "Drillbotics."
7-2	N.Goldfarb *continued*	GREEN – Tuberculosis Drug Discovery: Optimization of Potent Hip1 Inhibitors by Structure-Based Drug Design	0	Science / Chemistry 1 faculty	3 researchers	Students were engage in hypothesis-driven drug discovery research. Specifically, students learned how to express, purify, and crystallize the novel Tuberculosis drug target, Hip1 and how to measure enzymatic activity and to keep a detailed lab notebook. The main objective of the project was to crystalize NS-049-2, our lead compound, with Hip1 to map the active site of the enzyme. This information is critical to the refinement of NS-049-2 for any pharmaceutical liabilities.
7-3	Ruhul Kuddus & Sebastian Tauzin *continued*	URSIG – The Biological Partner Proteins of the Zebra Fish ALR Protein in Liver Regeneration using Zebra Fish Model	0	Science 2 faculty	4 researchers	The project aims are (a) to have undergraduate students learn scientific methods and advanced genome technologies to achieve their career goals; (b) to discover genes involved in liver physiology: and (c) develop preliminary data for NSF or NIH grants. They are currently investigating two loci of COX-2 and a locus of COX-1 genes and investigate linkage disequilibrium of the three polymorphic loci of the COX-2 gene.
Totals:	***Grants:*** 1 HIELG, 1 GREEN, and 1 URSIG grant = 3 grants (All three are continuation grants from Year 6 due to COVID-19) ***Faculty Participants:*** 6 faculty from 2 Colleges/Schools **Courses Benefited: 0** ***Student Participants:*** 16 student researchers					

7 YEAR TOTAL (2019-2020) GRANT AWARDS SUMMARY							
	Grants Awarded	**Faculty**	**Students in Class**	**Student Assistants/ Researchers**	**Courses Modified**	**Sections**	**K-12 Students Impacted**
Year 2&3 (2015-17)	13	44	4,320	10	37	133	0
Year 4 (2017-18)	19	52	6,527	53	31	259	0
Year 5 (2018-19)	22	51	4,039	124	24	56	1,635
Year 6 (2019-20)	16	53	2,930	126	19	19	0
Year 7 (2020-21)	3	6	0	16	0	0	0
Total	73	206	17,816	325	111	467	1,635

7 YEAR TOTAL (2019-2020) HIELG, GREEN, AND URSIG GRANT AWARDS SUMMARY							
	Grants Awarded	**Faculty**	**Students in Class**	**Student Assistants/ Researchers**	**Courses Modified**	**Sections**	**K-12 Students Impacted**
HIELG Grants	27	116	15,707	84	91	436	0
GREEN Grants	16	38	2,109	118	20	31	1,635
URSIG Grants	30	52	0	123	0	0	0
Total	**73**	206	17,816	325	111	467	1,635

APPENDIX B: EVALUATION OF HIELG, GREEN, AND URSIG GRANTS

This is a detailed report of the efficacy of the HIELG, GREEN, and URSIG grants, based primarily on the interviews with the directors of 13 projects that were conducted in Years 5 and 7, and also on some of the final project reports that were submitted. The standard questions asked in each year are given in the two chards below.

Questions asked in Year 5

(Questions relate to projects that were conducted in Year 5)

1. How did you use effective models or strategies for student engagement in planning and conducting your funded project? [relates to objective 1.1]

2. Did you participate in any of the faculty training activities funded by the Title III program before (or after) you applied for this project? [SCULPT Learning Circles; SCULPT Mentoring Academy.] If so, which ones. To what extent were they useful in designing and conducting your project? [relates to Objectives 1.2 & 1.3]

3. How were students engaged in your project? What did the students do? How did they learn? What were the benefits to them? [relates to Objective 1.1]

Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? Can you cite any instances?

4. This type of grant to a university to disburse funds to meritorious student engagement projects is very unusual. How did this opportunity benefit you and your students? [relates to Objective 1.1]

5. What did you learn about planning and conducting student engagement activities over the course of this project that you will carry into the future? [relates to Objective 1.1]

6. Do your future student engagement plans require funding? If so, where will you seek funding?

    Have you worked with the Office of Sponsored Programs to acquire external funding? Have you taken any training offered by OSP? [relates to Objective 1.5]

    Do you think your experience with the project has prepared you for successful external funding?

7. Do you have any publications, presentation, or conferences as a result of this project?

Evaluation Question 1.1.2: Did faculty grant recipients use effective models or strategies for student engagement in planning & conducting their funded projects? (see survey question #1)

Descriptions of the six projects whose directors were interviewed for this assessment are provided below with an explanation of their use of effective models and strategies.

Maureen Andrade, HIELG – Team ePortfolios. This project implemented and evaluated the use of team ePortfolios in Management 3000 (Introduction to Organizational Behavior). Dr. Andrade indicated that Team ePortfolios offer advantages beyond individual *ePortfolios* in terms of fostering learning outcomes and integrating multiple High-Impact Practices. They are a *collaborative assignment*, *writing intensive*, and in this case, provide a platform for reporting on a *service learning* consulting project (*italics* here and below indicates High-Impact Practices identified by George D. Kuh). The team ePortfolio assignment provides students with the opportunity to apply the organizational behavior concepts and theories they are learning such as communication, conflict resolution, benefits of diversity, understanding personality differences, effective teamwork, and leadership. The assignment is also designed to help students develop the learning outcomes desired of higher education graduates (e.g., written communication, critical thinking, application of learning, teamwork).

Leigh Ann Copas, HIELG – Embedded Tutoring Support for Writing Enriched Courses. Ms. Copas indicates that the Writing Center, which she directs, had a hard time adapting a national model effectively at UVU because it is an open enrollment institution. This project merged the popular model of SI (Supplemental Instruction) from University of North Carolina with the idea of Writing Fellows, which is the one-on-one, discipline focused, kind of Writing Center tutoring. The students working on this project were called Writing Fellows (WFs) and were assigned to specific sections of HIST 1700, a *writing-intensive*, general education course with a high failure rate. WFs attend classes and worked with both the professor and the students. Over 3 semesters, 10 WFs provided embedded writing tutoring support to about 1,500 students in 15 sections of HIST 1700. Both the Writing Fellows and the HIST 1700 students participated in effective engaged-learning activities.

Dustin Shipp, URSIG – Raman Hyperspectral Imaging of Biological Cells and Tissues. The focus of this summer research project was to improve the new Raman spectroscopy system and the software controlling it in preparation for imaging applications. Procedures were also established for preparing cancer cells, bacteria, and tissue phantoms for measurement by this system. Dr. Shipp organized this *faculty-mentored undergraduate research* project utilizing effective strategies for structuring communication, discerning student needs, organizing the project, and managing expectations for the research and the mentoring relationship. He also employed strategies for evaluating the effectiveness of his mentoring. The project funded the participation of 5 students and facilitated the volunteer efforts of 3 others.

Matt Hasara, URSIG – Endurance Race Team Tire and Brake Research. Students in this project worked to prepare a car to compete in an endurance race, and while racing, to test tire and brake wear. (The car had been built by students working on two previously funded HIELG grants.) A primary pedagogical strategy for this project was the organization of the students into two teams, each with a team leader. Each team of 5 or 6 students was responsible for certain tasks. Necessary tasks were determined in an initial group meeting and divided among the groups. The Project Director keeps an eye on everything to see that

the groups are going well and that the work is correct. The car was raced 4 times with students manning the pit stops. The team won the Champcar Endurance Series and was invited to participate in the Laguna Seca race in Monterey in December. Mr. Hasara says the project is designed to engage students in something they are passionate about while teaching them about car technologies and teamwork applicable to their careers.

Sally Rocks, GREEN – Micro-Plastics Pollution in Utah Valley. A team of 5 students in Chemistry worked with a student in Forensic Science and a student in Earth Science to quantify micro-plastic pollution in air samples and in the surface water and sediments of Utah Lake. The project targeted freshmen and sophomores in Chemistry because an effective model for student retention is getting students in scientific fields into research as soon as possible. A challenge is that they don't have the discipline-centric knowledge yet to be effective researchers, so Dr. Rocks chose a topic appropriate for novice researchers. Other strategies (see below) were designed to assist novice researchers. The application of research to a local problem *integrates two High-Impact Practices – undergraduate research and service learning*.

Krista Ruggles, GREEN – Integrating the "M" in STEM Across the Content Areas in a Teacher Preparation Program. Under the project director's supervision, three student assistants taught faculty in six content areas of Elementary Education (EE) to integrate math into their curriculum. The faculty redesigned 8 upper-division courses and then in turn taught the math-integrated curriculum to 409 EE majors in their classes. The EE majors then applied what they were learning by conducting math-focused activities in STEM Fairs at 10 elementary schools involving 1,635 K-6 students. The Design Thinking Process was used to plan the project and to prepare lesson plans. Other effective strategies included a focus on real-word problems, hands-on inquiry and open-ended exploration, productive teamwork, and rigorous application of the math principles being taught.

Assessment of Question 1.1.2. All of the projects whose directors were interviewed for this assessment were thoughtfully designed to use effective models and strategies for student engagement. Other funded projects revealed similar levels of thoughtful design in their grant applications.

Evaluation Question 1.1.3: How were the students engaged in the projects? What did they do? How did they learn? (see survey question #3)

Each of the projects had complex levels of student engagement that are difficult to summarize briefly. The discussion below presents highlights and themes of student engaged learning and offers examples.

► **Students became experts in their fields and topics, teaching other students or faculty.**

- Sally Rocks – The summer research project on micro-plastic pollution was primarily for chemistry students but involved one student from forensics and one from earth science as well. The latter two students taught the chemistry students what they needed to know about their field so they could understand and conduct the micro-plastics research. The two students also assisted with the research in their areas.

- Krista Ruggles – The math integration project employed several advanced Elementary Education (EE) students who conducted professional development for six EE faculty members on incorporating math in their content areas. The students gave presentations, wrote lesson plans, and mentored the faculty members throughout the semester.
- Leigh Ann Copas – The Writing Fellows in this project were trained by the Writing Center and attend weekly training meetings; most also attend an assigned HIST 1700 class to become knowledgeable about the subject. They worked with their assigned faculty members to determine the needs of students for writing assistance and offer suggestions. They conducted writing workouts (workshops) for the students, both in and out of class. They met one-on-one with students in face-to-face and online tutorials.

► **Students were team leaders on projects.**

- Matt Hasara – The students designated as team leaders on the endurance race car project were responsible to work with their team members to see that they know their assigned tasks and are doing them the right way. Lucas Smith, one of the team leaders explained: "I met with the team and made sure each person knew what his job was and how to do it. If they didn't know something, I helped them learn how. If we had a problem, we took it to Matt."
- Maureen Andrade – The Team ePortfolios project was designed so that students chose their own leader for the team and defined the responsibilities of the team leader in a written document called a charter. They had an opportunity to reflect on the effectiveness of the group and revise the charter if necessary. If the team had problems, Dr. Andrade would refer them back to their charter to resolve the issue or revise the charter.

► **Students were given significant responsibilities on the project.**

- Sally Rocks – The project on micro-plastic pollution was divided up so that every student researcher had ownership of a piece of the project. Dr. Rocks says this is important so they can all make contributions independently toward the greater goal. Thus, students drive the project and take greater individual responsibility.
- Maureen Andrade – For the Team ePortfolios project, the charter drawn up by the team members also defined the roles each team member would play and the rules that governed their work and contributions. Each team member's contribution had direct impact on the service-learning project and the final grade. At the end of the project, team members assessed the contribution of their team members and the process as a whole. Dr. Andrade reports that students reported that while they have had bad experiences with group work in the past, it really worked well in this class. Many students, even in the online class, say that their team mates have become their best friends.
- Dustin Shipp – Students on the Raman spectroscopy project were assigned different tasks; some worked as a team, others more independently. Three students aligned the instrument by improving the resolution and adjusting the mirrors and lenses. One student wrote programming to control the instrument and save data. Another student developed innovative tissue phantoms (substitutes for tissue) out of agar. Others worked to setup for cell and tissue culturing. All of these tasks were challenging and unique to this instrument.

- Matt Hasara – On the endurance race car project, each student had an assigned task that was significant to the overall project. When possible, students could choose a task that fit their interests, but were expected to develop new skills. When team leader Lucas Smith was asked if he felt all of the members of his team did a good job, he responded: "Yes, they really went above and beyond what they had been capable of. They didn't want to let the other team members down, so they worked hard."

► **Students engaged in significant problem solving and the in processes of problem solving.**

- Dustin Shipp – When the College of Science purchased the Raman Spectroscopy system last year, it was purchased in pieces rather than pre-assembled. Dr. Shipp explains that this strategy reduced the cost of the system and provided greater opportunity for student learning. Since this system is unique and will be designed to be flexible to multiple uses, there are many problems to resolve. All of the student assignments on the project have required considerable effort in problem solving. This is allowing students to gain experience in a field (instrument control) were there is little training and much demand
- Sally Rocks – In the micro-plastics project, students created protocols for sample collection, separating the plastics, and analyzing the plastics – all informed by scholarship. Dr. Rocks said she had her own ideas about how this could be done, but let the students work it out for themselves. She indicates that this took more time and great patience on her part, but was very worthwhile in helping students understand scientific processes and in develop problem solving skills. Some are developing novel approaches.
- Krista Ruggles – Educators in the math integration project (that is student assistants, faculty, and pre-service teachers) were taught to create lesson plans using the Design Thinking Process: determine the problem, define the need, plan, implement, and debug. Each group had opportunity to implement this process in preparing a lesson that addressed a math problem and testing it on students. Some students created stop-motion animation videos that incorporate a math problem appropriate for elementary students.

► **In-depth exploration of academic concepts, theories, and scholarly literature and its application to real-world problems.**

- Maureen Andrade – For the Team ePortfolios, teams choose a concept or a theory in Organizational Behavior, and they present their understanding of that theory and how it can be applied to an existing organizational problem. Dr. Andrade comments: "One challenge has been making sure they're not just coming up with their ideas out of the blue and that they're basing them in the theories and concepts for the course. They come up with all kinds of creative solutions for an organizational challenge, but I really have to emphasize that they base this on theory and concept."
- Dustin Shipp – To increase the application of scholarship to the Raman spectroscopy project, Dr. Shipp introduced a journal club for everyone working on the summer project. Students took turns choosing Raman spectroscopy papers from the literature for everyone to review. In the club, they discussed what worked and what didn't, what their team could do better, what ideas they could borrow from them, etc. This activity helped students overcome the fear of getting into the scientific papers and learn the basics of Raman spectroscopy. Dr. Shipp initially feared students wouldn't participate or wouldn't like it, but they liked it very much because they saw the value in it.

- Krista Ruggles – Pre-service teachers in the math integration project were required to integrate math concepts into diverse fields of study, such as social studies, language arts, instructional media, and creative arts. To do so, they needed to understand the math concepts, the field of integration, and the problems involved in teaching students about the concepts. The real-world application varied among EE classes. Math Methods 1, for example, required students to write math-focused coding lessons which they taught to students with autism at the UVU Melissa Nellesen Center for Autism. Other students created a math-focused STEM activity that would be presented at the STEM Fairs.

► **Reflection.**

- Leigh Ann Copas – In the embedded writing tutor support project, Writing Fellow were asked in staff meetings to reflect on questions such as: "How do you think your classroom work will inform your work as a tutor?" and vice versa, "How will your work as a tutor inform your work as a student?" They are asked to relate and reflect on the engaged learning experience they get by being able to apply what they're learning to tutoring, and to talk about how the students they tutor are engaging in that learning process.
- Maureen Andrade – For the Team ePortfolios project, the assignments (called artifacts) include an opportunity to reflect on what they've learned through the study of a particular theory or concept. The structure of the class also includes a mid-term reflection for teams and individual reflections at the end of the semester. Dr. Andrade gives students rubrics and questions to guide their reflections. At the mid-term reflection, they assess how effective their teamwork has been and what is working well or not so well. They look at their charter to see if they need to change anything or if they need to be more specific. They also set goals for the remainder of the semester. Dr. Andrade explains: "I've been amazed at their reflections on what they've learned. It's far surpassed my expectations."
- Krista Ruggles – The math integration project has reflection built into the Design Thinking Process, which was incorporated throughout this multi-level project. For example, the faculty revise their lessons based on their own reflections and reflections from their students. The pre-service students are taught to use reflection in lesson plan development: after they've implemented a lesson, they need to reflect on its effectiveness and "debug" or revise the lesson. Students are taught to see reflection as an integral step to improving practice.

Assessment of Question 1.1.3. The undergraduate participants in the projects that were evaluated by interview were engaged in multiple evidence-based activities capable of producing outcomes of significant value to them as students, as individuals, and in their future careers. The undergraduates in the other internally funded projects were similarly engaged (see the project descriptions in Appendix A). The projects were organized thoughtfully and included known High-Impact Practices. Common elements of the projects, in addition to those described above, were that they required student effort, they demanded interaction with faculty and peers on substantive matters, and they challenged student participants in meaningful ways.

Evaluation Question 1.1.4: Were these internal grants effective and beneficial in increasing student engagement? (see survey question 4)

As described above, the internally funded grant projects, have provided numerous opportunities for high-quality student engagement. In 2018-2019, about 3,200 undergraduates were directly involved in student engagement as a result of these grants. Moreover, the projects are increasing student engagement opportunities across the institution in the following ways.

► **Laid a foundation for continued research for other students.**

- Several of the research projects requested funds for equipment that will be used in future laboratory research and in curricular and co-curricular engagement activities. These include Erin Riggs (Project #6), Sally Rocks (Project #19), and Vern Hart (Project #20).
- At least two projects improve facilities to make more undergraduate research possible. Dustin Shipp's project (#5) has prepared the Raman Spectroscopy system for work for other projects and has initiated collaborations with several other faculty/student teams. Vern Hart's Artificial Intelligence Laboratory (Project #20) will also be available to other research groups on campus.
- The project by Jessica Hill (#14) catalogs and assess undergraduate research opportunities across all colleges at UVU in order to determine what models are most successful. The project should initiate dialogue and produce recommendations to help faculty strengthen undergraduate research experiences for many students.

► **Prepared educators to incorporate stronger student engagement into future classes.**

- Afsaneh Minaie (Project #1) and four other faculty members in engineering have established a Freshman Practicum Engagement program that will engage students in at least three courses, including Introduction to Engineering (ENGR 1000), and three laboratories with hands-on learning. Similarly, Amanda Bordelon (Project #2) in Civil Engineering has revised a section of the ENGR 1000 course to better teach and engage students in this unique sub-field of engineering. It also includes hands-on engagement. Both projects should impact students in UVU's new engineering programs for years.
- Krista Ruggles math integration project (#15) impacted 8 elementary education courses that will now include training on integrating hands-on math for their pre-service teachers in a variety of content areas. The faculty teaching these courses will likely continue to provide engagement components of their courses that place pre-service teachers in educational settings to implement their lesson plans with young students.
- Maureen Andrade (Project #4) embedded Team ePortfolios into her MNGT 3000 course, of which she generally teaches 3 sections per semester, averaging about 110 students per semester during the academic year. Moreover, the model she is has refined and is now assessing should be useful to other faculty at UVU if they have information about it.

► **Established high-quality projects and models for engagement that will continue into the future.**

- Qianwen Bi in Financial Planning and Jeinpeng Tang in Computer Science have teamed up on Project #18 to build a financial planning software platform that incorporates Blockchain and Artificial Intelligence technology. Students are eager to participate in this cutting-edge project, which may result in a viable product for technology transfer.

- Matt Hasara's endurance race car project (#9) has students fired up to participate. He says: "Many students are really interested in racing, so building and racing cars gets them excited. Students ask if they can be on the team. [When they] see we are building race cars and racing them, and they say: "I want to be a part of this!" The project is built on two previous projects, and he will seek support to continue these projects.
- Jessica Pauly (Project #6) and Maria Blevins (Project #7), both in the Communications Department, each have research projects that have had prior internal funding and will likely continue into the future. The projects focus on topics that students care about – mental health experiences for women in higher education and sexual harassment in the male-dominated outdoor industry, respectively.
- Trevor Warburton (#16) has established an EdCamp at UVU, sponsored by a national organization. EdCamp improves pre-service teacher experience through connection and collaboration. In this initial year, about 300 students participated. With funding, this much needed informal conference will likely continue for years into the future.
- Sally Rocks (Project #19) has initiated a model of undergraduate research targeting STEM student in their freshmen and sophomore years. This is a much-needed area of student engagement at UVU. When asked about her plans for future engagement projects, she says: "I have so many ideas!"

► **Established collaborative relationships that will generate new engagement opportunities.**

- Krista Ruggles in the College of Education (CE) indicates that the current project helped establish a relationship with the College of Engineering & Technology (E&T) that will continue. They were recently funded for two UVU SEED grants of $30,000 each for a joint project. They are creating T-pods – moveable pods that have all the supplies to teach the new science and engineering standards for 3rd grade. The CE is writing the curriculum and training the teachers, and E&T is buying the supplies and collaborating on their use. Some 3rd grade teachers and their principals are ready to start this spring.

► **Provided evidence of effectiveness to decision-making administration.**

- While the embedded tutoring support project directed by Leigh Ann Copas (#3) worked only with HIST 1700 courses, it is a model designed to be applied to other writing-intensive courses at UVU as well. Program evaluation has provided evidence of effectiveness such that the funding for the HIST 1700 courses has been institutionalized through PBA (UVU's Planning, Budgeting, and Assessment process). If this effort proves successful, more funding might be acquired through PBA. This should impact 1,500 students next year and potentially more in later years.

Assessment of Question 1.1.4. The overall Title III project has sought to increase student engagement across the institution, which has been gaged by the extent to which students are participants rather than audience and the extent to which the emphasis is on processes and problems rather than on content (Healy & Jenkins, 2009). The internally funded grant opportunities were highly effective and instrumental in accomplishing this. This year at least 3,340 UVU students participated in high-quality curricular, co-curricular, and extra-curricular engagement activities directly because of the funded grants. However, an unknown, but likely greater number of students also participated because of course revisions that were made through grants in previous years, because of faculty who have adjusted their way of teaching based on

their participation in other funded projects, and the value students increasingly place on participating in these opportunities.

Evaluation Question 1.1.5: What lessons were learned by faculty about planning and conducting student engagement activities that they will carry into the future? (see survey question #5)

Some lessons learned were about how faculty conducted their particular projects and are not discussed here, but other lessons were more generalizable and are summarized below.

► **Project-based learning is more engaging to students than lectures.**

- Krista Ruggles – "I know by *how* my students talk about my courses that they are excited to come to class. So I will continue to do project-based learning – in the Math Methods I and Educational Technology Courses. My students are responding much better to having opportunities to be creative than to me just lecturing. My classes are fun. The students are always out in the hallway with robots because there isn't enough room in the classroom. The Dean has to step over them as she walks through. It's just fun." I was lecturing more before, and now I have taken more of an inquiry stance where I pose a problem and then have students create some kind of product. So instead of telling them how to do something first, I let them figure it out. It drives them crazy, but I tell them that this is what we want our classrooms to look like. We want to stop telling students how to do something and instead let them figure it out on their own.

► **Students need time to develop processes, conduct problem solving, and develop solutions.**

- Sally Rocks – "I learned that if you let students direct their research, the benefit to them is immense. The cost is on the project timeline. You have to let students explore and struggle a bit with problems, and that will make things go more slowly than if I just said, 'I'll do it.' But then they wouldn't learn anything. So I learned to patient."

► **Engaged learning benefits from supervision and structure.**

- Matt Hasara – "You need a committed faculty member to do engaged learning successfully. It requires serious oversight." He observed another student engagement project last year where students were each given a task and then let go without supervision. There were a lot of problems with students not doing the work, not doing it correctly, and having friction with other team members. The project went on for a year, but nothing was accomplished. The students didn't learn much. He will carry on the strong organizational structure that allows students to learn with supervision and become more and more independent.
- Maureen Andrade – "I learned a huge amount [about planning and conducting student engagement activities]. I've continued to make changes every semester based on student feedback. I've expanded what I've done with the ePortfolio so that they document all of their assignments in there. And then just refining and structuring it to help make students more successful, since it's really new to them." Elements of this structure that help students be more successful are the structure of a team charter, clear assignments, assessment rubrics, and reflection questions.

► **Student respond well to innovative pedagogical approaches when they see their value.**

- Dustin Shipp – "With the Journal Club idea, I was really hesitant to try it because I didn't know if the students would buy in. It's not directly related to what they're doing; they're not getting course credit for it; they may think there's really nothing in it for them. I was wondering if I would just be sitting there reading a paper by myself in an empty room. But it actually turned out really well. And I think because students saw the value of it. They knew what I was trying to do, and they saw that it was going to work. That increased my confidence in trying things like that in the future.
- Leigh Ann Copas – "People don't always do what you expect them to do. I found I need to tell students why taking the pre- and post-surveys are helpful to the program, not just to get funding, but to improve our service." Even when the Writing Fellows worked with the faculty, it was beneficial for the WFs to communicate their vision of how students would benefit. It was also helpful for faculty to communicate their expectations for student writing and their perception of the students' needs in this respect.

► **Faculty who are new to engaged learning benefit from having a mentor.**

- Matt Hasara has a mentor in the same department who has student teams build and race cars on the Bonneville Salt Flats. This mentor significantly accelerated his learning about how to carry out student-engaged projects in his area of interest.

► **Participation in undergraduate research is broader when students are paid for summer work.**

- Sally Rocks – I didn't know at UVU whether paying students or having them take research for credit would work best. I did a combined model for this grant. They took research for credit during the school year, but over the summer, they received an hourly salary. The salary was really important, especially to non-traditional students. To do research with me, they had to give up work hours that they would normally use to pay for their college in the fall. We don't just have students looking for unpaid internships; they need the money to finance their education, if not their rent and food.

Assessment of Question 1.1.5. The lessons learned by faculty in implementing these projects concurs with literature on evidence-based practices in engaged learning, but these lessons are individually learned and personally felt in a way scholarly articles cannot convey. For example, Dr. Ruggles observation that "project-based learning is more engaging to students than lectures" was not a new concept to her, but it is now reinforced by a new eagerness in her students to attend and participate. Participating faculty are gaining more confidence at solving the problems associated with bringing engaged learning to their own classrooms, students, and circumstances. Moreover, the funded projects provide effective models of what works at UVU for future projects.

Dr. Rocks project was very useful at engaging freshmen and sophomores in undergraduate research, something that few other funded undergraduate research projects seem to have done. More attention should be given to this project, especially among those concerned with the large percentage of students, especially women, leaving STEM majors. A body of literature on undergraduate research in STEM fields, including research funded by the National Science Foundation, supports the idea that involving students early in research retains them in their fields, but Dr. Rocks' work shows how it can be done at UVU.

Dr. Andrade's work with Team ePortfolios seems particularly innovative and may become a model to other faculty at UVU and elsewhere. Dr. Alsarhan is working with her to refine and evaluation plan which will be an important step in preparing the project for dissemination.

Evaluation Question 1.1.6: Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? (see survey question 3b)

As the primary goals of the Title III project are to increase graduation and retention rates for students, project directors who were interviewed were ask if they felt their project had assisted with these institutional aims and those of better preparing students for careers and/or continued studies. Their responses are summarized below.

► **Retention & Completion**

- Dustin Ship – "Definitely yes. Really, it's that as a student in class, they are just receiving, but here [in the summer research project] they're giving something back – they're involved, they're necessary. So, that alone makes them more likely to keep coming to school, because other people are relying on them being there. And that doesn't even bring to mention the more physiological aspects that their realizing that what they are learning in class is applicable in real life and is really cool. That is motivation to keep them involved and engaged."
- Matt Hasara – "Yes, undoubtedly!" Matt says they have a lot of students in the two-year Transportation Technologies program come and go without obtaining a degree. However, the race team participants complete their program at twice the rate of other students. Having students engaged with a project they really love and are interested in keeps them going in the program and teaches them a lot that will be useful in their careers. His student Lucas Smith indicates that the teamwork is also critical and fun.
- Leigh Ann Copas – "Yes. For the students receiving writing tutoring, we have looked at the grades and student disposition toward writing (pre- and post-surveys). We are finding that what they learn in tutoring transfers into other courses as well. In fact, tutoring has positive effects in three critical areas – social, application, and community building. Studies show a lift in persistence and an increase in retention and graduation. They receive A's in key courses at a higher rate, which is a known indicator of student success. They also have shown (in the History course) a decrease in DFW grades."
- Sally Rocks – "Of the seven students involved in the project, six are still in STEM at UVU, and the seventh was called up for military service. He's coming back, he hopes, but his leaving was rather involuntary. So in that respect, we had success in keeping students involved and continuing on in their STEM major."
- Sally Rocks – "A side benefit of having younger students in the project is that having the more inexperienced students paired with the experienced students, there's a lot of peer-to-peer learning. And that kind of environment is an incredibly effective teaching tool, and it also results in the formation of a community where my students know each other really well. . . I think this program has been an effective means of building that

community at a commuter school and fostering peer-to-peer interaction, both as a teaching tool and as a retention tool."

- Sally Rocks – "Research has shown when you get STEM students into research as soon as possible it helps retain them in their programs. This is especially true for no-traditional students because it's difficult for them to visualize themselves in a technical field. The role models aren't there. Like, if you want to be a scientist, and they're all white males, where does that leave you? So it's important for retention in STEM for students to be placed where they can immediately *act* as a scientist, act in that role."

► **Career and Graduate School Preparation**

- Dustin Ship – "For most of these students, the next step is going to be graduate school. And what they're doing here – working in the lab – is exactly what they're going to be doing in graduate school. I think they'll be more likely to get into a good graduate school because the schools will be looking at their applications and saying, "Oh, of course, they're going to succeed in this environment – they already have."
- Leigh Ann Copas – "For the Writing Fellows themselves, they experience a level of satisfaction with their university experience. It also prepares them for their future work. Writing Fellow alumni report that tutoring prepared them to teach in the classroom, to work one-on-one with students, and to control a group. About 99% of our Writing Fellows are placed in a job or go onto graduate school after receiving their bachelor's degrees."
- Maureen Andrade – "It's been pretty amazing in terms of what students are learning. Some have said that they learned the concepts much more deeply because they had to almost teach them to someone else through creating the artifact. They were accountable to each other. Also, all of their work for the class is in the ePortfolio, so they have something to show an employer. This will help them get good jobs."
- Krista Ruggles – "The ultimate goal for me is to train teachers to change a system." Most students in the pre-service program were taught in an education system that was based on standardized testing. Now education is going back to project-based and problem-based learning. Her program teaches the 4Cs – creativity, collaboration, communication, and critical thinking. "This shift is taking place because we realized that we aren't preparing the workforce to think outside the box. We were training everyone to think the same way or do things the same way. It's becoming evident now, for example in the STEM fields, that we need people in the workforce who are more innovative."

Assessment of Question 1.1.6. A handful of student engagement projects alone may not impact the institutional retention and completion rates, but for the students who participated in these projects, participation does appear to have made a difference. Engagement activities become more valuable retention tools as students increasingly see their value.

The Value of Small Internal Grants for Faculty-Initiated Engaged Learning Projects. The initial Title III proposal was unique in the range of Title III-funded projects by awarding internal grants to meritorious student engagement projects. A question the evaluator brought into this exercise was whether or not the internal grants were an effective catalyst for increasing engaged learning across this comprehensive, open-enrollment university. It should be noted that the initial proposal did not specify that the HIELG, URSIG, and GREEN grants would be awarded, but rather that grants would be awarded for model high-impact projects, similar to UVU's Grants for Engaged Learning (GEL) grants that were and are available. The Program Directors have designed the specific HIELG, URSIG, and GREEN grant programs to meet the Title III objectives and respond to institutional needs.

This evaluation demonstrates that the projects carried out have been of superior quality – better than the proposers could have planned or envisioned by themselves. Changing the climate of an institution requires many knowledgeable people who are excited about doing work that matters to them. Like the faculty who learned that students need time to develop processes, conduct problem solving, and develop solutions, the institution should likewise understand that faculty need time to do the same things as it pertains to developing superior student engagement opportunities – curricula, co-curricular, and extra-curricular. UVU should continue committing resources that will enable faculty to do this.

Cheryl Hanewicz, the Associate Provost of Engaged Learning and the director of a previous Title III project at UVU, was asked, if, from her perspective, the Title III funds for internal grants were well spent in strengthening the institution. She replies:

> "Absolutely yes! Because the grants are focused on increasing engagement in the classroom, and that can be a heavy lift for faculty. Sometimes there are resources that are needed that departments can't fund. And it takes time. Like if you're rebuilding curriculum, it takes a lot. And so giving faculty 'permission' and funding to do that, that's what really changes an engaged classroom.
>
> "If you think of traditional grants, it's usually just the same finite people who are working, and it's the same-old, same-old after so many years. But here, we're getting fresh eyes on this every single year. And the quality is increasing. So not only do students talk with each other, faculty do as well. They're bring ideas to the table (probably hundreds of ideas that have come forth over the lifetime of this grant) that in a traditional grant never could have happened. Faculty with limited funds in their classrooms never would have thought of these things."

Thus, funding from external grants through the Office of Sponsored Programs is only a partial solution to the challenge of funding student engaged learning. For example, when faculty get external funding, it is usually for their own projects – not a pot of funding for many diverse projects, for new faculty, and for innovative starter projects. Often faculty really only need a small amount of funding, comparatively speaking, for their projects, and this isn't often suited to external grants. When asked how this funding opportunity benefited them and their students, faculty replied:

- Maurine Andrade – "There are a lot of creative faculty here who are very dedicated to teaching. Sometimes they just need a little funding to facilitate their activities, but they don't really need a huge grant proposal to external funders to accomplish this."

- "Sally Rocks – From a faculty perspective, without this grant, I would not have been able to attempt this project at all, because this is brand new research for the university and brand new research for me. So this URSIG was instrumental in getting the project going."
- Cheryl Hanewicz on Dr. Rocks' project – "For example, the plastics in Utah Lake project – how sharp is that? And really, Dr. Rock isn't going to go after an NSF grant for it. She just has several freshman and sophomore students. But what she's doing with those students is huge. And she's also getting a framework for future teaching."
- Dustin Shipp – "As a new faculty member, it would be very hard to get the funding I needed through external grants. In one year I'm not going to get the preliminary data I need to qualify for a grant. Even if right when I got to UVU [a year ago] and I submitted a grant then, the money probably wouldn't even be in by the summer. To have some funding for research in my first summer – I can't think of any other way that would have happened."

APPENDIX C: TRANSCRIPTS OF INTERVIEWS

Administrator & Staff Interviews for Objective Closeouts and Final Evaluation

Person Interviewed	Title	Purpose	Date
1 - Ala'a Alsarhan	Title III Program Director	Final Evaluation	9-24-2021
2 - Rasha Qudisat	Former Title III Coordinator	Final Evaluation	9-27-2021
3 - Frederick White	Former AVP Engaged Learning	Final Evaluation	8-24-2021
4 - Cheryl Hanewicz	Dean, College of Health and Public Services	Final Evaluation	11-15-2021
5 - Tammy Clark	Associate Provost – Engaged Learning	Final Evaluation	2-25-2021
6 - Anton Tolman	SCULPT Chair; Professor, Behavioral Science	Final Evaluation	9-10-2021
7 - Wendy Athens	Sr. Director, Office of Teaching and Learning	Final Evaluation	10-28-2021
8 - Jonathan Westover	Director of Center for Social Impact; Dept. Chair	Final Evaluation	8-24-2021
9 - Michelle Kearns	AVP – Enrollment Management	Final Evaluation	8-30-2021
10 - Wade Oliver	Director of University Advising	Final Evaluation	8-26-2021
11 - Ala'a Alsarhan	Title III Program Director	Closeout, Obj. 1.4	10-21-2019
12 - Cheryl Hanewicz	Interim Associate Provost, Academic Affairs	Project Evaluation, Year 5	10-22-2019
13 - Anton Tolman Joseph Jensen essica Hill	SCULPT Co-Chairs: Professor, Behavioral Sci. Professor, Physics Assoc. Professor, Psychology	Closeout, Obj 1.3	10-21-2019
14 - Curtis Pendleton	Senior Director, Office of Sponsored Programs	Closeout, Obj 1.5 & Final Evaluation	8-30-2019
15 - Ethan Sproat	Sponsored Programs, Dir. of Program Development	Progress Report on Objective 1.5	10-22-2019

Faculty Interviews for HIELG, GREEN, and URSIG Grants (Objective 1.1)

Person/s Interviewed	Title	Purpose	Date
16 -Claudia Jorgensen	Associate Professor, Behavioral Science	HIELG Grant	11-4-2021
17 - Linda Shelton	Senior Lecturer, English	HIELG Grant	8-24-2021
18 - Amanda Bordelon	Associate Professor, Engineering	HIELG Grant	8-26-2021
19 - Olga Kopp	Professor, Biology	URSIG Grant SCULPT	8-26-2021
20 - Maria Blevins	Professor, Communication	URSIG Grant	9-8-2021
21 - Trevor Warburton	Assistant Professor, Secondary Education	GREEN Grant	9-7-2021
22 - Armen Ilikchyan; Elena Laricheva	Associate Professor, Technology Management; Assistant Professor, Chemistry	GREEN Grant	9-12-2021
23 - Maureen Andrade	Professor, Organizational Leadership	HIELG Grant	10-22-2019
24 - Leigh Ann Copas	Writing Center Director, University College	HIELG Grant	10-22-2019
25 - Krista Ruggles	Assistant Professor, Elementary Education	GREEN grant	10-21-2019
26 - Sally Rocks	Assistant Professor, Chemistry	GREEN grant	10-22-2019
27 - Dustin Shipp	Assistant Professor, Physics	URSIG grant	10-21-2019
28 - Matt Hasara	Assistant Professor, Transportation Technologies	URSIG Grant	10-21-2019

Interview #1: Ala'a Alsarhan

Title III Project Director
9-24-21

Janis Raje: You started telling me about your accomplishments of the past year. Would you tell me about the new tool you were starting to discuss.

Ala'a Alsarhan: Yes. Now we've completed a new tool which is the Collective Impact of High Impact Practices tool. So by using this tool we are able to track the high impact practices that are under the Office of Engaged Learning (OEL). That includes the global/intercultural (GI) courses, service learning courses, research activities funded through OEL (including all the mini-grants through the Title III), internship activities (with a focus on for credit internships), study abroad activities, and any activities related to Capitol Reef.

So we, built the database which now consists of student information for the last four years. We have data starting from Fall 2017 up to now, with all the students who participated in these high impact practices at UVU by semester. The idea is, as you know, because Title III was funding a lot of engagement activities, we are trying to see if these type of interventions have had impact on students' persistence from one semester to the next semester and on student retention fall to fall. And also the overall enrollment in high impact practices has impact on student GPA.

That means in, other words, I'm comparing students by semester who participated in at least one high impact in practice. Is there a significance in the average GPA of students who are not enrolled in high impact practices compared to students are enrolled, positively or negatively, using the T-test.

Janis Raje: So, have you seen a significant impact, now that you have four years' worth of data?

Ala'a Alsarhan: Yes.

Janis Raje: So you have created the tool and have the answers now.

Ala'a Alsarhan: Yes, for sure, and the good thing now is that last week we launched the dashboard lights and we sent an email to the Associate Provost who now has access. The Deans and Associate Deans now they have access too, so they can filter by their college and their departments as well.

Janis Raje: Wow, this is great. This is very nice Ala'a.

Ala'a Alsarhan: So, next month, October, I'm going to conduct a training for department chairs. So all the department chairs will have access to that dashboard, and they can see enrollment in high impact practices in their departments, and they can see the persistence and the retention information. So let me share with you the dashboard.

Janis Raje: This is very exciting. I feel like I'm in groundbreaking territory here.

Ala'a Alsarhan: Yep. So, let me share my screen. *Looking at the dashboard.* Perfect. Let me just explain what we have here. Here you can see here, we have data from Fall 2017 up to summer 2021. So now I will select Fall 2018, for example. So in Fall 2018 we had 6,942 unique students enrolled in HIPs. For the total UVU enrollment, I used 28,353 because I excluded the high school concurrent enrollment students and the graduate students. So what we have the undergraduate students. So out of that number we have around 6,900 unique students enrolled in one or more of the high impact practices that we identified here. (See the Collective Impact of High-Impact Practices dashboard in Appendix D.)

Janis Raje: So that's about a fourth of the enrollment.

Ala'a Alsarhan: You can see the 24% right here. As you can see here, we have 49.5% who took GI

courses. We have we have 37% percent doing service learning. We have a 11% doing an internship. The internship is a for-credit internship where students usually work with companies. We have 1.5% of students doing research. But this is only the research that was funded by the Office of Engaged Learning through the Title III and GEL grants, you know.

Janis Raje: So you don't count any of engaged learning that's funded through our NSF Scholarships in STEM programs or by dean's offices, or anything like that.

Ala'a Alsarhan: Not yet, but we will. That's our next step. We are now in a communicating with Deans because they have funds for research in their own colleges. So we are trying to, uh, to track all the students who are taking research activities outside the Office of Engaged Learning so we can include that here. And also, for example, we contacted the Alex in OSP to get a list of the projects that are funded through external grants that have student research. With faculty we are trying to get a database that captures all the HIP activities. Yes, so we already visited the faculty both in GI and service learning. They have to go through a training course before this course and section is a GI or service learning.

Looking at the dashboard. In Fall 2018 we did not have any study abroad students. But we do have a Capitol Reef Field Station activities that are for credit or research or something when the students go there. So now we have all that information along the top of the screen, and we have the enrollment. We can know exactly how many students enrolled for the high impact the practices. If you look to the overall, I have like two boxes or two squares. This one is comparing the student body – the ones who enrolled in one or more HIPs on the left here and the ones who we are not enrolled in HIPs on the right. So I can see their persistence by semester or the two next semesters. Look here, so we have 79% persistence where students were enrolled in HIPs compared to 76% from the group who are not enrolled for the next fall, but I need to filter it out first. Let's move to the a second one, which is for freshman. I'm focusing on freshman because they are more at risk, so we want to know if high impact practices retain students. So you can see that freshmen students enrolled in high impact practices persist in a higher rate (76%) compared to students who were not enrolled in high impact practices (about 72%).

Now to see the Fall to Fall, I first need to exclude students who graduated in fall because I don't want to account for them because they are graduated. If I did not exclude the graduates, they would be considered as not retained or non-persistent. So I need to take out who graduated in fall and graduated in Spring 19 and Summer 19 to see who is persist to next fall. Look here – around 64% persist from Fall 2018 to Fall 2019 of the HIP- enrolled groups compared to 60% of the non-enrolled. And looking at the freshmen, we have 56% to 52%.

Janis Raje: Wow, this is really good.

Ala'a Alsarhan: Yeah. Now see here in the left-hand corner. You can see even the demographics for the students enrolled in HIPS by gender. So let's say that I want to see a the data for any college, say the School of Business for example. So let me just change this. So look here for Fall 2018. We have around 1,400 or 1,500 students enrolled in HIPs. Here is the persistence from fall to spring 81% compared to 77%; for freshmen, 78% compared to 75%. OK, and for the Business School overall, 28% of their students enrolled in HIPs. Now, with the adjustment for students who graduated in the Spring and Summer, we can see that 65% persist fall to fall compared to 62%.

Janis Raje: This is very slick. It looks so clean and easy to use that we don't see all of the work that has gone into achieving it. Quite amazing.

Ala'a Alsarhan: Yeah. And you can also, for example, get more information by ethnicity; by student level; by full-time, 3/4s-time, half-time, and less-than-half-time; and by college.

Janis Raje: So is this predictive analytics that predicts what will happen in the future?

Ala'a Alsarhan: No, no, this is. This is only a descriptor for the actual persistence, not the prediction. However, I have a prediction part of it that I'm working with on with the Civitas team. So we will have data from this Collective Impact of High Impact Practices dashboard in addition to data from Civitas, and we can combine them together to get the full picture of the high impact practices.

Janis Raje: For the evaluation report, would you give me a screenshots of what you just showed me.

Ala'a Alsarhan: Yes I will. It will be alright to show this because the data is aggregated. We don't have individual data. Yeah, so that's fine. We can share that.

Janis Raje: So this tool shows the impact on students taking one or more HIPs. Can you use it to see the additive value of taking multiple HIPs – if they take two, three, four, etc. and which ones they take?

Ala'a Alsarhan: This, I think, is going to be my next project, to filter out by the number of high impact practices this is – if we can get more information to compare. The issue that you know, Janis, I'm the only one working here, and it's a lot of work you know. So trying to be thinking of designing the research question and then the implementation part of it. So I'm doing the programming and presenting the dashboarding. So that's one of the my limitations, I don't have a staff working with me in this type of analysis. All of this it takes time. It takes time.

Janis Raje: Well this is very exciting. And it was developed outside of the Title III funding, right?

Ala'a Alsarhan: Yes. But it did develop directly out of the Title III-funded project. And I remember that one of the action plans was to create a HIPs repository, which we have done, and which has become the foundation of this tool. Now we can see a clear picture of the impact of high impact practices.

The other thing that I want to update in this year's report is the SEGO survey. So now you know we have delayed or postponed in the institutional-wide survey roll out because of COVID. Well, now it's planned for Spring 2022, around the end of March or early April in 2022. We will administer the SEGO survey campus wide. So we will have data from almost all the courses at UVU – their level and type of engagement activities. We are talking about around 4,000 courses that includes more than 10,000 sections. That's going to be a huge work because there will be millions and millions of records.

I will analyze the data and then the tool will designate the courses based on their level and type of engagement. So this will be a very rich database. So, 2022 will be used as a benchmark year. And the idea is to see if the courses that were designed to be engaged courses are really engaging. Or do we need to redesigning them again? The tool supposed to answer the questions: Are the courses on the right track of engagement? Are they doing what they are designed to do? And for some reason, if we find that the course is not engaging, then this is something we need to talk about with OEL and the department chairs. And we can provide them with the root cause of a problem. Why this course is not engaging. So, if by design a course is supposed to be engaged and we find something else, so we have a tool that will inform them about the status of all the engagement activities in their cores. So that's going to be an opportunity for OEL and faculty, Deans, and department chairs to redesigning the course. Then we can test it after a semester or two and compare the results to see if there is improvement in engagement activities. So with doing this type of process, we are going to save time and money. And when we redesigned the courses because we know exactly where is the problem so we can fix it immediately and we can test that after a semester or two semesters to check if there are any changes or improvement and instead of like waiting five years. (Like with the NSSE.)

Janis Raje: In my interview with Fred White, he explained that the Engaged Curriculum pillar developed as the fifth pillar of engagement at the suggestion of President Holland who wanted to include what is

being done in the classroom in addition to what is being done by the offices under OEL – service learning, internships, study abroad, GI, and the Field Station. Fred said that as OEL would have not control over the classrooms (that comes from the faculty, chairs, and deans), it was decided to focus on providing a tool so that faculty and administrators could assess the level of engagement in a course and make adjustments – thus utilizing and institutionalizing the assessment tools developed under Title III and sustaining their development and usefulness. Am I understanding this correctly?

Ala'a Alsarhan: Yeah, you are. These tools will be very useful to faculty and administrators through OEL.

Janis Raje: Is there anything else you'd like to talk about today?

Ala'a Alsarhan: No, this sounds good.

Ala'a Alsarhan, Title III Program Director
Meeting on Evaluation
10-28-2021

Janis Raje: I spoke earlier today with Wendy Athens, Director of the Office of Teaching and Learning. She told me about the HIIPs conference at UVU about two weeks ago.

Ala'a Alsarhan: Yes, they invited a speaker, Jillian Kinzie, the Director of NSSE (the National Survey of Student Engagement). We had two days of different topics and discussed a lot of things – guess it was more like a workshop. It was a collaboration between Office of Engaged Learning and Office of Teaching & Learning. And the good news that you know, is that Jillian mentioned that in her speech that UVU is ahead in assessing and measuring High Impact Practices. And to hear that from the director of NSSE – because they are the main player in this area now among the all the institutions – and to hear that from her was a good news.

The other thing that she mentioned is the book they are going to publish in March for AAC&U. She is one of the editors of the book, and it will include a main chapter by Rasha Qudisat and Fred White who directed the Title III project early on.

Janis Raje: Fred sent me a copy of the article. I didn't know it would be a chapter in a book for AAC&U!

Ala'a Alsarhan: Yeah, so they are mainly talking about our work at UVU and high impact practices and mainly about SEGO, the tool that we developed. So, Jillian mentioned that we have this chapter. She said it's excellent and you are ahead of a lot of institutions in this area. That was that was very, very interesting and good news.

And this past week, I was at a virtual conference about high impact practices and assessment called the AAC&U Institute on General Education and Assessment that was hosted by IUPUI (Indiana University–Purdue University, Indianapolis). There were like 10,000 attendees from all over the world talking about the assessment of high impact practices. This is the main track of that conference. On the first day, I was in a meeting with the directors of HIPS programs, and Jillian from NSSE again mentioned our work. And, they want also asked to present something next year about the results of SEGO. So we're going to administer SEGO next semester campus wide, and they are very interested to see a presentation on the results of our work. So I think we are in a good place where all of the main players in this area are aware of what we are doing and how important and significant the work is that we are doing.

Janis Raje: So at the conference/workshop that was held at UVU 2 weeks ago, were there UVU administrators in attendance at this conference who heard this information?

Ala'a Alsarhan: Yes. The Associate Provost of Academic Programs, David Connolly was there. Also, of

course, the Associate Provost of Engaged Learning, Tammi Clark and Wendy Athens, the Director of the Office of Teaching and Learning, because they were working together to host the event. And leaders of SCULPT were there.

Yeah, the other thing I did was presented the dashboard to the department chairs across campus. That was about two weeks ago. (I had already presented to the deans.) And I gave them access to the dashboard. So now they can a, you know look at their data. They can look at the enrollment in high impact practices per college and per department. They can look at the results of persistent and retention per college per department. I'm also trying to provide a guideline for anyone who wants to use the dashboard.

Janis Raje: This is excellent! Now you can begin receiving feedback from the chairs and deans.

Ala'a Alsarhan: It was funny. When I was attending some of the sessions of the AAS&U conference during this week, it was very interesting to see that tier one universities are doing things or they want to do things that we already did two years ago. Most of the presentations were on something that I did before. Everything that we had done. We are ahead of a lot of things and this is why, as part of when my discussion with Tammy yesterday was about. I'm very proud of what we're doing, but at the same time I'm very frustrated because of the lack of support from UVU to show our work when we are ahead of everyone else. I saw that UCLA and Virginia Commonwealth University are doing things and they are very proud of things that we already did like two years ago. And they have a team. They have a team with programmers, visual designers team, researchers – a huge team for doing things that I did myself. We need our management, our administrators, to know the work that we are doing, and we need them to value what we are doing. We need we need the support. You know, I can't do everything myself. I don't have the time and the ability and the resources to do everything myself. But I can work with a team on this. We can create a lot of creative ideas and a lot things are in my head, but again, you know I am very limited with support.

Interview #2: Rasha Qudisat, 8-27-2012

Former Director of the Title III project

Janis Raje: When you go over the list of topics I suggested we discuss, is there a place you think is important for you to start? How about the first question: Tell me about your efforts to establish a baseline for students' engagement.

Rasha Qudisat: Well, the Title III grant was all about students' engagement and high impact practices. Even if the term high impact practices was only used in a limited way. But it was the focus.

So, the High Impact Practices Repository was born out of Title III, and SEGO was born out of that. SEGO was born out of Title III because the theme, the implementation, the design of the program was all about students' engagement. Most of the activities I've worked on with the Title III are basically to capture to gauge students' engagement. This was challenging at the beginning because UVU did not have and definition for student engagement, even though the motto of UVU was "engaged."

And the year I joined the program (I think it was that year), ENGAGE became another theme that was added to the university – another pillar. And that's when we started working on the definition of engagement, which is simply engagement with all the high impact practices. They were very popular in other universities, but it was a fairly new concept at UVU to use these terminologies, I mean.

Janis Raje: I see what you me. The Title III proposal does refer in several places to high impact practices (HIPs), but they weren't really discussed or focused on, as was student engaged learning.

Rasha Qudisat: Yeah. Exactly, it wasn't in the details of the of the grant, and that actually, I thought that was a really good thing because it gave us the room to be creative. That's when we studied more of the HIP literature, and it we came to the idea of the SEGO tool, though at that time it was called In-Class Student Engagement. And we started looking at, "what is in-class engagement." "What are the factors that affect student engagement?" I talked to the faculty. I talked to leadership to a command where the ideas and possibilities of how to measure student engagement.

I remember I started the instrument with more than 260 items and started collecting data and conducting factor analysis to make it smaller and smaller and smaller and more relative more relative related to the UVU engagement experience. And more related to the faculty, their approach to education, and their students experience, and so on. The instrument now is about 68 questions. I think it's quite successful.

Fred White and I recently wrote a chapter about the high impact practices at UVU and how the Office of Engaged Learning is basically centralized. That's why the experience of engagement at UVU is successful, because of the centralization. And we wrote that chapter based on our experience and creation of SEGO.

Janis Raje: Would that be the article Fred sent me a copy of in late August, called Measurement and Evaluation of HIPs within a Centralized Model? Is that the one you're referring to?

Rasha Qudisat: Yes, it is. I think it's in publication right now, so.

Janis Raje: The article was very interesting. It helped clarify some things for me.

Rasha Qudisat: I'm very happy it did. Because of the Title III and our efforts in establishing the baseline and the measurement of these student engagement, other people are interested in our work. So that's

really a good thing. UVU is becoming more known for its student engagement approach. So, I'd say the best thing that happened for me from the Title III is to see something sustainable. Something really big came out of the Title III. The ultimate purpose of the Title III is to institutionalized the concept and activities of student engagement into UVU. And that's exactly, I think, what happened as a result of Title III, so it made a huge impact on UVU.

Janis Raje: Yes, I think it has and as I look at it closely by interviewing different people, I see that it had more of an impact than even I thought it had.

Rasha Qudisat: Yes. And our work is being presented in the larger community. It's being published. Other universities are interested. When Cheryl Hanewicz served as the Associate Provost of Engaged Learning, other universities approached her to ask about SEGO and about how we measure engagement. We presented to Weber State University – that was our first trial to pilot outside UVU and that's when commercialization idea first came to us. In the past three years, UVU has had a larger impact on the Academy community. Now we have a new approach on how to measure in students' engagement, and because we have a measurement we can manage it. I read it somewhere and always believed that: "You cannot manage what you cannot measure."

So because we have developed this measurement tool, it's a big contribution to engagement management at a university, and even to engagement creation, development, and improvement. This will give also the stakeholders and the leadership information about how they're doing and about the gaps in the engagement system. The evaluation approach that we created, we can use it as early warning system of student engagement problems within any course or any department. It allows them to take a step back review, revise, and improve. So that by itself is a an early warning about if there is something wrong in the course design or implementation. Even in a particular group, if they are facing some difficulties or challenges being engaged in the classroom, this tool, or this approach we have will give us that you know red light or red flag that there's something here you need to pay attention to.

But also, the engagement tool is creating this holistic communication within between departments. It was fascinating to see that one department's project can be used by another department in their development process. And in one department's lessons learned can be used in another program's development. For example, how to start or how to track the students' engagement. By itself, the communication and the collaboration between departments was fascinating to see.

Janis Raje: That's good. How do you know that that's happening?

Rasha Qudisat: Well, because while working with the interdisciplinary projects that were funded by the Title III, and even in discussions among faculty, they were like, "Yeah, let's work these projects together on these programs together," or even with the Office of Engaged Learning and the Office of Teaching and Learning.

This Title III engagement tool also created a culture of evaluation. Because of it, people are now measuring more and capturing more data about the students' engagement in the class. There is a cultural value on evaluation. When I first joined UVU, I did not feel that evaluation was there or that it was very popular at UVU, but then it was integrated in the Title III project. Well, our requirement for Title III sub-awards was that every funded project had to have an evaluation component. The evaluation component of their proposals was minimum – there were like 2 to 3 lines in the evaluation section. And that's where the evaluation culture grew. With every project that was refunded, the faculty became

more interested in the data collection and with the utilization of lessons learned and reporting. So I saw that the culture of evaluation grew with the faculty, and that they became more interested. The evaluation component became embedded in all of the funded projects.

Janis Raje: I know what you mean. I interviewed John Westover about the HIELG grant for Service Learning. I observed that he had already tools created for evaluation, so I asked if he had already used them before for Service Learning activities. Other than his own use, he said they had not been used because he couldn't get faculty to use them. But once grant money was tied to it, they had to do it to get funding. Then they did and they got excited about it. So that's exactly what you're saying.

Rasha Qudisat: Yes, exactly because it's a requirement for the Title III. Every funded project and had to have an evaluation component and a good one, and that's where the evaluation culture became something more popular. I think with the Title III, the faculty and stakeholders became less resistant to evaluation. I believe this has helped them toward presents and publications. I'm saying that because I remember that the HEILG, GREEN, and URSIG grants funded from the Title III developed a number of publications and printed conference presentations, and that's because they use the evaluation products from their projects. So, I think it was unintended outcome from the Title III. Even though it was not specifically mentioned that we wanted to create this culture of evaluation or utilization, it became part of what the faculty do.

Janis Raje: So what presentations and publications have you done that have grown out of this project.

Rasha Qudisat: Well, there is the publication with Fred White that we talked about on the evaluation of HIPs. We did two presentations for HIPs in the state [for USHE] and one presentation for Weber. I think these are the major presentations. I yeah I can send these presentations to you and we have.

Janis Raje: So you've talked about your efforts to inform the larger community, but how did you go about informing UVU about your findings?

Rasha Qudisat: Well, that's where Ala'a comes in with his creative dashboard and his code is that he was able to translate the UM engagement tool into a more communicative visual that talks to stakeholders in a more easy way. I'm more into the design, the model design and the facts or analysis and the psychometric part of it. And Ala'a came in with the coding part and the dashboard and the visualization. And that was by itself is very creative, it's a whole different creation.

Janis Raje: OK, I want to share something with you. This is a presentation that you did.

Rasha Qudisat: Do you mean the one called Measuring HIPS that you sent me?

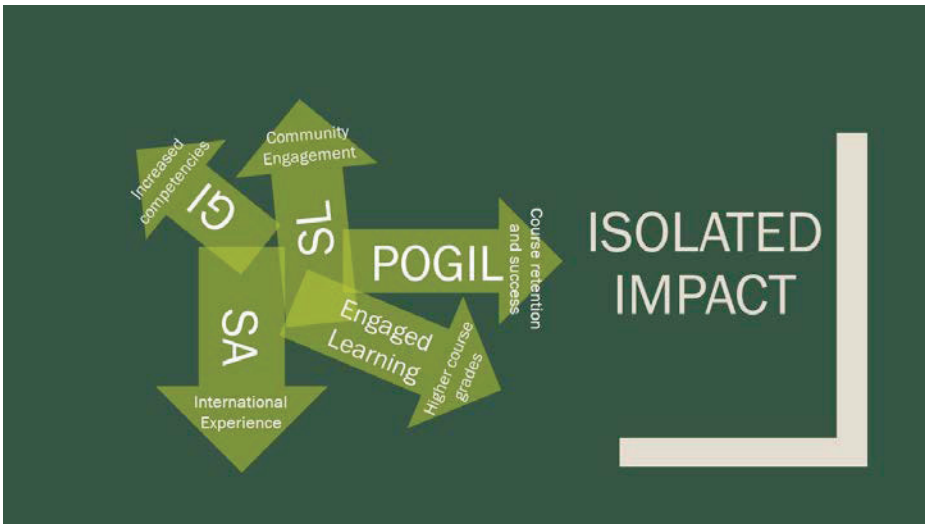
Janis Raje: Yes, this one. So was this for an internal presentation or external? Do you know?

Rasha Qudisat: It was for internal presentation when I was trying to send out the message of collective impact. Before this, people had looked at the impact of singular HIPS, let's say, or singular engagement experiences. We collected data about Service Learning, about the Global and Intercultural (GI) experience courses, and about the Internships. But at that point, when I presented that, we did not know how they all work together. Well, the students at UVU, and even in any other university, don't take one singular experience, they have multiple experiences. And at UVU students, are required to take at least at least. So we had to look at the collective impact of HIPs. Two HIPs help students to graduate, so basically that's something we know now. It's a graduation requirements.

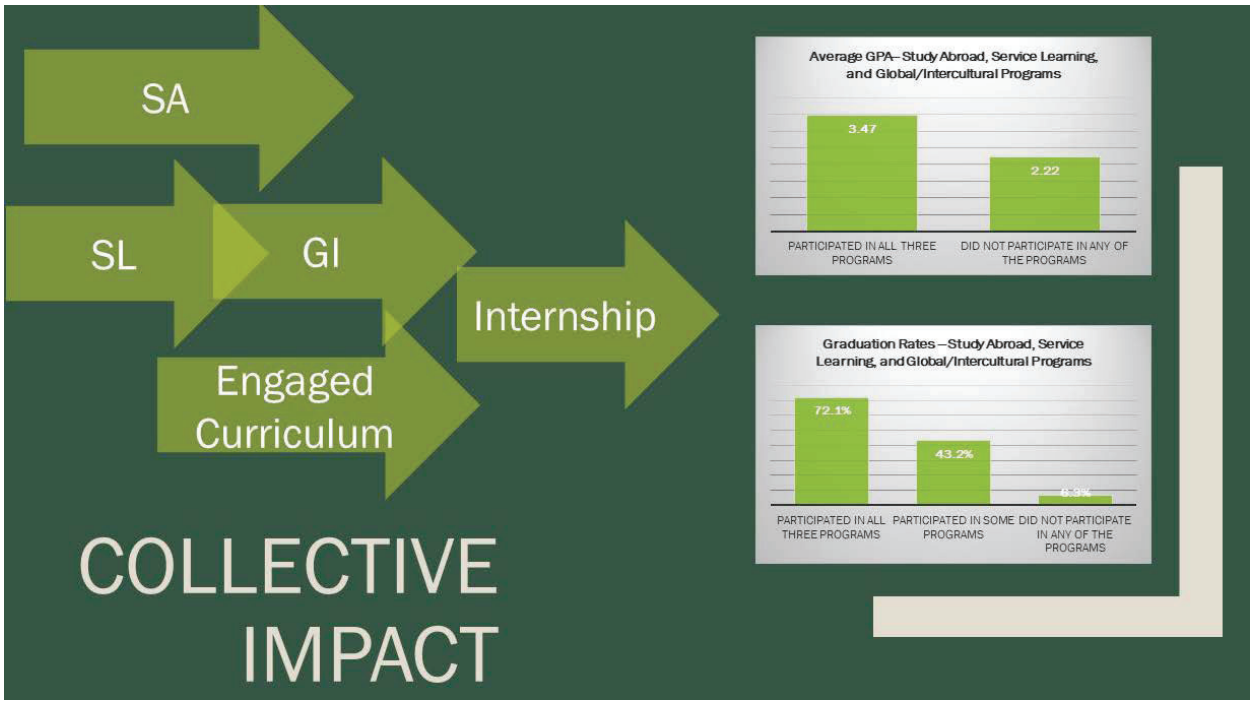
Janis Raje: But that wasn't the case when you started this program. Was that because of the USHE

requirement that Universities would require two HIPS? Or were they listening to what you said?

Rasha Qudisat: Actually, we did not know we were meeting the requirement because every graduating student was required to have one intensive writing course, and intensive writing is a HIP. And every graduating student was required to have at least one GI course, which is also a HIP. UVU did make it a requirement for graduation, but they did not label their efforts. And that's when I came up with the idea that everyone is doing their own efforts, but we're not talking in the same room. (See slide on Isolated Impact).



And that's when I did this presentation I remember for the AC. I said, “Let's collect our efforts. We do HIPs. We do Service Learning, GI, Internships, and Study Abroad and we also do Intensive Writing courses. But what effect do all of these experiences have on a student?” And that's when I asked for more data to do analysis and created the concept collective impact of HIPs at UVU (see slide below).



And that's also what I wanted to communicate to leadership and stakeholders, that is, the view that we need to communicate more and talk more about the collective impact of HIPs at UVU. And that was actually a result of the Title III because when we created the in-class engagement tool, we realize that a goal is actually measuring the GI, the Service Learning, the undergraduate research, the capstone projects. It's measuring a lot of things in different definitions and types of engagement. So basically when I presented that I wanted a joint effort to embed collective impact concept at UVU, I was quite successful. That's when I was just leaving the director position. But I was able to conduct research on the collective impact. I can send that to you but I did not publish it.

Janis Raje: Thanks. I also wanted to know if when advisors are advising students they're encouraging students to take HIPs. And I think there is a HIPS-4-US program for targeted minority students. I heard Cheryl Hanewicz had some input in that decision. Did it come in part from your research?

Rasha Qudisat: I hope so because I presented my results to Cheryl, so I did the research to share also. My understanding is that she shared the results and she was a champion of collective impact with her other meetings and other departments. One of the analysis that I submitted to Cheryl also is that most of the freshman drop outs did not experience HIPs – maybe 70% of the out of drop outs.

Janis Raje: So do I have a copy of that analysis or is there somewhere in Ala's files or what?

Rasha Qudisat: I will I will have to look here. It must be with Cheryl somewhere, because I did that about three years ago. So I will try to dig it out for you, but I remember it was 70-something percent of freshman dropouts who did not experience HIPS, and that was a shocker for all of us is that they need to experience more. Uhm, and then we talked more about the collective impact, that the more they take – maybe like 3 plus – makes them more likely to persist. Let me find this this report.

Janis Raje: I've heard that I've heard these numbers from Fred White and others, but they don't remember the exact numbers. It would be nice to see the actual report.

Rasha Qudisat: OK, here's my report. Basically, it indicates that each additional HIP or OEL pillar participation increases the likelihood of persistence by 47%. And that was, the analysis was only for the OEL pillars because that's the data we had. We couldn't get more data about the capstone, and we or other activities departments do like intensive writing.

Janis Raje: So it's cumulative? Each one increases at the their persistence rate by another 47%? Is that what you're saying?

Rasha Qudisat: Yes, every additional OEL pillar. It will increase their persistence by 47%. So if students take four OEL pillars they will present to the next semester. That's when we look at the collective impact of HIPs in OEL. So that's why I thought it's very important to look at collective impact because it's we cannot look at them individually because we don't know what's going on with the students life, right?

Rasha Qudisat: I also looked at the interaction, like if a student takes 2 OEL pillars in the same semester, how that will impact student persistence. And I found out that the most interaction between service learning and GI – they will increase the students' persistence. And service learning and research will also increase the students' probability to persist. These are the strongest interactions. So it was amazing to see these results and how they collectively impact the students' persistence probabilities.

But if you can have Cheryl send you that report that I sent her like three or four years ago about the

first-year dropouts being like 70% who didn't take HIPs, that would be good. But again, all these ideas and imports were all triggered by Title III. And it's all about evaluation. I'm strong believer in evaluation.

Janis Raje: So you worked on that article with Fred. Have you been able to do any other work in the area of HIP evaluation since you left UVU?

Rasha Qudisat: I've been doing evaluation projects for UVU, like I've done the collective impact project and I worked with three NSF grants – two NSF Scholarships in STEM and the one IUSE-Geopaths grant for undergraduate research at Utah Lake. With the NSF grants, I am evaluating student engagement and experiences. In the Geopaths project, we are using the Student In-Class Engagement instrument (SEGO) to measure the level of students' engagement in the project. The SEGO tool is being used in other projects and other purposes.

Janis Raje: Before we end, I would like to discuss the close-out of several objectives. My review has turned up several objectives that may not have been implemented exactly the way we planned it, but they have been completed, so I am inquiring about them.

Rasha Qudisat: Yeah, for objective 1.2, it was fairly easy and it was closed about a year and a half throughout the grants because it that was supposed to be about.

Janis Raje: Now the Office of Teaching and Learning was supposed to be doing the faculty training about student engagement. But it was the objective was institutionalized by having Service Learning do the training for faculty teaching engagement.

Rasha Qudisat: **I remember at that time, there were some institutional changes between OTL and Service Learning, and that it was a smoother transition to give that task to the Service Learning.** And that's how it was institutionalized. The reorganization came out of the things structural and organizational changes within UVU. Yeah, the way I remember.

Janis Raje: And then it looks to me like SCULPT picked up some of that to the training of faculty as well.

Rasha Qudisat: Yes. SCULPT through their Mentoring Academy. Other faculty with the other grants are also participating in that they're receiving their mentorship training through SCULPT before they mentor students. So yeah, the impact of this organization is amazing.

Janis Raje: Alright, so you have already given me your impressions of the impact of Title III on the institution. Is there anything else you want to add?

Rasha Qudisat: I don't know. I'm very emotional when it comes to Title III. Yeah, so I think of the impact it had on UVU as institution on the people who worked with the Title III. I mean it changed my experience. Personally, I learned a lot in terms of professional communication and personal communication about creativity. I mean its opening the door for innovation beyond the faculty and colleges – it's created a concept of innovation within administration. Like we expect faculty to create something to do with publication, to even do inventions and apply for patents. I don't think it happened UVU that this innovation [SEGO] was developed in a non-academic department like OEL. I remember when we first applied for patents review. It was a little bit challenging because it was the Technology Commercialization Office's first experience – in fact, the Title III created it. It is a first experience, and I don't think it will be a last. On the contrary, it opened the door for the innovation term for UVU. And that's also another unintended outcome. So I think the Title III's impact on UVU was magnificent. I'm very proud I worked with it, really.

Janis Raje: Thank you, Rasha. This has been very helpful. And it's really good to see you.

Interview #3: Fredrick White

Professor of Russian
Former Associate Vice President, Academic Affairs for Engaged Learning
Interview Transcript – 8-24-2021

Janis Raje: So you became the Associate Vice President, Academic Affairs for Engaged Learning in 2014. Is at the same time Title III grant was funded?

Frederick White: It was right about that point. Yeah, I don't know the exact date, but yes, I was there from the first thinking, what are we going to do? That's when Richard Tafalla was Assistant Vice President, Academic Affairs for Scholarship and Faculty Development.

Yeah, I stepped out in 2018, so I had got a four year window from that perspective. And then, as you probably know, the university has kind of slowly kind of tacitly supported the idea of us trying to commercialize SEGO. And so I've been in all of those talks since 2018 until now. As you know, I haven't been as directly involved, but I've been trying to pitch what we did to companies.

Janis Raje: When I go back and review what has been done through the course of the project, I noticed that the way we wrote the proposal is not the way things were exactly implemented. They couldn't be. Life is changing; universities are changing. We wrote the proposal in early 2013. It wasn't fund until late 2014, so there had already been some institutional changes. And just as go about the practical nature of implementing a project of this size, there will be refinements. And then there are things that we couldn't possibly have planned – like administrative changes and the project team coming to understand issues better as they work with them.

So I'd like to look at some of the adaptations and refinements. For instance, we didn't have any discussion of *Five Pillars of Student Engagement* in the proposal. But from the reports I've read, and the article that you and Rasha Qudisat sent, this became the central focus for much of the Area 1 objectives. Is this an idea from the literature or something that your team developed? I think from reading the article, those responsible for addressing student engagement looked at the vast range array of engagement opportunities, and said we have to focus on the ones that that are most beneficial. Is that the idea?

> **Measurement and Evaluation of HIPs within a Centralized Model,** Rasha Qudisat & Frederick H. White, page 4.
>
> "In 2017, UVU officially launched the *Five Pillars of Student Engagement* that are organized and supported by OEL. Those five pillars are 1) Global and intercultural experiences; 2) Internships; 3) Community engagement (including academic service-learning); 4) Undergraduate research & creative works; 5) Engaged curriculum (our measurement and assessment pillar). Most of these areas had previously reported in some way to OEL, but by defining them as specific pillars, it gave a level of coherency as to "why?" that had been missing. In order to strengthen this approach, UVU created director-level or higher positions for each one of these pillars. From an administrative standpoint, assessment, measurement, and consistency demand a centralized approach with individuals dedicated to the complex problems that come along with university-wide initiatives. At the launch of the *Five Pillars of Student Engagement*, we had five directors (or higher), one for each pillar, who reported directly to the associate vice president for engaged learning."

Frederick White: Basically, I was working with Rasha, and we just had to figure out what were High Impact Practices (HIPs) and what we were going to be doing with the Title 3, and that it was that kind of evolution of paring down. Paring down, paring down, and then combining things until we got to the five pillars – but we didn't officially have the five pillars until very late. I think it was, if I remember correctly, it wasn't until 2017 that I finally got the President's attention. **We originally brought President Holland four pillars. We didn't have Engaged Curriculum, even though we were doing it through the Title III grant. And he said to me, well, shouldn't we have one pillar that deals with what we're actually teaching in the classroom? And I said, yeah, well, we've got this Title III grant. So we can. We can do that. And he said, come back to me when you've got five pillars, and so I went away and rewrote it to five pillars, which included what we were doing in the Title III grant.** I came back and I said OK, this is what we can do with the Title III. This is curriculum. **This is honestly, in terms of a legacy if you will – the fifth pillar that Rasha and Ala'a have done – was the really defining piece. I think that separated us and will continue to separate us.**

Janis Raje: As I reviewed the article, I see that there is a pairing up with the HIPs, but the fifth pillar doesn't fall under a high impact practice. I would like to know more about that fifth pillar and why it is important.

Frederick White: So fifth pillar is in fact what allows us to do what we do in terms of doing our assessment. The fifth pillar is the surveys that Rasha and Ala'a put together. Here was is the sticky point, right? In from OEL (the Office of Engaged Learning), we actually could control study abroad. We could control internships because we had it centralized, right? We could control to a certain degree academic service learning. I can't control what businesses teaching. I can't control what English is teaching, so the only way that we could have influence into the classroom, was if were basically providing, if you will, a service. And what we were hoping to do at UVU, and what that article is about, is creating a loop where we measure and assess. We identify when there are problems, but we're not going to tell the faculty how they have to teach their classes. So then technically we switched, so that we tell the Chair and the Dean where there are success and problems, and we hope that OTL (the Office of Teaching and Learning) will help the faculty member to change so that the next time we measure and assess, we no longer see a problem. **But that's why that fifth pillar is different from the others because we could not directly go in and dictate how a class had to be taught in any school or college.**

Janis Raje: That makes sense.

Frederick White: And here's where the magic sauce is as far as I'm concerned. Every other assessment tool that's used, like NSSE (National Survey of Student Engagement) for example, takes a snapshot in the students freshman year – what they think, what expectations they have, for example. Then it goes back and it surveys that same cohort of students in their senior year, and it takes a snapshot of a kind of what their impressions are about what they got. And that's a really bad method. And also it doesn't allow you to fix anything while the student is still at the university.

So our SEGO assessment allows us to take a snapshot of an individual section of a class and we can come back with pertinent and relevant information about how that class can be improved the next time it's offered. So one of the accomplishments we made was that we can very much positively impact the education of our present students, and we're not talking four years until we get the data and then crunch it and report it. And I think that's a really great thing about the SEGO tool.

Assessment of HIPs is, honestly, the $50 million question for every university. This is why we're trying to commercialize SEGO, because every university you go to – University of Utah, Weber State, Harvard, Stanford – they all know what the 11 or 12 (because they're not even sure 11-12) HIPs are, but they have no way of measuring them to see if they're effective. *We* have that, and that's why we want to commercialize.

Janis Raje: OK, I had a question here about organizational changes that were made in the Office of Engaged Learning, but I think you've answered that question. As I understand you, you pared out the things that weren't essential and you focused on the things that were, including those five pillars.

Frederick White: Yeah, I mean I can tell you specific things that I may or may not have done. For example, in global and intercultural, some of it was me clearing things out. I said, why is the director over here inviting like diplomats and stuff? And we have no control over that, right? We are just duplicating efforts within the university.

Janis Raje: OK, so while you were reorganizing Engaged Learning and helping with the Title III grant, did the Title III grant play any role in the changes that you were implementing?

Frederick White: **Yes, absolutely.** If you if you re read the article, that's the latter part of the article, which is this: once we kind of knew that we had five pillars (even though there might be twelve pillars, or eleven, depending how you count them in high impact practices, we could only control five pillars), then Rasha and Alaa decided to look at some of the leading high impact practice data like the scholarly articles and re-run the experiments with our own data. Because it's one thing to say, "Oh, kids at Harvard or kids at some liberal arts school on the East Coast do HIPs," but what about UVU students? And so, one of the significant pieces of data was that one high impact practice is great for students; two is even better; and three HIPs is like a massive accelerator like. The students who do 3 high impact practices will graduate at like a 72%. So, Rasha ran that data looking at UVU students who had done 3 high impact practices, and found that more or less than 75% (in the article it was 72%) graduated!

> **Measurement and Evaluation of HIPs within a Centralized Model,** Rasha Qudisat & Frederick H. White, page 15.
>
> "Once again, we looked at our own data to find out how our students had benefited from a collective impact approach. For example, the graduation rate among UVU students who participated in the collective impact of study abroad, global/intercultural, and academic service-learning courses was 72%. For those who participated in some, but not all three, it was 43%, and for those who did not take advantage of any of these options, it was 6%. Admittedly, because taking a G/I course is now a graduation requirement, this probably explains the drastic decrease in graduation rates for those who did not participate in any of these three engagement opportunities."

So we then started to go on this idea of OK, so what is the real alchemy of high impact practices? And if it's not good enough just to have one, how could we slowly integrate in 2 and possibly even 3 high impact practices in a student's process? So a lot of the data that Rasha was running was to try answer that. We found two things that were really interesting. One was that if a student went on a study abroad, this was like the Magic elixir. But I immediately said, that's a red herring because most kids that can afford to go on a study abroad, and the ones who do are going to be more financially steady. So I had this problem with the study abroad piece, so we had actually started a program that never really did

what it was supposed to do – it was Pacific Islanders and Native American students who don't actually get access to study abroad, and we wanted to try and give them access to study abroad to see if it took off. I got the money for it, but then I left before we could do it.

The other thing, though, that I think is more viable is three is the best combination of high impact practices, but one of those three has to be academic service learning. All of the data, both our own data and national data, points to the fact that if a student does an academic service learning project, completion and retention rates go sky high. This is very important I think, that is, at least for UVU. We can't send every student on study abroad, but we could get every student to do an academic service learning project. So my point is, is that that that fifth pillar?

Rasha's data was providing us with like really important, strategic information about how we could utilize high impact practices – not only how we could change the classroom dynamic, but literally how we could maybe change the university curriculum in positive ways so that we could get students to have three high impact practices, experiences, or pillar experiences and maybe one of them being hopefully academic service learning.

Janis Raje: OK, so in the interview you did previously, I think in about 2017, you said: "Title III has allowed us to start assessing, measuring and making predictive decisions. We need that kind of data in order to make decisions. Data informed decisions are about where we're putting our resources." Do you see evidence that the administration using this data to inform their decisions?

Frederick White: Right now, no. I would have to say, no, that the university is not taking full advantage.

Janis Raje: Earlier you said that if students who do 3 high impact practices they are 72% more likely to graduate.

Frederick White: Well, Jon Westover teamed up with the student affairs person and they've created the Center for Social Impact, where they've basically put in academic service learning on steroids, and they've tried to aligned student efforts to connect with the community. And so John was working on this right when I left. He has done really great work as far as I can tell. Academic service learning mantra that has moved with within the university.

Janis Raje: So the Title III grant was very unusual in that it's set aside a pool of money that you could dispense through internal grants. When I looked through all of the abstracts of funded proposals for the previous three years before we wrote ours, no one had ever proposed that. That was very unique. I thought we might be going out on a limb, but I did my best to explain why that was important, and readers accepted it and funded it. The question, then, would be whether or not the money was well spent with those internal grants?

Frederick White: Yeah, and I would say yes because of this: The university, as you know, had decided that we were going to be engaged without a definition for what that was right then. The university ran around trying to kind of look at things that we were already doing and say oh that's engaged or that's engaged or that's engaged. The Title III grant allowed us to do was to say we now have a definition for engaged. Part of that was the Title III grant, and part of that was just my right attempts to bring organization. So we created the five pillars, but we also started to have because of Rasha in particular, and then later Ala'a, a clearer sense of what constitutes things that are effective around high impact

practices. So what that meant was that more and more we could say to faculty. “Hey, we want to give you money, but you have to do X,Y and Z.

Janis Raje: SCULPT evolved out of the Office of Teaching and Learning, but that seemed to me to be a really good change from what we had envisioned. The faculty got on board and took over. They have run the Learning Circles in the Faculty Mentoring program for people who want to do undergraduate research, and that seemed very productive. Do you feel that way?

Frederick White: Yeah, and this was another one of those moments where we, with the Title III grant, facilitated and encouraged, but they kind of took off on their own and at some point I remember having the meeting when Jeff Olson was still there. Then we got David Connelly. But we had the main faculty who were part of SCULPT. Rasha and I and we just said, “Look, you've kind of outgrown us, which is great, right? We shouldn't be controlling you anymore. You're faculty. We don't have control of faculty, and we're going to move you in terms of a PBA line request, under David Connelly.” Because David Connelly could do that in his portfolio at the time. In my opinion, it was a exactly what you would want to do out of grant right? You'd want to control it at the beginning, but then you want to let faculty take over and once they had grown it big enough and it no longer fit in your portfolio, you move it to the appropriate portfolio. That's my feeling about SCULPT.

Janis Raje: And the founders of SCULPT are now serving in administrative positions and having some influence in the university.

Frederick White: Absolutely, absolutely.

And there's a couple other things that weren't directly funded out of the Title III but were influenced by it. You know, before I took over, we did not have a centralized internship apparatus. We had a kind of a central office that was trying to liaise with like 58 different entities, and there were a lot of actually scary things going on – like people getting internship credit in fall for what they had done in the summer, and all this kind of crazy stuff. Ultimately, we said, if we're in charge of internships out of OEL, then we need to be in charge of internships. So that was another one of those things where we brought cohesion because our understanding of High Impact Practices. By bringing cohesion, we made the experience uniform or we tried to make the unit they experience uniform, so that if you had an internship in Humanities & Social Sciences, it would be kind of similar to the one you were having in Business. This came about in this attempt to kind of define what is a high impact practice. What makes a good internship? It was informing in some ways our administrative decisions about how to organize things.

Similarly, Jon Westover did in this with the Center for Social Impact. Those grants that he got because of the Title III grant, allowed him to expand and strengthen academic service learning. Frankly, when I got there, academic service learning was so down low on the totem pole that Jon was basically running this really, big program on almost $0.00. So whenever I had a little extra money, I just kept pumping it in there and part of the reason I had extra money was because the Title III grant. The grant gave us some flexibility in the Office of Engaged Learning budget, so could start to put a little extra money into things that we knew were successful, right? And so again, talking about institutionalization of things. I don't think Jon and his Institute for Social Impact would not be where it's at right now if we hadn't had that Title III grant – I don't think, I know that. And, I know internships would not be where they're at right now if we had not advocated for centralized models so that we could level the playing field and all those kind of things. So I mean, I do see these kind of institutionalized pieces that remain after I after I left.

Janis Raje: Do you see those mini-grants [HIELG, GREE, & URSIG] as an effective catalyst for engaged learning at an open-enrollment, teaching university like ours?

Frederick White: I do, mostly because UVU is not a research-based university, right? And so when you want to do something innovative, different, change something, it has to be connected to students. So those mini-grants were really the moment where a faculty member with a project idea was forced to consider how to include students in that project. So, you know, one of the best examples is the whole algae bloom problem that's out there at Utah Lake, right? If you are at the University of Utah, you don't have to include students in a grant – I mean you would probably put some in graduate students assistants, but you would just go like, well, I'm a researcher, and I'm at a research university, and I want to go look at the algae bloom. Those mini-grants, however, force faculty members to have to say: "Hey, how am I going to do engaged learning, High Impact Practice stuff and include my students in it?" And so I do think that they're important because they're reengineering people's minds. A lot of faculty, new faculty in particular, who come out of high-end universities like Stanford or USC or such – their soul thought is, "How am I going to increase my research production? How am I going to write another book? How am I going to write another article?" No one in Graduate School is telling them to consider how they are you going to include their students in their research, right? So those mini-grants are that moment where it's like, yeah, we've got money and we're happy to support you, but how is that going to be positive for our students? And that is a mental cultural change for our faculty, right? Which, I think is important.

Janis Raje: I think that's important. Generally, there's only so far that you can get with Federal grants. I mean you, you just can't apply to them for every little thing. No one is going to fund the kinds of little projects that were funded by these small internal grants. But for a small amount of money, faculty can do tremendous things.

Frederick White: Yeah, yeah I totally agree. I totally agree. You know, especially our faculty. I mean, there's a few of us who, with help from the Office of Sponsored Programs, can go after an NEH grant, or there's a people who can do go after the National Science Foundation grants or such, but your average UVU faculty, as you know, does not have the track record to go after those big grants. They just don't, right? Because they're teaching too much, and they don't publish enough. And so if we're not offering them these kind of mini-grant opportunities, how do they continue to develop and grow, right?

Janis Raje: Alright thanks a lot Fred. Really nice to see you and talk to you.

Frederick White: Good to see you too Janis anytime. Send me questions and I'm happy to answer if possible, OK?

Interview #4: Cheryl Hanewicz

Dean, College of Health and Public Service
Former Interim Associate Vice Provost of Academic Affairs for Engaged Learning
11/15/2021

Janis Raje: It's good to see you. I sent you some questions. Do you have those?

Cheryl Hanewicz: Yeah, I'm looking at right now. I'm looking at the question here about the contribution of the Title III project to UVU. Was Title III involved with Civitas – with what the software the advisors get? Wasn't it in phase one of the project?

Janis Raje: We'll I think Title III did the precursor to the CIVITAS system, but
Well, I think Title III bought the precursor to CIVITAS system, because I have been told they found out it didn't work, and then they decided what they really needed. I don't think the grant paid for the CIVITAS cost, but it set them up to know what didn't work and what they wanted.

Cheryl Hanewicz: Yeah, sometimes finding out what you don't want is important as what you do. So if they had assisted toward Civitas, that's expensive software. I know that it's been very helpful. So that The advising piece was done before I took over. You know, using that because right now they're able to do some campaigns, you know, so the advisors can look to find out which students aren't logging into canvas in a timely manner. Or you know, though, using the analytics, the data analytics to help them identify students that could use some assistance. Civitas is taking a while to really get down into the faculty using it, but just last week at my CHIPS Council, our advising director showed my department chairs things that could be done with Civitas. So now they want to get trained. So it's rolling along, and hopefully now getting into the hands of even more people that can use it to find out what students need assistance for retention. So that's been a really to me, a positive.

Cheryl Hanewicz: Oh, and then there are clearly the grants. I mean, we had the series of grants that were done. Some of those have been really, really positive. Didn't Title III funded the initial Utah Lake grant?

Janis Raje: Yes, there was the project by Sally Rocks looking at micro Plastics in the Lake that was really excellent. And on the large grant Eddy Cadet received from NSF for Utah Lake, there were members of his project team who were on various projects on the Lake, or were part of SCULPT. It may have helped them have stronger resumes.

Cheryl Hanewicz: Yeah, SCULPT did come out of the Title III Project?

Janis Raje: Yes it did.

Cheryl Hanewicz: So that's I think has also been good at pulling faculty together, and I think it kind of ebbs and flows, depending on who's been involved with it. But just the fact that it is getting faculty doing engagement experiences that then they can build on with other experiences – to go from something fairly small to get an NSF grant. I mean, those are competitive, that's telling right there.

Yeah, so I think Eddy's group actually started with a GEL grant for engaged learning. (And you know, the Title III grants were part of GEL for a while.) So the Utah Lake Project went through several iterations and ended up at the NSF. So that's yeah, pretty exciting too.

Janis Raje: It is exciting. And I see that people who were leaders in SCULPT have become department chairs and faculty leaders – I think they're influencing engaged learning in their departments and across campus.

Cheryl Hanewicz: Yes, Anne Arendt was a leader in SCULPT and became Chair of the Faculty Senate Arendt was involved with that. Joe Jensen from SCULPT leadership was involved with REUC – the Re-envisioning Undergraduate Experience Committee, so bringing that idea of engagement to the wider university. Now Joe is Chair of Physics. And Anton Tolman has been very involved.

Janis Raje: Anton just submitted a very fine proposal to the Evaluation arm of the US Department of Education – NCES.

Cheryl Hanewicz: So yeah, you're right there. People are definitely paying it forward for sure.

Janis Raje: So with all of your work in the Office of Engaged Learning, what of that do you bring into being Dean of the College of Health and Public Service (CHPS)?

Cheryl Hanewicz: Well, it will be very important. In two days we are reviewing all of our RTP – ranked tenure promotion documents that faculty when they start have to follow and to get three-year midterm, and then tenure, and then advancement to full professor. Those are all being redone, and they're due to the Provost's Office next Monday, so I will be sitting down this week with my Associate Deans and will be reviewing all of them. And I will definitely be looking at all the criteria through an engaged learning lens. So that will be very helpful. – You know, with what faculty are required to do.

And we also have a SAC, a Scholarly Activity Committee, which does a mini version of the internal grants. Doesn't the College of Science have the same thing?

Janis Raje: They do.

Cheryl Hanewicz: So, just bringing that experience to what the SAC Committee does, and sustaining funding for that, is also fostering engagement.

And I will also be very interested in Ala Alsarhan's research because of what he said that they'll be able to. The faculty will be able to review their own student engagement efforts. I'm hoping they will be able to get some aggregate information. And I will certainly be able to talk through with all my faculty what it means for them because I was so involved on the front end.

Janis Raje: That's good.

Cheryl Hanewicz: You remember I was the first director of earlier Title III grant that dealt with student success and retention. I was very involved with that. And, I mean, this all came out of that. I look back on what's happened with Student Success and Retention, and it is phenomenal. I mean, you know they have an Associate Vice President now, and directors. It's become so foundational to UVU right now. So that has been amazing to see, so this is an outcome of that first Title III grant. So yeah, if you want to go back to the first one, there's been a lot of positive things that have happened since, and because, of that one.

Janis Raje: Yeah, it has. And do you think this push for student engaged learning will continue to grow, as the efforts of first Title III grant have, or will it just slip away over time?

Cheryl Hanewicz: You know that's a really good question. I think if it is embedded into RTP (rank tenure promotion), this idea of engagement, that will help. I know when I was in was the Chair of the Department of Technology Management, in our RTP at that time, one of the requirements was to do engaged learning activities in your class. We didn't tell them what to do, we were open to all kinds of ideas.

So I'm curious now to see now if student engagement is being baked into the rank tenure promotion. Because, as a teaching university, we do have a commitment to students. And I think it will continue on, and in particular areas may, be more strongly, but I think it will continue to March forward. We have more service learning going on. We the global/intercultural. You know that is a strong, I think, Bryan Waite over that.

We also see a lot of the engagement within the online programs now. So we have these Flexible Learning Counsels for each College and School to innovate the delivery of the academic curriculum. The Office of Teaching and Learning heads this up. OTL has developed a rubric that they use to evaluate new online courses. Have you ever talked with Wendy Athens, the Director of OTL?

Janis Raje: Yes, I did talk with Wendy, but we didn't talk about this aspect.

Cheryl Hanewicz: Yeah, because from what I've seen and heard, their rubrics for developing online courses have quite a bit of engagement in them. Here's what I mean:

UVU Online Course Design Rubric

Office of Teaching and Learning

https://docs.google.com/document/d/192iZn-wc_Q6qtAv8oFw1uXYgNlHlI45IutPmT87IpUU/edit	**Sufficient Evidence**	**Some Evidence**	**Little/ No Evidence**	**Not Applicable**	**Notes**
5. CONTENT AND ACTIVITIES					
17. Course contains **activities that provide opportunities for engaging in higher-order thinking as appropriate*. (Examples: Problem-solving, critical thinking, reflection, and analysis.)**					
18. Course contains **engaging learning activities*. (Examples: real-world applications, experiential learning opportunities, case studies, and problem-based activities, as appropriate)**.					

And the new Office of Teaching and Learning is the old Faculty Excellence Center with Anton Tolman (who helped write the Title III grant). So again, it's all rolling on from one thing to the next. We're an engaged university and Wendy takes that very seriously in the Office of Teaching and Learning.

Janis Raje: That's good. When I spoke with Rasha Qudisat, she felt that through the SEGO In-Class Engagement Instrument and the emphasis on evaluation in the internal grants had created a culture of evaluation at UVU. Do you see that happening?

Cheryl Hanewicz: I think once we have the SEGO In-Class Engagement Instrument in place it will. I think the faculty who went through the prototype with their students, like the College of Business, know what

it's about. I'm not sure anybody in CHPS has had that students complete that assessment yet. So I think some of that is still to be seen. But we certainly are, for better or worse, entering an era of assessment for sure. You know things like Civitas program evaluation. Some faculty think it's becoming almost too much. There's a question of how do you assess learning? Some feel it's kind of taking the flexibility out of teaching, but I think if we can show them how it's done well, I think that will help. And it's true. I don't think a lot of faculty understand assessment necessarily. But once this benchmark tool goes in to effect, I'll be excited to see what happens. I was disappointed when we had to delay the institution-wide rollout of SEGO because of COVID-19. We were really excited about it. We had flyers and information being handed out to students in the hallway.

One of the things I love about this SEGO analytics tool is that it breaks it down to very common sense types of questions, and I think those are going to really resonate with faculty. And for those that maybe don't know how to be more engaged, this will help them because it's very simple: "Do the students do any presentations in class?" for example. And if they don't, then they might say, that's something I can easily add to what I'm doing in my class. So yeah, you hear that a lot that faculty don't do more with engagement because they don't have time. Faculty are very busy. They don't have time to read, or to be redoing their class, so breaking this down into those discrete steps of what is engagement, I think, will help them. I mean, I'm certainly going to be using it in my college.

Janis Raje: That's good to hear how. I like that idea of breaking it down so we can say, well I can't do everything, but I could do this in my class.

Cheryl Hanewicz: Yeah. It's a really good survey. It has really good questions. I'm looking forward to seeing it implemented. And you know, as we've always said, and certainly Ala'a has always said, not every class has to have this. We're not expecting to have all these things in a class. But what would apply to a class? What would be appropriate? Faculty can choose for themselves.

Now that I think about it, I've been involved with both Title III grants at UVU, and I think they both made a big difference. As you know, changing the culture takes years, sometimes decades, so the fact that people so easily even talk about engaged learning or engagement now, just the fact that that's part of our lexicon. that we talk about it in our classes and with our students, and even faculty being engaged. It's not something that's out there, but it's part of UVU's culture.

I know sometimes I'll talk to people at other universities and we forget how far we've come. We've been doing this for a long time now. They say that the fish doesn't notice water sometimes. And you know, engagement has been so much a part of what we've done. But I remember when it started. It was one of those pillars and people had to remember it. But now everybody seems to know. When you're talking about it, does everyone know exactly what it means? Maybe not, but they usually have a pretty good idea. And the survey will help them get to all those details.

Janis Raje: Well, I hope to see it soon.

Cheryl Hanewicz: Yep.

Janis Raje: Well, I won't keep you longer. You must be tired after a long day, but it's so good to see you.

Cheryl Hanewicz: It was fun to come in and look at my schedule and say, oh, I have Janis at the end of the day. That's good. That'll be a fun one.

Janis Raje: Alright, Cheryl, thanks so much for your time.

Interview #6: Anton Tolman Interview

Professor of Behavioral Science
First Chair of SCULPT
Oct 9, 2021

Janis Raje: I have questions about Objective 1.2: "Increase the effectiveness of faculty in designing and implementing engaged learning via co- and extra-curricular engagement activities through professional development, exposure to models of best practices, and support." And about Objective 1.3: "Expand and strengthen faculty effectiveness in mentoring students for scholarly and creative work especially with regard to extracurricular project teams by exploring models and best practices with an emphasis on early involvement by students." Can you tell me a little about how these were done?

Anton Tolman: I know that one of the things the Office of Teaching and Learning (OLT) did that was very good. They institutionalized and created a program for online training. Because prior it had been there had been no standardized. Eventually, it became a kind of training for faculty on how to teach online, and so what faculty were doing, a lot of them, myself not included, but a lot of faculty teaching online, was just basically taking videos of their lectures, putting them online, and then having quizzes and meager discussions and it wasn't very engaged at all. You know students kind of fall asleep during the lectures. Students attention lasts about 10 minutes, maybe 12, and then it kind of fades. Most of the hour-and-a-half lecture is lost. Students don't watch it and so on. But OTL really created this multi-modular system of training for faculty and they've been pushing for colleges to certify that faculty have completed the online training program and then that information goes to the colleges. So the colleges now know whether somebody has done it or not and if they're teaching online, whether they know what they're doing.

Also, most colleges (I don't know if every college, but I know ours and I know several others) have created engaged teaching committees. These consists of representatives from all of the departments in the college and they report to the Dean. They also are responsible for kind of spot checking and going in and observing some of the online classes. So for the online situation, I think there's been a significant improvement, which was good given that they started this just before COVID happened. OTL created that. I helped them with the original kind of drafts and ideas about what to do for that, but then they took that to the next step and went and.

Janis Raje: So what was your role in the Title III project?

Anton Tolman: In the whole project as a whole? So at that time, I had just been released from my position as Director of FCTE (the Faculty Center for Teaching Excellence), which was mentioned in the proposal. OTL hadn't been created quite yet it was. It was coming. It would be launched in the next few months and so I was working for Richard Tafalla. And I was part of his. You know. I did my teaching and everything, but I also worked with Richard. I helped write the Title 3 grant – sections of it. And then I worked with Richard to create SCULPT, along with nine other faculty.

And so I was the first chair, and I helped create the bylaws and created the election procedures and how SCULPT would work. We defined its relationship with the institution. I wrote the first annual reports and all of that kind of stuff, and then we expanded it beyond one Co-chair because SCULPT was too much for one person to handle. Which is good, right? So we now have three Co chairs. So I've been chair and then

I was Co-chair again. I've been Chair twice and I've served on the Advisory Board for the other times in between.

SCULPT is an interesting organization because we're not really part of the university, although we rely on the university, if that makes sense. So, its faculty organization. We have our own bylaws. We have our own recruitment process and election process. We do have to request funds from the university, and the university has been doing a fairly good job about that. We're trying to get put in SCULPT as a as a line item. To my knowledge, that hasn't happened yet, so mostly they give us like one time funds every year. Which helps to pay for some of our meetings and our recruiting efforts and activities that we do and stuff like that. SCULPT is still going on the past two or three years. We've had some bumps and things with leadership issues. So, but it's still functioning and we now have something like almost 250 members. Which is astonishing. Before SCULPT was created, you know, faculty in the past have attempted to create little groups that do things, but they've never lasted very long.

I remember that on the 2nd year anniversary of SCULPT, I think), we requested a meeting with President Holland. And we went in there, and we had probably 30 faculty on the Advisory Board and other people. We had just said, whoever wants to come, and they came from all over campus. So we went in there and met with the President and his Executive Committee. We explained what SCULPT was and we talked about what we were doing and he was just his jaw dropped, because he hadn't seen this kind of faculty group that's so successful before. And the fact that we had so many people and from all over campus (it wasn't like an isolated group), he was just amazed. So that was pretty fun.

Janis Raje: I remember that SCULPT wasn't exactly what we had planned in the proposal, but it grew out of what we had and then just took on a life of its own. I mean, it did what we had hoped it would do, plus a whole lot more. And I've I just see it as an amazing thing.

Anton Tolman: And SCULPT has functioning committees: the Showcase Committee that organizes the annual showcase, the Student Recognition Committee that is working on how to recognize students for doing undergraduate engaged work of significant weight, and the Student Outreach Committee whose job is to broaden participation and find ways to include more students in undergraduate research. Also, the Faculty Senate has the Re-envisioning the Undergraduate Experience Committee (REUC) on which many SCULPT members serve. In REUC, there's a subcommittee on HIPs. Part of that was dealing with engaged teaching activities and learning activities. And so SCULPT played a role in that, and we successfully got an endorsement from the faculty Senate to create a graduation distinction for students who complete a rigorous process of participating in undergraduate research. It's close to finished; we just need to make sure there's funding and to put the connection to the Registrar's office is fully in place, but we developed that together as part of a RUEC subcommittee. It was endorsed by the Senate and so this year SCULPT is pushing out to move forward on it. Recognition has been a problem because there hasn't been any obvious or clear recognition to the students that do undergraduate research. And so that's been a concern. The recognition is also working now to find other ways to kind of recognize student work on campus. Otherwise what happened is every now and then something would show up in an article in the student newspaper or something. IR would report to the president the number of students who received a grant to help them travel or to do something, but that number is a only a small percentage of the number of actual students that are doing research. And most of them get no recognition. I mean it helps them get into Med school or grad school or whatever, but they don't get any recognition from UVU, so that's why this this recognition plan for graduation is important. It'll be noted

on their diplomas. So I think that's a significant step forward.

Janis Raje: Yes, that would mean a lot to the students.

Anton Tolman: Yeah, because their families will all be aware of it, right? Everybody will know. They will talk with their peers when they walk for graduation. Other people will say what is that you did? So it's very nice.

Janis Raje: Now, when you were preparing your recent proposal to the US Department of Education, you mentioned in your BioSketch that you had served a role on the Title III project. Did your role on the project impact your career at UVU, or anything you might have produced or worked on?

Anton Tolman: Well, it in a sense it did because SCULPT did come out of that grant and that project the initial efforts to fund SCULPT were embedded in the grant right. And the Mentoring Academy is still going. In fact, the Mentoring Academy has now been running year round, so not just fall and spring semesters, but the past several years they've been running two sessions in the summer as well. It is training faculty in how to actually think and develop a model of how they're going to mentor students. And then they mentor more effectively than they had done before.

Janis Raje: You started The Mentoring Academy didn't you?

Anton Tolman: Yeah, I ran it. I was the main facilitator for at least three or four years. And then you know other duties were calling me elsewhere, and I was Co-Chair of SCULPT. You know the college wanted me to help with assessment anyway. So what happened is, we switched over. Ben Johnson and Heather Wilson Ashworth became the Facilitators. So we had somebody from University College and somebody from the College of Science facilitating the Mentoring Academy. And they've done a great job. That's just been like in the summer when they have two sessions. Heather would lead one and Ben would leave the other. And so it worked great.

Janis Raje: You are tenured and a full professor, aren't you? Were you tenured when you started this project?

Anton Tolman: Ah, yes, I was. But I think it may have helped me get promotion. Because I had this track record of, you know, doing all these things. Also, in 2019 I was awarded the Dean's of Award for Service, which I think was part of all this, as well as working with the college on assessment. So yeah, it's been very rewarding to me personally.

Janis Raje: I notice when I look at that the current list of faculty on the Advisory Board and previous Co-Chairs that it's on the SCULPT website (which I really like, by the way), the number of people who are current chairs of departments or in other administrative positions now. Do you think they're having an impact on the culture of the institution by their relationship SCULPT?

Anton Tolman: I do. One of the things that that is unique about SCULPT and the Learning Circles and the Mentoring Academy Is that people who participate in those are not just solely focused on their own department, right? They have broad connections; they understand patterns and concerns occurring across the institution. I think that makes them good fits for more administrative positions. This is this an evolving shift that's occurring in the culture of the university.

Way back in the day, I think you helped me with those first NSF grants I submitted. And back then it was

like trying to pull teeth to get people to think this way. In a large part of my early career at UVU was just trying to move the needle, trying to get that to shift. And so I think what's happened is with these things in place and people participating in them and gaining this experience. It has really made a difference. It has really begun to change. Then the people we hire are shaped by the people who are the department chairs and others who are hiring them who now buy into this kind of engaged teaching and undergraduate research and the HIP model than before. That was not part of the environment. Back in those days, when we talked about engaged teaching, a lot of people at the university, including some in administration, wanted to push for that to mean only community engagement. That's all I meant. When we only included community projects and things like that, I said no, that's a piece of it, but it's got to be a sense of engaged learning in this applied approach and getting students involved in research. And I have to say, I think I won. (Not that it was just me.)

Janis Raje: So you did you facilitate the Learning Circles as well?

Anton Tolman: I did so. I facilitated both the Mentoring Academy and the Learning Circles. The original Learning Circles had strong ties to CUR [Council on Undergraduate Research] because we were doing readings of CUR. The current learning circles are broader than that because the we ran out of CUR readings and a lot of the readings were older by then, but they've been doing some really interesting readings about how to teach effectively online. The one at one of the ones I'm Co-Facilitating this semester is called Creating Wicked Students. It's a reference to the term "Wicked Problems," which means problems that are not easily solved. Like climate change, gun violence, terrorism – stuff like this. There's no easy answer to those. So creating wicked students means helping create the kinds of students who can tackle these kinds of problems and recognize systemic issues and the need to kind of work with other people and all that stuff.

Janis Raje: So from what you're telling me, it sounds like you've been creating *wicked faculty* who can tackle big problems too.

Anton Tolman: Yeah, well yes, yes. Getting them to think differently about what teaching is.

Janis Raje: So what can you tell me about how the HIP model has come to be used at the institution?

Anton Tolman: Uhm, that is also growing. So RUEC has been the linchpin of that effort. It was given fuel by USHE. So what happened is that a lot of the accreditation agencies in the past two or three years have made changes to their accreditation standards, emphasizing HIPs. And so UVU and a lot of institutions in Utah have now built HIPs into their strategic planning, whereas, before it was kind of like, oh, you know, well, this might be a good thing, but it wasn't really institutionalized, if you will.

So HIPs is becoming increasingly institutionalized. A lot of those early learning circles also were about HIPs related readings. So read some of George Kuh and things like that as well. But also I think some of the work that Rasha Qudisat did early on about showing that if students take one hit that increases their if retention and completion; if they complete two, it increases more; if they complete three and one of them is a service learning class, it just throws it over the top of stats.

Janis Raje: Do you know if the institution of used her data to help with any of their choices about using HIPs? If they were becoming popular on their own, and would the change have happened regardless of whether we had this Title III grant?

Anton Tolman: I think there's probably a combination of things there, so I think there were external forces that were beginning to push on higher education for that, and I think that made a difference, especially to administrators who care very much about accreditation and our relationship to USHE. USHE actually issued a policy a couple of years ago that said that all Utah public institutions had to have students take a HIP course in their lower division courses and one in their upper division. They sent that as a minimum. At the same time, we had Rasha's work on trying to define what is a HIP class and how we know which of our classes are HIP classes. And also her data was collected at this particular institution. She showed how it applies to UVU. I think there was a combination effect there, so that makes sense so that UVU administration is hearing this.

And so UVU and already been kind of exposed to HIPs and to discussions about them on our own campus. And people may had been thinking, how much effort should we put into this? And then all of a sudden you're she comes in and shows how important it is – that we should to put this mandate into effect. And so then administration say, OK, well then let's build on what we've already got. And then let's increase that because if you're going to have a mandate you have to say, this is a HIP class and that is a HIP class, and so because of Rasha's work, we were already ahead. So I think it was a nice.

Janis Raje: OK, so I having been one of their founding writers of the Title III proposal, and involved in so much of the work on it, as you look back, what do you think we have been long term impacts of the grant?

Anton Tolman: Well, I think the grant has had several long-term impacts. So I think it has had at least as far as I can tell from my perspective has had some impact on advising. It has had increased emphasis and faculty willingness to do things like early alert. And try and engage. Uh, you know asking for help and engaging students that are struggling, it's had significant impact.

As far as online teaching and the HIPs and the mentoring and the undergraduate research, I think the grant has pushed all of those things. I mean, I think I'm at least hopeful that even if we hadn't had the grant, we would have made progress on those. But I don't think we'd be where we are today. I think the grant accelerated a lot of those issues and created new venues that haven't existed before. Especially, so that we could pull in faculty.

One of the things, just as an example, that's been intriguing to me is that because we have stipends for the Mentoring Academy, faculty kind of say: "Well, I could use an extra $500." They have been going to the Mentoring Academy. You know, there's a lot of new faculty in there who say: "I don't know what to do. I need to get started on working with students, and I don't know how to start." So we get a lot of those. But there have been an increasing number of faculty who are tenured and even some that are professors actually coming to the Mentoring Academy, and when they're there, I've talked to some of these folks and they've said: "You know, I never really thought about it. I never really had a model for how I mentored students. I just kind of did what happened to me when I was a student. Which is the same thing as the old model, to teach as you were taught kind of thing. So it's had this shifting of the way they think about things, and the way that they approach mentoring, and the opportunities they offer to students. And so I don't think that would have happened without the grant funding SCULPT, and creating all these other things, and the early alert programs and the advising. I also think we have come significantly further than we were when we started the grant.

Janis Raje: So, did you have much to do with working with the URSIG, HIELG, and GREEN grants?

Anton Tolman: Not so much, but I served on the board, making decisions about which faculty got which grants. I didn't have that much direct impact on the creation of those grants, but I was involved in some discussions about changing the rules that I did have some impact on them.

Janis Raje: Well, that's all I have. Can you think of anything I didn't ask that you would like to tell me.

Anton Tolman: I think SCULPT has been amazingly successful. And what's really nice has been the support of Wendy Athens, the Senior Director of Teaching and Learning, as well, because I think she realized there was value in what we'd already set up. So she's been funding it. And Dave Connelly through Academic Affairs has been funding the Mentoring Academy and the Learning Circles, and all that that funding has made the program continue. I think without it we would still have been able to do something, but not as much. And so the fact that that that support has continued, I think, is a good sign. So, it's been kind of institutionalized. It's part of the way. Even academic affairs now thinks about funding and what they need to do for the next year. And you know those kinds of things. The stipend for the for the SCULPT Co chairs is expensive too, but it makes people want to volunteer. But we still have to ask for money from year to year. It would be nice to see SCULPT hard funded.

Also, I'm sure you can see a line between this and the grant we just submitted yesterday for the US Department of Education's IES program, there's a real connection there.

Janis Raje: Yes, I can. Well, thanks, it's really nice to talk with you about these things. Thanks Anton.

Interview #7: Wendy Athens Interview

Senior Director of the Office of Teaching and Learning
10/28/2021

Wendy Athens: We started the Teaching Excellence Program for the high impact practices which are overseen by the Office of Engaged Learning, so we basically have the faculty preparation for the HIPs. We have six of them, six pathways for our faculty. I will give you the file. Let me pull it up here for you to see. We have more than just the HIPs, but these are our certification for faculty and we have about 600 faculty who've earned certifications in the high impact practices.

OK, so we have first-year seminar, which you're [OEL is] not measuring; global intercultural, which you are; service learning which you are; team-based learning which you are not measuring; undergraduate research which you are measuring; and writing enriched which you are not measuring. These little circles up here mark the high impact practices, so these are in alignment with the AAC&U standards of what are high impact practices. It says so right over here. (I'll give you this file. It's our it's our brochure.) And then I can give you the list of how many people we have certified. We have a dashboard that is always available. I'm also going to put the brochure in the chat and the list of certified faculty as of September 14th, 2021.

Janis Raje: Are these certification training programs currently ongoing?

Wendy Athens: So, they earn the certification and then we have them enter a Community of Practice where they meet with other faculty that are also teaching in that HIP. And I'm going to share something else that I think is important. It's a big effort on our part. The HIPs have been very important for us for faculty development. Here our research project that we're running right here. So we are engaging these faculty and being part of the national HIPs analysis. This is the IRB. I'm actually working with IR [Institutional Research] to get this survey readied. We just met with the National Center of Student Engagement last week or two weeks ago to finalize this. But we have the survey which is sitting right here.

This is the survey that the faculty are going to run inside the faculty's classes. The student has to identify which HIP they're doing inside the class, and then asks things like how long have you been participating in this; to what extent; was the following explained to you? To what extent does this experience challenge you? How many hours do you spend in a week on this? So, these are questions are copyrighted by the National Center of Student Survey Engagement.

Janis Raje: You didn't you write the questions?

Wendy Athens: No, they're copyright by the Center for Postsecondary Research at Indiana University that runs NSSE (National Survey of Student Engagement). We will be conducting the survey through the certified faculty on that spreadsheet. They are invited to be part of this research study, and they will run the survey in their own courses. So if I'm running a service learning course, I ask the students to please answer this survey. Faculty then can get their own personal feedback, but also IR will feed that data over to NSSE. So it's part of the national study. And then our faculty will get to compare their results to the national data.

Janis Raje: This is very nice. And then will you get a report back specific to UVU?

Wendy Athens: Yes. Because these are considered supplemental questions to the NSSE, we're licensing them. Then IR is going to give the whole pool of surveys to NSSE. Then we'll get the institutional report back.

Janis Raje: This is very exciting!

Wendy Athens: Yeah, now it's good. We've put a lot of energy into the HIPs.

Janis Raje: Why have you put a lot of energy into the HIPs?

Wendy Athens: Because they relate to student completion and engagement.

Janis Raje: Well, that's why we did the grant the way we did, because we felt the HIPs and student engagement would relate to student completion. That's the that's the primary goal of the Title III, to increase and completion at the university.

Wendy Athens: This is the last thing I think you should include. So, last year we started the Communities of Practice and then we try to put in a lot more undergirding this year. With the Communities of Practice, we're really trying to get those certified faculty (on that spreadsheet) to stay in the community with each other and talk about what they're learning about ways to optimize the HIP. Because, you can say it's a High Impact Practice class, but if you don't implement it effectively, it isn't high impact.

Do you want me to show you what the research shows are the primary qualities of HIPs? There are eight elements. This comes from the Center for Postsecondary Research at Indiana University that owns the NSSE. They evaluate HIPs. This is from their Quality Implementation Study. OK, let me get you that link [Assessing Quality and Equity in High-Impact Practices: Comprehensive Report]. This is by Jillian Kinzie, Associate Director of NSSE, who came here 2 weeks ago for our HIP conference. Now, what you should reference is this where they did a study to find what are the elements that make HIPs HIPs. And is very important. What we find are these eight quality factors [table 4, pg. 15].

Now, we don't have the same names on some of the HIPs. And we're not doing this learning community for students, it doesn't really make sense because we're not a residential campus. But anyway, that's kind of the count of the studies. They had 20,000 records they were looking at from nationally. Anyway, this is what I'm getting to. What I really latched onto. OK, so the column headings here are the practices of the instructor that support the HIP now, and not all HIPs are the same, and so if it has a double plus that's a strongly significant finding. And so this one is *Engaging across differences in perspective, race, etc.* (that's the diversity piece). So, see that the first-year seminar has shown to be it's a significant factor if they have exposure to diversity of thought in that first-year seminar experience. So this is basically we are probing on these eight quality elements of the HIP.

So that's the primary thing this is focused on, so that's really what we're talking to faculty about. It's not really the name of the HIP that's important. What's really important are these practices up here at the top.

Janis Raje: This is good.

Wendy Athens: Yeah, it's really. These eight practices at the top of the table are really the measure of engagement before the student, and so that's what it you'll see. I can actually give you our questions. We were allowed to modify them slightly, so we put our HIPs up on the top. We're having instructors choose to put it inside their class were not just broadcasting it as an institutional survey. We just adjusted the language a little bit, like , so we took out some weird language which didn’t apply to us.

Janis Raje: So do you have to pay to participate in the survey and use their questions?

Wendy Athens: We are licensing. These were still kind of in a pilot phase. This is pilot 2 for them. They're just kind of letting us slide with it this fall, but by spring, we will have it licensed. Tim Stanley will be paying for it out of his budget since this is done in collaboration with IR. The faculty who opt into the study will collect their own personal feedback through these questions. In addition, IR will collect that data for the university and be part of the national analysis. It's pretty cool for our faculty, because they're part of something bigger than UVU. They can see how they're doing on a national scale.

When Jillian Kinzie was here two weeks ago, she was very complementary. She really thought that what we are doing is actually very contributive – that we're trying to get it from start to finish, so our Office of Engaged Learning is going to help us a lot on the outcomes. You know, because in addition to these survey questions, which give the instructor feedback about their teaching practices, they will get the student outcomes through the Office of Engaged Learning [the SAGE instrument]. And so the instructors will have multiple datatypes coming back to them. Now, Tammy Clark is now looking at the Civitas system as another mechanism to give feedback about outcomes in terms of persistence.

Janis Raje: This is just very exciting and dynamic!

Wendy Athens: Yeah, it's good space to be in. I feel really good about it. How this has evolved. It's taken us three years to get to this point. I'm happy to give you that data. Now you have a good story to include in your report. You can see that the faculty development did happen, and that's being evaluated by national standards.

Janis Raje: Thank you. Now I have just have a couple questions about the high impact practice certifications. So when I look at these online, it says that the faculty member who takes the certification course gets a stipend of $500. Is that still happening?

Wendy Athens: Yes, but it's not always $500. Well, actually the HIPS one are all $500. We make it 12.5 hours for all of the training programs. So just in general we pay faculty $40.00 an hour when they earn a certification. We've been able to do that. We've had funding for professional development for faculty, so that's kind of our going rate and all of the high impact practice pathways are 12.5 hours so they are $500.

Janis Raje: OK, so are the high impact practice classes taught in-person by faculty, or are they online courses?

Wendy Athens: They're taught by faculty. The faculty might have a module in canvas, but most of them are delivered in a face-to-face way. Global/Intercultural has one online, but the faculty lead. We have faculty leaders for each one of those.

Janis Raje: Is the Service Learning training is that done by the Center for Social Impact?

Wendy Athens: Well, Jon Westover, the Director of Academic Service Learning, is the faculty leader, and he's the one who trains the faculty. The Center for Social Impact overseas all of the logistics of the service learning itself, but John trains the faculty.

Janis Raje: I see. And then is the Undergraduate Research training done in conjunction with SCULPT?

Wendy Athens: Yes.

Janis Raje: Does OTL have any other relationship with SCULPT?

Wendy Athens: No. We are just the administrators of their budget. David Connelly's been paying for SCULPT for three years or so since there funds ran out. David Connelly, Associate Provost, has been carrying that out of his office. They keep trying to have their own budget to secure it in PBA.

Janis Raje: OK, thanks. All right, is there any question I didn't ask you that I should have asked you?

Wendy Athens: No, I think we're good. Good luck on your big project. I think it's good that you're seeing the student results; that's great. That's what it's all about.

Interview #8: Jonathan Westover

Academic Director, Center for Social Impact
Department Chair/Professor, Organizational Leadership
8-24-2021

Janis Raje: As you know, we're looking over the Title III grants and reviewing that was part of our closeout for that award.

Jonathan Westover: Yeah.

Janis Raje: Now that you're Chair of Organizational Leadership, will you still serve as Academic Director of the Center for Social Impact?

Jonathan Westover: Yeah, I'm doing both.

Janis Raje: Were you involved with the Service Learning Center when it transitioned into the Center for Social Impact? Were you part of planning the transition?

Jonathan Westover: I was, yeah.

Janis Raje: What led to then shift?

Jonathan Westover: You know it was really a strategic shift generally. So we had shifted a lot of our programming. Well, not shifted, we we'd expanded a lot of our programming. It used to be the Volunteer and Service Learning Center, and so the focus was primarily on volunteerism and service learning in the community. But we adopted a 6-Pathways framework that came out of a couple different places around the country and they had six pathways. Service learning and volunteerism – community-based learning – were only two of the six pathways, and so over time we had started to expand into the other. With the other four, we just didn't feel like the Volunteer and Service Learning Center name really represented what we were doing anymore. And so it was quite the ordeal. It took us like a year of meetings, proposals, and meetings, and trying to convince people, but ultimately we got the go ahead. After about a year, the trustees approved it, and we switched to the Center for Social Impact, and I think it's been a great transition. I think it resonates really well with students and faculty. It certainly, I think, fits better to be outward facing to the community as well.

Janis Raje: I see. I'm just really impressed with what you've been doing. Your website gives a lot of information and resources to both faculty and students. (https://www.uvu.edu/socialimpact/)

But when we wrote the Title III proposal, we talked about service learning, but we didn't really place in it and objective that addressed what we would do. I think you addressed that in your previous interview in 2017. You said you had difficulty finding funding under the Title III program. It seems like you're resolved that with program administrators by receiving the HIELG grant. Does that seem to explain what happened?

Jonathan Westover: Yeah. That's where the funding came from and I'm trying to remember. I think we got $30,000. Does that sound right?

Janis Raje: I'd have to check.

Jonathan Westover: Yeah, I think it was $30,000. We had a tremendous bump from the year we got the HEIGL funding and we trained a lot of extra people and we implemented many service learning new service learning classes and we saw a big spike in the number of courses. We didn't really see a dip when funding stopped, we kind of leveled off. We went up a little bit more, but largely we just leveled off.

Janis Raje: Was that because the faculty had built momentum?

Jonathan Westover: Yes, I think so. And in part of it, you know, I kind of thought that might be the case, because if you train new faculty and get them on board with service learning, it shouldn't be a one-time thing. They shouldn't say, "OK, now I'm going to teach this class," and then they teach one class, and then they're done. Usually, they will continue to teach. Most of them will continue to teach service learning courses semester after semester. So, I was hoping there wouldn't be a big dip because that means more faculty are actually being retained – they're continuing to do what we train them to do. And I think that's been the case. So I think that actually was a nice outcome from the training we offered, that we didn't have a lot of attrition in terms of faculty teaching those courses.

Janis Raje: Well, that's interesting to me because I'm looking at the ways the Title III grant has been institutionalized, and that is not just getting ongoing funding from the institution, but rather, I think of it is becoming part of the fabric of the institution – that it has the momentum to keep going. That's how I would think of it, and you just spoke well to that.

Jonathan Westover: Yeah. And we have received some additional funding over the years. So I think when we originally applied for the HEIGL that was back in 2015 I think, and then I think in 2016, is when we did it and then 2017 is when I did the interview. That's roughly the timeline. And since then we did get $25,000 based funding for community matching GEL grants, which are the service learning component. So when faculty teach a class, they have an agreement with a local organization that's going to contribute to the project, and then UVU matches it up to $5,000. And so we got $25,000 back in 2016 or 2017 maybe. That was PBA hard funded to support those types of projects. And so you know that that has been really helpful, and also since then (though it's not directly related to the HIEGL, but it's certainly related to kind of the broader scope of the service learning and social impact work on campus) we established the SIM Lab – the Social Impact Metrics Lab – which also does outward facing community based projects (https://www.uvu.edu/socialimpact/simlab.html). The faculty mentoring students, and the students being mentored work on these community based research projects with local nonprofits. And that's been quite successful as well. So I think between those elements that's demonstrated some additional institutional support to the programming.

Jonathan Westover: I should also say it hasn't been like ongoing funding, but we've also got an increasing support from OTL [Office of Teaching and Learning] over the last couple of years and part that's been related to COVID because we've had CARES act money, and so they put some of their money into the training that I do. Even though I'm in the Office of Engaged Learning, we have a partnership, and so they've helped fund faculty stipends to do training over the past year and a half. So that's also been helpful.

Janis Raje: Alright thanks. I think you were asked this in the previous interview, but now some years later, what do you think have been the long-term impacts of that grant?

Jonathan Westover: Yeah, I think really it did provide an influx of funding that allowed us to expand our,

training and get more faculty on board so that we did see a spike during that year during and then following the HEIGL grant because it was it was a big influx of cash that allowed us to recruit more faculty to get trained and implement service learning. And we we've never dipped back down to that level. I would have to go look at the numbers, but it was something like we were around 5,000 student enrollments and service learning courses pre HIELG, and then after the grant, we spiked and we went up to 8,000 plus and now we're really more like around 8,500 plus students a year doing service learning classes with over 250 faculty teaching those classes. And that only happens as they get trained and they're only going to get trained when there's money to support the training, so you know that that all came through the HIEGL grant and that that allowed us to have that spike. And then we've largely been able to sustain that. I think we would have had some steady growth overtime, but I think we probably would still be far below where we're at right now.

Janis Raje: I noticed that you created some surveys – the Community Partner Survey and other assessments. Were they created as part of that grant or just as part of your general work?

Jonathan Westover: So they weren't created with the grant, but they were implemented more through the grant. I've used them for years with my own courses, and I've encouraged faculty previously to use them, but the way they were they were embedded into the grant is it was part of the stipends covered. When faculty received a stipend, they had to commit to administering the surveys pre and post. And then we collected all that data, and I analyze it. I also gave it to Ala'a and Rasha. So that's part of the more holistic analysis they did with the Office of Engaged Learning. But that that was because of the grant. That was the first time we had a large amount of that data, because it was really hard. I would encourage faculty to do it, but you know, just saying, hey, please do these post pre and post-test surveys and these community partner surveys at the semester. Just asking for that. I mean most people don't do it and so. From that we got some great data. There were probably four or five academic papers that I published off of that data. Over the last few years, this has had an impact in the broader academic community. So, I think that was super beneficial.

Janis Raje: Are you continuing the assessment piece?

Jonathan Westover: We try, but it's hard because we're not incentivizing faculty to do all of that assessment. But we do still encourage it, and we still do pieces of the assessment today, and certainly through the work with Ala'a in OEL, we're trying to continue to track the impact service learning has on student outcomes – persistence, retention, completion elements – and on the student. That continues.

I think I think we've had a tremendous amount of data in evidence for what we're doing. There's assessment data now to show the impact of all the high impact practices, not just service learning, but all of the high impact practices that we do through OEL. We have so much data now to show. The value of that and the impact of that.

Janis Raje: Alright. Well, I think our time is probably getting close to an end, but one thing I've noticed as I've done this review is that a lot of people who have been in the forefront of working on aspects of the Title III grant and carrying on things that are related to that into administrative positions now where they can make a difference. You're serving as a department chair. Other people who have been involved in SCULPT and these projects have are serving in similar positions. So I guess I want to ask you, what about your experience in academic service learning will you carry with you into your tenure as Chair of the Department of Organizational Leadership?

Jonathan Westover: Good question. I mean, ultimately I think being department chair is way easier than what I do with service learning and Center for Social Impact. But, you know, we're trying to do creative, innovative things in the department. We're trying to focus on student success and retention and completion elements. Just like it's kind of the main goal of the Office of Engaged Learning, and we hope to do it through evidence-based practice, proven practices that are going to drive student success so, I think my time with OEL and my role in service learning definitely informs all that I tried to do in the department. You know one of the things that I've really valued through my experience with the Office of Engaged Learning and overseeing service learning is that it's just connected me with people all over campus. I love the interdisciplinary nature of it. I love knowing faculty and administrators from all of the 8 colleges and schools on campus. And I think that has been an asset to meat UVU and in limited ways, it's an asset I bring to department chair. Because the way the departments are set up here, it's functionally very siloed. We're over here in the Business School, and I try to foster collaborations with other parts of campus, but it's inherently more siloed than the Office of Engaged Learning and service learning. But there have been lots of lessons learned over the years and lots of ways that it's influenced my thinking about being a department chair.

Janis Raje: I'll just take one more minute then. The HIELG grant you an opportunity to do something that might not have been available otherwise. It's not something we could have written the federal proposal for, and a foundation proposal would have been difficult. Like the Utah Lake collaborative project you are doing now took four years of hard work in proposal writing to get. I want to know if you see a value in these small internal grants for faculty like the HIELG for $30,000?

Jonathan Westover: Yeah. I think faculty are chasing money to support innovative projects all the time. And so having funding like this allows us to do things that otherwise we wouldn't be able to do. You know, getting PBA funding first for stuff can be really hard, and so having an opportunity to get the HIEGL allowed us to build a case like to demonstrate the value of the project to get the money. And you know, while it hasn't been the particular case of funding training funding in service learning, it has translated into some other support. I think ultimately, whether it's money that comes through from UVU directly, or money that comes from outside grants that we administer, I think having opportunities for faculty to create and innovate is super valuable.

Janis Raje: Great thanks. I appreciate your time. Is there anything else you want to add?

Jonathan Westover: No. I you know I honestly hadn't thought about the HEIGL grant in a long time, so it was kind of fun reminiscing and I'm happy to answer any questions that you have, and we certainly that a legacy lives on, and we certainly continue to do a lot of cool things in the Center for Social Impact due to the support that we got through that funding. So I just want to make sure that's communicated.

Janis Raje: Well, that that grant was very unusual and that it gave us a large chunk of money that could be divvied up. Grants don't usually do that. Title III grants never do that. We took a chance to do that, so I think it is worth discussing in the larger community that this can be a valuable way of using grants.

Janis Raje: Thank you for your time. Hope you have a great day. It's good to see you.

Interview #9: Michelle Kearns

Associate Vice President for Enrollment Management

Interview, 8-306-2021

Janis Raje: I sent you a copy of the three objectives for Area B of the Title III Project. Will you look over them and comment on how they've been implemented?

> 2.1 Use the PSI advising model to assist students to prepare a graduation plan (utilizing Wolverine Track), improve their academic outcomes, and take advantage of engagement opportunities.
>
> 2.2 Provide tools and reports for Academic Advising to support informed decision making by students and advisors, including decisions about taking classes that emphasize engagement; implement additional accountability measures through electronic reporting.
>
> 2.3 Provide tools and reports from student gradation plans to course scheduling personnel in the schools and colleges so they can anticipate student needs and schedule courses to keep students on track for graduation.

Michelle Kearns: So, I'm just looking at those three objectives. The first thing that comes to mind is that we have fully implemented Civitas, so that is the predictive analytics platform that we are using for data-informed outreach. So is the advising community. They're all trained on Civitas and the majority of them are using it to supplement their other tools and expertise in helping to support students, so that's a great positive. It really applies to all three objectives. The PSI advising model is a personalized, seamless intentional advising model, and data [from Civitas] obviously helps in that one as well. So I could see it moving through all three.

Janis Raje: What about the third one? The graduation plans? I think the idea in Objective 2.3 was to have students enter their graduation plans into Wolverine Track and from that use their graduation plans to project what courses need to be offered. Wade Oliver said he didn't think this was done.

Michelle Kearns: Yeah. So we do have Wolverine Track and advisors are good about teaching students about the tool. We also introduce it in orientation and we encourage students to use it and plan their schedules. We have graduation plans and templates. But what's not happening is we aren't fully utilizing the technology available to us to pre populate those schedules so that we can anticipate needs and provide the classes as needed. So yeah, Wade's right we. We haven't fully landed that one.

Janis Raje: OK, so how look again at Objective 2.3 and tell me in what ways that it has been implemented.

Michelle Kearns: Well, we are providing templates for all of the programs. So if a student goes into the catalog, they can see all the classes that are required to graduate, and many of them have a sequence of when to take them. We also have Wolverine track available for students so they can go in and create their own degree plans and they can then lock the plan. That's when we have the data available to us for future scheduling needs – when they lock in the plan. But we don't often find students are locking their plans. I think this is because they have to lock them through there at advisor, and because there's always a lot of changes with when courses are offered. There's some reluctant hesitancy to lock plans, so that's why we can't fully utilize that system for scheduling future scheduling purposes, but we

definitely have tools and we definitely have reports and we do have graduation plans and templates and we do have Wolverine track, so there's quite a bit of progress there.

Janis Raje: When we wrote the proposal, there was a big problem with scheduling in that students didn't have the courses they need to graduate when they needed them. You think that's improved?

Michelle Kearns: I would say it has improved definitely, but we are not fully there. But you know, an unanticipated positive outcome of the pandemic is that we were able to shift a lot of classes to provide more flexibility for students with online and hybrid courses, so that helped us with our scheduling challenges. Students have more options now and they can build schedules more easily that will lead to more timely graduation.

Janis Raje: Since we wrote the proposal, and since you started implemented the project, a lot has changed at UVU, I think.

Michelle Kearns: A lot has changed! Definitely, I would say the one area that just it didn't happen is in 2.2, that we were going to create an engagement dashboard so advisors could better talk to students about taking classes that emphasize engagement. We never did get that engagement dashboard that was talked about – that just never happened.

Janis Raje: I think I understand from other sources that students who are in the *I Am First* program are encouraged to take several High Impact Practices (HIPs) in their first year. What do you know about that?

Michelle Kearns: Well, *I Am First* is a program within our *First-generation Student Success Center* and those students are encouraged to participate in HIPS, but it's a brand new center and a fairly new program, so I don't know that we have any measurable impact.

Janis Raje: Is that also true in First Year Advising, or just for the first-generation students?

Michelle Kearns: Yeah, that's a separate thing. Our First Gen Center and its *I Am First* program are different programs in different departments than our First Year Advising Center. So in our First-Year Advising Center, the curriculum for advisors in that center does include recommendations for students to take to engage in high impact practices.

The First-Year Advising Center is new as well. So we went from a decentralized advising model to a more centralized advising model, and we're just in our second year of that First Year Center, and so all first year students now are going through this Center so they they're getting a standardized curriculum and standardized outreach and standardized care. And part of that curriculum is helping students to identify not only the courses to take, but the High Impact Practices that will supplement their educational experience and expedite their completion.

Janis Raje: OK, so your work was on the Area 2 side, while the Area 1 side focused on student engagement. But as the project progressed, “student engagement” became more focused on “High Impact Practices” because they have been demonstrated to be the most effective forms of student engagement.

Michelle Kearns: Yeah.

Janis Raje: So if advisors in the First-Year Advising Center are talking with students about HIPs and advising them to participate in at least two, then that appears to address Objective 2.2, with or without

the dashboard that was envisioned.

Michelle Kearns: Yeah, I think so. I do. Yeah, and they are encouraging classes that emphasize engagement as well. There is some distinction in our catalog now about classes that are identified as engaged learning classes or high impact classes. So that work is being done.

Janis Raje: So I think that part of what Rasha Qudisat did was evaluation of the interrelationship of HIP participation on persistence and graduation. I believe she determined that students who take one service learning course are 84% more likely to persist to the next semester, and 30% more likely to complete it degree. Fred White told me that we learned through Rasha's research that if students take one HIP, it's good; if they take two, it's better; and if they take three, and one is service learning, it's a massive accelerator toward degree completion. Do you think administrators were listening to that research when they thought through these new advising policies?

Michelle Kearns: Oh sure, yeah, yeah I do.

Janis Raje: So it seems to me that the objective has been addressed. It may not have taken place the way we envisioned it, but I think it has been addressed.

Michelle Kearns: Yeah. Yeah, agreed.

Janis Raje: So in your mind, what accomplishments of Title III have remained or have become stepping stones for other processes that you have now in place.

Michelle Kearns: I think the emphasis on High Impact Practices has become part of the conversation and part of the planning in both curricular and co-curricular opportunities. I think we've become more intentional with our outreach for students. Now that we've implemented Civitas, that tool, I think, has changed the culture so that our efforts are more grounded in the data than just assumptions or historical practices. I do think that we have made some progress on being more student centric in our schedule course scheduling practices, and while there's still room for improvement, I would say that we've made some great strides in that space.

Janis Raje: Can you speak a bit any other long-term benefits or impacts of this Title III project?

Michelle Kearns: Well, you know there's a million reasons why retention and completion numbers go up and down, but we have seen a significant increase in both retention and our eight year outcome measure since we began this grant. And so I think it wouldn't be too much of a stretch to attribute some of that increase to the to the objectives of this grant.

Janis Raje: And the project goal is to *assist* in increasing the completion rate. So you feel that we can say we did *assist* the institution in that.

Michelle Kearns: Yes.

Janis Raje: I don't have other questions for you. That's really what I needed to know. Anything else you want to add?

Michelle Kearns: Oh no, it's all good. Well Janis, it's very nice to meet you face to face and wish you good luck in closing out that grant.

Janis Raje: Thank you very much. Always a pleasure. You take care.

Interview #10: Wade Oliver

Director of University Advising
Interview, 8-26-2021

Janis Raje: I sent you a copy of the Title III Objectives that concerned Student Affairs (Area II) and the evaluator's notes from an interview with you and Michelle Kearns about the project in 2018. [Objectives:]

> 2.1 Use the PSI advising model to assist students to prepare a graduation plan (utilizing Wolverine Track), improve their academic outcomes, and take advantage of engagement opportunities.
>
> 2.2 Provide tools and reports for Academic Advising to support informed decision making by students and advisors, including decisions about taking classes that emphasize engagement; implement additional accountability measures through electronic reporting.
>
> 2.3 Provide tools and reports from student gradation plans to course scheduling personnel in the schools and colleges so they can anticipate student needs and schedule courses to keep students on track for graduation.

Wade Oliver: That's good, because it's been a long time since we did this. It was good to read over it and see what we had done and said about it.

Janis Raje: So the training is ongoing. Has it changed a lot over time?.

Wade Oliver: Yep, training is ongoing. The training curriculum is much the same, but delivery has changed over time. It used to be all in person. We had the curriculum divided across 10 4-hour sessions. Since then though, we have moved all of that curriculum online. We now have 12 online modules available in canvas. And a new advisors are able to do that right as they come on board. We they used to have to wait a little until we had a critical mass. But now we get them right as they come on board and they can hit the ground running better. And then we have five in person sessions that really cover the same material that's in the online sessions, but in an application fashion. So picture a flipped classroom where they get the content online, and then we're able to spend time going deeper and having a more meaningful experience in the in person sessions – so another 5 2-hour sessions. It's much better for the advisors.

When we started this, the online learning itself had not really taken hold here at UVU so much. But we've done it with the Office of Teaching and Learning (OTL) and all the work that they have been able to do. And since I report to the same person that the Director of OTL reports to, we have been able to collaborate very well, and the instructional designers and OTL have been able to help us get our online sessions together, and it has just been wonderful.

Janis Raje: I thought OTL was in Academic Affairs. Isn't that it?

Wade Oliver: It is and so am I.

Janis Raje: I thought you were in Student Affairs when Title III started. Do you have a dual reporting?

Wade Oliver: I do my solid line report is to David Connelly, the Associate Provost for Academic Programs. I've reported to that position since 2015. And I have a dotted line report to Michelle Kearns in

Student Affairs. Prior to 2015, I reported two solid lines through Student Affairs.

Janis Raje: Well, we wrote the Title III proposal in 2013, but it wasn't funded until late 2014.

Wade Oliver: Is that when it was it was, really? That's a much earlier than I thought it was. So part of the changes and things that came about – because the goals that are represented here – is there it we've changed reporting structures. I notice that our previous interview mentioned the directors in the colleges and schools that have been hired, and we did that in 2015, so we've updated since then.

Janis Raje: So, a question I would like to ask is, what accomplishments of the Title III have remained, persisted, or maybe have been a stepping stone for other things that you've done?

Wade Oliver: Alright, well going through the document you sent me. We are using the PSI model, which stands for personalized, seamless and intentional advising. And to assist students to prepare a graduation plan we use Wolverine Track to improve their outcomes that take advantage of engagement opportunities. So personalized, seamless intentional is still one of the foundational principles or set of principles in our advising, training and certification program. In terms of graduation plans, at the time in 2014, we were still having a problem with getting academic advisors to use the planning features of Wolverine Track. That is not so much of a problem anymore, so that has improved. Training was ramped up.

But something else happened in 2015 where there was a proposal to change and make some changes to the advising accountability structure. That is kind of hinted at in the document you gave me as well. Directors were hired in each of the colleges and schools to oversee and supervise the advisors. And in addition to that, my role changed to the Director of University Advising, and my office became the Office of University Advising instead of Advisor Training and Development. I believe the idea was that all of those directors would eventually report here centrally. That's not happened. Over the years and politics and all of that, they finally have decided to have central reporting for those directors, but it won't be through me. They're still working that out. So at present that's kind of where they're at.

But that accountability structure change, in my opinion, is what effected Objective 2.1 more than anything – the expectation of these directors that their advisors are using Wolverine Track and the Planner feature. I think it's made a difference. We might have a handful of advisors that are still hold out, but by and large, I would say that of our 108 advising personnel, including those directors and other assistant directors, over 100 are these tools regularly.

Janis Raje: In the previous interview, there was one objective that wasn't discussed much and that was Objective 2.3, the graduation plans being used to facilitate course planning for the institution. So as I recall, the idea was if student enters their graduation plan into Wolverine track, then the university would be better able to anticipate their graduation plans and do course scheduling better than they had done previously so that students could graduate on time.

Wade Oliver: Right.

Janis Raje: But then I think that you bought software to do the scheduling for us, is that right?

Wade Oliver: No. No, the software was Ad Astra [but it doesn't really do that]. You'll have to to talk to David Connelly or Tiffany Evans about how that went. That was done by Maureen Andrade when she was in the Associate Provost position, and I'm not sure where it went from there. That had been the idea when I even got here to UVU in 2010 – the idea that through those graduation plans we would be able to run

data and see what are the classes coming up that these students need. There was a committee that was working on that and would meet to talk about it. We had a real issue with advisors using the graduation plan and the logistics of that with our many, many students and the number of advisors we had using the reporting accountability structure we had then. It just wasn't feasible to really get that into place.

From my understanding that is not being done right now with that with those plans, though that was the intent. There was a group working on it, but for various reasons, all of which I'm sure I don't know. I don't believe that's been an intentional part of it, but Ad Astra was purchased for scheduling improvements. But how that worked, I'm not sure.

But it is interesting because there are more graduation plans in Wolverine Tack have been than there ever have been, and maybe it would be smart to go back and look at that. And my take on that also was that it was being driven by Student Affairs. And at the time and I'm not sure that faculty where ever on board completely or even understood what the effort or desires were on that. It's just I just don't know.

When, when there was a recognition that to move the needle for advisors who all reported through academic affairs, that's when my department for advisor, training, and development was put it in Academic Affairs. And so in 2015, that's when we moved it to Academic Affairs. That changed my solid line to the Academic AVP (Maureen Andrade), but now Associate Provost (David Connelly). And now David and Michelle Kearns work together on all completion and success kinds of initiate student success kinds of initiatives. And so yeah, there that has made a difference, and now they're working to centralized all the advising reporting. They're not there yet, but they're very close. They've posted a position and haven't filled it.

It is much more of a united effort now. In fact, interestingly, don't know if this means anything for the Title III grant. They just changed Michelle's title and took student success and retention out of it. Because it's a campus-wide responsibility, so we all need to be thinking about this. We can't just have this being hanging over one persons' head.

Janis Raje: So what is Michelle's title now?

Wade Oliver: Associate Vice President for Enrollment Management. It's part of a restructure that came when one of the AVP's left. There is also a committee called the Student Success and Completion Committee SCC that's chaired by David and Michelle. They are working on completion plans and things, so it is much more of a united effort. And I believe the elements that are involved in this grant had something to do with it for sure.

Janis Raje: Well, as you know, we had a Title III grant before this one.

Wade Oliver: Michelle ran that one. That Michelle ran. That's when the Student Success and Retention Committee (SSRC), began under that, and they've started the First-year Experience and related things. Yeah, then they changed SSRC to Completion of couple of years ago. I've been on that group for probably a decade now.

Janis Raje: It's nice to go over these things and get me up to date. Now Area I of the Title III grant aimed facilitate student engagement by conducting inservice for faculty to teaching them how to do engagement better and by funding some internal grants (like the HIELG , the GREEN and the URSIG) so faculty could do engagement activities with their students. Like the GEL grants, but more focused on

the teachers using known best practices for student engagement. So then there was a lot of attention given to High Impact Practices (HIPs). This area also aimed to provide tools and reports for academic advising to support informed decisions making by students and advisors, including decisions about taking classes that emphasize engagements. So there was data produced, by Rasha Qudisat in particular, that showed the impact of student participation in HIPs, including participation in one, two, or three HIPs and of different types. Did you hear that information?

Wade Oliver: Sometimes I might hear in a meeting it's not directed toward me. It's possible that that information has been presented, and I've been in the room when it has been, but it's not been provided specifically to me. And the way the structure has been with the academic advisors reporting decentrally through the colleges and schools, etc., I've also not been in a position to where I can authoritatively share and have them process that, if that makes any sense as well.

Janis Raje: So the idea then was that there would that a kind of database, a repository, would be created and included in Wolverine Track or some format and advisors trained in its use so that students would be able to see what courses have substantial student engagement and make informed decisions about enrolling. But I understand that was never created for a variety of reasons. So, what I want to ask is, even though the repository was never in created, do advisors utilize the research produced by the grant on HIPs to inform and encouraging students to participate in HIP courses and activities?

Wade Oliver: So not in those terms, but yes, it's woven throughout their training elements. They're new advisor training really deals a lot more with the fundamentals of what it means to be an advisor. We have some data that shows that it takes a good year for advisors to get up to speed to be effective in their work. And so what we do have after that is what call a continuing certification that requires them to complete 20 hours of in service training or professional development in each year. So we what we've done is we've tried to reach out to a number of different units on campus to help provide training and what is available, and why students should be involved, those kinds of things. Now I admit we haven't done that under the banner of High Impact Practices or engaged learning, but we do try and include them. We also have couple of times a semester an advisement forum meeting, where the advisors are all invited to an in-person meeting, and we invite people to come and share those things with them there. In fact, we have one coming up here in a couple of weeks where we have the new integrated studies folks coming in to explain what they're doing. So we try and put those folks in front of them as much as we can, and we have a email list as well that goes out to anyone on campus within advisement. Interest that that kind of information is sent between meetings as well.

Janis Raje: That's good. So, what about the other part of Objective 2.2 -- Provide tools and reports for Academic Advising to support informed decision making by students and advisors. Is that what Wolverine track does?

Wade Oliver: Well, Wolverine Track really is more of a tracker for student degree auditing, so they can see how far they've got to go, and then it has a planning feature for future semesters, but we've got that as far as that goes. Data to advisors has ramped up significantly. With the Civitas product that was mentioned in the 2017 report, it puts predictive analytics in front of every single advisor to where they can run data on each of their on their students individually or as groups or in in various sized groups for proactive outreach, and they are all doing that, they've all been trained on that. We offer continuing training on that.

And then we've been offering other kinds of data that they might need along the way that isn't easily available in Civitas as well. In fact, we're right now working on a clearinghouse of links to reports or dashboards that advisors or advising directors can use to help better understand their students and their needs.

Janis Raje: So as we talked about before, this grant began some time ago. It was meant to be a five year grant, but it's run for seven years, partly because of COVID. But now in retrospect, when you look at what we aimed to achieve with it, you see that there were accomplishments that have persisted.

Wade Oliver: I think the work of planning with students is sticking –students now have their Wolverine Track plans. I also think that some of these other things, for instance, I'm looking at this where we had Beacon for a non-cognitive assessment. It turned out that it wasn't what we had hoped for because they didn't provide what we needed, and we moved on to Civitas. So I actually think we're a couple of iterations past some of these original ideas. They served as a catalyst to move us to where we are now.

I think just documenting some of these ideas was important. A lot of these plans were things we discussed in those early meetings – I'm starting to remember now – when I was still in Student Affairs. Michelle and I were trying to work with someone in academic affairs. We felt that if we could somehow get our aims down in a grant on paper, that would be a catalyst for seeing something happen and that getting a grant would make it important enough for people to do something. And so I do believe that. Well, maybe not a direct line for the all of it. But putting these initiatives into the framework of a grant, I believe, was a really significant positive step. It changed the accountability for advisors; they were no longer reporting through whomever on campus. They now had a director that knew advising, and that they knew that was a previous colleague or peer. And that group of directors started meeting together under the Environment Leadership Council structure. This changed a lot. The only thing I think is that's really missing is the personnel. They still report through the Deans' offices, or just now report through the Provost's Office, and that's just happened in the last few weeks.

I believe that the kinds of the things that we codified or identified in this grant got things rolling to where we could actually have the Chutzpah and have what we needed to be able to confidently move forward with recommending these changes.

Janis Raje: That's interesting because the process of writing it was long and arduous as people met and discussed what they really wanted to do. The same with the earlier proposal: it took us like five months just for people to figure out what they wanted to do and put that down on paper. And I've been working for UVU as a grant writer for web 21 years now, and I've noticed that just that process that you talked about of codifying it, of putting it down makes all the difference, even if the grant isn't funded. It's written down so people have a way to move forward. This grant appears to be an example of that.

Wade Oliver: Yeah, this is an example of that. In fact, me being involved with this was really an interesting thing at the time too, and this doesn't really necessarily matter for what you're doing, probably, but you and I have alluded to it a lot. The accountability structures, the way things are built for the advisors advising as a profession grew out of administrative assistants and out of faculty having to answer questions they didn't want to answer. So they asked the administrative assistants to do it, and then over time there started, they started to realize, oh, wow, there is something more to this than just simply answering a question. Advising became a profession in the early 70s, and since then there's a literature. There's a there's a journal that's specific to advising. There's it's just so much more, and it's been

interesting to watch that develop. But it's interesting to watch it develop in a microcosm here on our campus to where those advisors are hired for one purpose. But this has grown and developed, and has brought with it growing pains and challenges. And some advisors get caught in the middle. Say, well, I wasn't hired to do that. I was hired to do this right. And there's a lot of that. When I started here at UVU, there were probably in 2010 there were probably 50 advisors, and now, as I mentioned ,we're at 108 with directors that didn't exist before. And we may be taking another step forward. We've now partnered with Civitas and others to help advisors be super effective to help students retain and complete. And there's data all over this country on how institutions can make that culture shift to where advisors are more holistic and more proactive. Their retention and completion numbers skyrocket very quickly. Well, skyrocket means maybe single digits, but still. When it hasn't moved for a decade or more and suddenly it's able to move, that's a big deal and results in big things. And so, the fact that I was involved with this was groundbreaking effort at UVU is amazing, in my opinion, I came in here as a training director for advisors, but with that experience they brought me into a lot of things and thinking more what we were doing and about advising in a more holistic, bigger picture on this campus. I think advising has changed a lot and is moving things for the better for sure. There's still lots to do. It's a big school. Lots of moving parts. Lots of growth.

And so it it's not always easy and sometimes it hurts. I've described this before at UVU – I compare UVU to the birth of a star. You watch that on PBS Nova and you see from a distance it's glistening and gorgeous and colorful and bright and shiny. But when you move in really close, there are explosions and an it's violent, right. And I think being a part of a university that is developing as quickly and as innovatively as this one means you gotta hold on for the ride. But wow, what an exciting opportunity and I think the kind of the kinds of things that are in this grant that have helped us to where we are now.

Janis Raje: Alright. I don't have any more questions. Anything you want to add?

Wade Oliver: No, I think that's great. I appreciate the chance to think back on this stuff, and thanks for the document to help me remember.

Janis Raje: Thanks so much. I appreciate your time.

Wade Oliver: It's my pleasure. It's nice to meet you in person.

Interview #11 – Ala'a Alsarhan

Program Director of Engaged Curriculum & Title III Director

October 21, 2019, 9:00 am

Q. Has the SCULPT team given you a written report of their work for the past year other than the list of participants?

A. No. I asked him for a list of participants, the number of students and mentees were impacted, and their discipline. That's what is included in his report. Also, SCULPT is only partially funded from Title III with funding for the leaders and mini-grants for faculty for SCULPT participation (for about $100 each for research in their classes). Now its main funding comes through the Office of Teaching and Learning (OLT). It was formerly funded entirely from Title III, but it is phasing out and being institutionalized by OLT.

Q. Your tool for measuring engaged learning – what is its name?

A. In-class Engagement Instrument – it is a survey created by Rasha Qudisat

Q. How has it been utilized this year [the year under evaluation] and how will it be institutionalized?

A. Will be used in Spring 2020 for the first time at the UVU level, every student in every course – this will be a huge administration. Usually when we administer the survey, we send a letter to deans and colleges and ask for their support. It depends on what they want to do. One of the main issues is that the faculty think the tool will be used to evaluate them. We were trying to communicate the message that this is not intended to evaluate faculty. We are trying to assess the level of engagement activities within their class – regardless of who is teaching the class. Because we are aggregating the activities on the course level, not the section level. We want to designate the course based on their engagement activities.

This tool is very unique. It will help UVU support its Carnegie Classification as an engaged university. In 2025, UVU will have to report back to Carnegie about engagement. This will be their main tool to report back.

Q. But you have used the tool up to this point, haven't you. Are you piloting it or have you moved beyond pilot?

A. Yes. We've been using for the past three years. We have moved beyond pilot. We piloted for three years. In Fall 2018 it was administered to 140 courses. We were able to designated 140 courses.

Q. Have you phased it out from Title III? Is it operating now on institutional money? A. Yes.

Q. It is institutionalized then?

A. Yes, this is what will happen in the Spring 2020 when it is administered to all students. Now in the process of purchasing severs & hiring some people to work on it.

Q. Is your work on the project being paid for by UVU? A. Yes.

Q. So you've, personally, have been institutionalized? A. Yes.

Q. Is this the Dashboard you described earlier related to the survey?

A. Yes. Responses from the survey are used to populate the dashboard.

Q. Is the Dashboard being used now and by whom.

A. Some. Upon request. Usually after each administration, I send a report to the deans about the courses and their level of engagement. If they want further information, I can give it to them. Previously, the School of Business used the dashboard for their accreditation. That was two years ago. The target now is to establish access to the dash board to every dean, department chair,

and faculty member. This is what we are trying to down now. I think Cheryl Hanewicz can talk more about this because she is requesting the funding through PBA (Planning, Budget, and Accountability) – money for purchasing the servers.

Q. Why does it need its own dedicated servers?

A. It is very data intensive. Also, everyone (deans, chairs, etc.) need access, so it needs to customized for each of them. Deans see a different view from department chairs. Faculty members can see their own courses, but not others. Department chairs can see their departments' classes, but not other classes in other departments. Deans can see classes in their college or school, but not in the other schools.

Q. So the dashboard won't be part of Institutional Research?

A. No, I don't think so. It will be in the Office of Engaged Learning and the dashboard will be on my website. But again, when we have this, the decision will be made by the university.

Q. You have three grants going on now – GREEN, HIELG and URSIG. How do you advertise for the grants?

A. Usually I use UVU Announce two months before the deadline. And I email deans and department chairs telling them about the applications and deadlines.

Q. Do you think that they've been good a spreading the word to faculty?

A. No. To be honest. Because some of the faculty come to me and they have no idea about the grants – they didn't get it from their department chairs. And faculty do not look to UVU Announce sometimes. Usually with the GREEN and HIELG we receive about 15 to 20 total applications for each announcement. But this time, the deadline was 2 days ago and I received 4 applications for both grant competitions combined. I think it was lower this time because usually we announce the grants at the beginning of August with a deadline in late September. At that time, faculty are just starting school and they want to do things. This time [Fall 2019], unfortunately, we announced the grants after we received the extension, and that was late September, and that time, I think it was too late for faculty to think of something or to hire students. Maybe this is the reason why we did not get a good number of applications.

Q. So going forward, to ensure that you have good projects, what will you do about this?

A. I think I will keep it open – the HIELG and the GREEN – and I will handle each application separately. I will send each application to the committee, and if it's a good quality, then we will fund it. For now, I will send out an announcement extending the applications. Then I will send what we have to the committee. If there is something we want to fund, I will start funding them.

Q. What about the URSIG?

A. URSIG is for two months funding in the summer. Usually we have a good number of applications – about 12 to 13. The funding is limited to $15,000 for each application. Last year we funded 9 of 13.

Q. If you have a grant application that is not of very good quality, will you work with the faculty member to make it better?

A. Yes. It depends on the comments from the committee. If there is are any suggestions from the committee to enhance or to change something. Because not all applications are funded on the first try. There is a revision part. So it could be approved, have approval with revision, or be declined.

Q. Do the people who apply for these grants have to have taken any training through the Office of Teaching and Learning?

A. No. It has never been a requirement. The HIELG grant is open to everyone, the GREEN is open to junior tenure-track faculty.

Q. In the area of grants, what do you feel were your greatest successes in the past year?

A. Well, I've learned a lot in this year and there is a lot I could talk about. For example, the measurement tool is one of them. We were able to enter the area of HIPs and we were able to do a lot of things that other institutions still struggle with. We gave two different presentations on HIPs in the state conference and the feedback was excellent. USHE (the Utah System of Education) is aware of what we are doing. I am a member of the USHE HIPs group, and every time we meet, they are waiting for us to start talking about what we have. The other institutions would like us to tell them what to do next. They want our help in this area. They ask us a lot of questions.

I managed to create my own dashboards for handling budgets. It's easier for me now to see what has been spend and what needs to be spent.

In the area of the grants, most of them are working well. Sometimes working with faculty is not an easy thing. Especially when we are trying to follow up with them – when I ask for reports. Not all of them, but I have had some incidents. The decision was, in these cases, that you won't be funded again. If you don't to what you have been asked to do, you won't get funding again, even if you have an excellent application. Reporting is important to me because I need to give reports too, based on what we achieved.

Q. Part of what we had hoped to achieve with this was that people would begin their projects and then that they would carry them forward through external funding or some other mechanism. Do you get a sense that this is happening?

A. Yes, we do have something like this. One of these is the POGIL (Process Oriented Guided Inquiry Learning) project. It was funded several years ago and they are now seeking other funding. Currently we are funding a project between the Business School and Technology. It is Block Chain – a finance tool using artificial intelligence. It started with a URSIG grant. I extended their funding with a GREEN grant. I think they are moving toward external funding. It's a great project. By the way, last year KMP Spark visited the University to see if they would like to get our students to work form them in internships. The university was trying to give them all the information they need, hoping they would open this opportunity for our students. I was asked to give a presentation about what we are doing. After the presentation, literally, they decided to work with UVU. I got the letter from them about that visit. They said that my presentation changed everything. They liked the engaged learning and what we are doing here, in this office.

Not only do we designate courses based on the level of engagement and activities, we can tell why this course is not engaging. This is one of the strengths in the tool that we have developed. So for example, if we believe that course X is not engaging, they will redesign the course, and maybe pilot it for two or three years, only to find out that it still isn't engaging. The process will take a long time, and teachers think it is now engaging; however, with this tool, we can save money and time. We can tell you what is the problem so it can be fixed. I will show this to you when we meet again.

Q. Did you have any additional comments about the questions I plan to ask interviewees today?

A. I like the questions about the students' engagement – what they did, how did they learn. This is exactly the purpose of what we are doing – the students. I think it is very important to focus on this – what the students take out from the experience. It is also very important for us to know about the publications, conferences, and workshops that have come as the result of funding. This is important because it is now required by the Department of Education to report this information. Also, what are their plans – are they planning to publish or attend conference, and if they will be engaging the students in this – NCUR, UCUR, any type of conference like this.

Q. What support do you offer to faculty on their proposals?

- Review their budgets
- Help in the process of hiring student workers
- Purchasing supplies
- Process expenditures
- Facilitate their work.

From Dashboard presentation

Brief information on current dashboard:

- Now built from 4,601 student responses thought there are 28,876 students at UVU. Students respond on Canvas.
- In Spring 2020 it will be given to all students in every section (individual students will see the survey multiple times).
- Participation will be a required assignment in classes across campus.
- The 45-question survey will be given 3/2s the way through the class (we have 3,500 courses at UVU).
- Faculty will not be involved in administering the survey.
- Data can be used for UVU's Carnegie Classification.
- It will also establish an institutional benchmark to measure future engagement by.

Interview #12: Cheryl Hanewicz

Associate Provost – Engaged Learning
10-22-2019

Q. When I look at your report from last year, one of your comments interested me. You said that you are "familiar with how scary grants appear to new faculty" and that "this Title III program allows them to build grant skills." Could you tell me more about this and if you think this is happening?

> A. Yes. We've actually have addressed that this past year to some extent. So part of that is, having been a new faculty member years and years ago, you just get hired, you're looking at your RTP and scholarship, and grants seemed kind of scary because there's a lot of paper work, they're for sometimes large amounts of money, they have names on them like National Science Foundation. When I was doing my doctoral work, I actually had a class on writing grants. That tells you how big it can be – to have an entire class on writing grants. And then when I stepped into this position last year, and what I found shortly after, is that even here the GEL grants [Grants for Engaged Learning], which are meant to help develop faculty members to be able to write and the to go for the outside grants through OSP, is we were missing School of the Arts, Humanities – we were getting primarily those from Science, those who are more familiar with grant writing. When I dug into it a little bit, some of it was like School of the Arts kind of equated grants with more scholarly research, research papers, etc. – it wasn't artistic, it wasn't creative. Some of them didn't think that what they are doing would even apply, which absolutely isn't the case. So this year I have a Director of Undergraduate Research and Creative Works from the School of the Arts, a faculty member. So her goal this year is to build those bridges and to dig into that a little deeper. She's an interim director, but I wanted to bring in someone specifically from that area to take a closer look at this because I felt we were leaving off a large percentage of the faculty members.

Q. This Title III grant was really unusual. Through Title III, the Department of Education nearly always funds grants that are more like the first Title III you worked on – that's really typical of what a Title III grant would fund. You give them something really specific you will work on, maybe bring in some vendor packages to the institution. With that last grant, we created the First-Year Experience and developed programs to interface with the Banner System to make reports about student progress more accessible and useful. This grant was very different in that it set aside money that we could disperse as internal grants. We had the faculty training to prepare faculty members for it, and we had a structure for how grants would be given out, which may have given confidence in the project, but it is really unusual. At the time we wrote it, I had not seen another Title III grant like this funded. Now, I would like to assess whether or not the money has been well spent. From your perspective, do you think that we can say that this money was well spent?

> A. Absolutely yes. Because the grants are focused on increasing engagement in the classroom, and that can be a heavy lift for faculty. Sometimes there are resources that are needed that departments can't fund. It takes time. Like if you're rebuilding curriculum – maybe doing gamification – it takes a lot. And so giving faculty "permission" and funding to do that, that's what really changes an engaged classroom. I've seen it done well and I've seen it done badly. And sometimes you think, well, if you had the students do something outside the class and/or give opportunities for students, that would be more engaging. Some of these projects are redeveloping faculty member's classrooms. For example, the plastics in Utah Lake project – how sharp is that? And really, Dr. Rock isn't going to go after a National Science Foundation grant. She just has 5, 6, 8 freshman and sophomore students. But what she's doing with those students is huge. And she's also getting a framework for future teaching. After this, she'll pop out another idea. And what's more, students talk!

Q. Can the institution support the necessary funding for the kind of engagement it wants to foster?

A. Well, part of this, too, is that the Title III grants are helping the GEL grants, that is, in GEL we are seeing that the Title III is doing. To me, it's always good to have an infusion of new energy, and seeing that the Title III is doing is definitely helping with that. The Director of Engaged Curriculum (Title III / HIEGL, GREEN, & URSIG grants) and the Director of Undergraduate Research & Creative Works (GEL, URSIG, TEELS grants, etc.) work closely together. I think it's helping them. The one thing I've heard over the last year, and I think it's just part of the synergy is that the level of applications is much better. I think part of that is the learning process and having funding for the Title III. And, perhaps, at some point, we request more money for GEL. We've left money on the table before, but this year we're close, even though we're in the beginning of the academic year. So I think in the short-term, UVU can be picking up some of the slack as this grant closes out.

Q. I think one of the purposes for the institution in this evaluation is to determine whether or not the mini-grants are an effective catalyst for engaged learning across a comprehensive, integrated, open-enrollment university and worthy of pursuing additional funding for. If this evaluation could give you ammunition for pursuing additional funding, would that be worthwhile from your perspective?

A. Absolutely, because we're engaged learning. As you're talking, I'm think about the question you just asked me – is this worth it. If you think of traditional grants, it's usually just the same finite people who are working, and it's the same-old, same-old after so many years. But here, we're getting fresh eyes on this every single year. And the quality is increasing. So not only do students talk with each other, faculty do as well. So they're bring ideas to the table (probably hundreds of ideas that have come forth over the lifetime of this grant) that in a traditional grant never could have happened. Faculty with limited funds in their classrooms never would have thought of these things. Ultimately, if it turns out that we're meeting the target on the GEL grants for the research, I would absolutely love to be able to take this and go and say, "Hey, look what we're doing!" Ala'a has already done assessment that shows the increase in retention for students who complete a research project. And just recently, and you might have to confirm the number with him, in looking at collective impact of High-Impact Practices, Rasha found that students who completed research and (I think) service learning, increased retention by 95% [check this]. It was huge! As we're getting this kind of data, as we're getting all of these successful projects, if we're finding that we're retaining students, I think this would be a really good push to go to the university through the PBA process and ask for more money. Because in many ways, some of these grants we give out are not huge amounts of money. Interestingly, the GEL started over 10 years ago. My husband was working with Jack Christiansen at the time they were introducing this. So I've seen GEL go through all kinds of variations. I think it's gone on long enough and with the working relationships with the Title III program, I think the GEL has matured. We've expanded now into community matching grants, and we are seeing students doing amazing things out in the community with that. And also, the committees that review all of the grants are getting stronger and more engaged. This is important because historically, in some years it has been difficult to get faculty engaged with the GEL review, but now, with Nicole, who is directing the grants, and with Shelly, who has a lot of experience in this, they are coming up with different ideas for the committee, and already they are seeing more engagement from the committee. Which, by the way, one of the other items I did this past year was that I took Shelly Andrus out of the administration position and put her in a coordinator position so that she could more effectively help with all of the things she's doing right now with the grants, and the committees, and the reviewing.

Q. Ala has created an engagement dashboard. Do you use it? A. Yes. Q. How broadly is it used right now?

A. Well, tomorrow, he's presenting it to all of the department chairs. So it the deans and other people at the higher levels have access, but since he's in the process of building it, it hasn't been ready for release yet. He's checking it, and one thing he's so good at is making sure it's pulling all the right stuff. He's making sure all of the "behind-the-scenes" are correct. And then tomorrow

he will present to the department chairs. And then hopefully, they themselves will start using it with their faculty. Ultimately, faculty will have access to it as well, and then can they can start seeing how these different elements are increasing retention – showing them that what they are doing in the classroom really is making a difference. You hear about it a lot, but it's sure nice to see it.

Q. That is what Robert Loveridge [Director of Institutional Research] said when we were crafting this proposal to begin with. He said, "We talk about engagement all of the time and people come to me and want me to show that engagement is working, but I can't, I have no tools to do that. We talk about it, but are we doing it? I don't know." And so, that's what this part of the grant set out to do.

A. This grant is starting to change a culture. It takes a while to do that. Like the GEL grants maturing. Part of that is with the faculty themselves, because right now we're talking about rank, tenure, promotion, and there's more talk about including these kinds of grants as applying toward tenure as part of scholarship. Seeing what other faculty are doing also encourages. I'm also considering faculty mentoring. So one of the other items I asked Nicole to do when she stepped into the position of GEL director is to work with the Office of Teaching and Learning to get a kind of learning circle for all of the first-time faculty of GEL grants to meet with each other so that way they can talk about what they're doing, see what others are doing, and develop that network. Because we're a <u>big</u> university, and this helps faculty connect as well. We talk about connecting students all the time, but we need to get the faculty connected as well. New faculty (like Sally Rock and Dustin Shipp) who were specifically hired because they have a desire to engage students are changing the culture as well, especially when they have had these grants to bring their great ideas to fruition.

Interview #13: SCULPT Team

Anton Tolman, Joe Jensen, Jessie Hill

10-21-19

Q. Looking back at what we proposed to do originally (Table 16, page 32 of the proposal), what activities did you carry out and what did you change?

A. Anton – Well, a lot of this has changed. The learning circles, yes. So we have been running learning circles every semester through the Office of Teaching and Learning for probably five years. Those are basically reading groups. Every semester we pick a book, or readings that are related to mentoring students or promoting curricular engagement or undergraduate research – why it's important and those kinds of issues.

Q. So someone could do this multiple times?

A. *Anton* – They could because each time it's going to be different – each time there will be a different book. Well, we have repeated a couple of books across that time span, but pretty much they've been different books every semester. The books have been wide ranging. The initial books we used were from CUR. We used COEUR (Characteristics of Excellence in Undergraduate Research), a kind of white paper, and then other readings from CUR, and then we expanded into other areas as well. I have a favorite book called *The Indispensable Guide to Undergraduate Research*. It's actually a book written for students, aimed particularly at first-generation and minority students. So the book is all about why you should do research and how it will you help you succeed in school and in life. It actually suggests that you get started as a freshman by learning about undergraduate research and mentoring. And then it goes through each chapter – how do you find a mentor, how do you write a proposal, and how do you do all these different things. So we were reading it in a learning circle from the perspective of trying to understand how to approach and talk to students about these issues. We actually got permission and we have a couple of chapters from the book on our website. We have a student section of the SCULPT website, which includes those chapters.

Anton – What we did with the second one (the summer Teaching Academy and New Faculty Teaching Scholars Programs) was the Mentoring Academy. We created the Mentoring Academy specifically to train faculty how to be more effective mentors. The book we use (Enter Mentoring) has become a very expensive book – $55. OTL is still buying them for us. The new one was free but the new one is not. But it is so much better – very thorough, it covers all the bases on how to mentor students, how to shape expectations, how to deal with inclusion and diversity issues.

Q. *Janis* – Tell me more about the Academy. A. *Joe* – The Mentoring Academy is a considerable investment of a faculty member's time. A. *Jessie* – Yes, there is the time to read and discuss the book, but there is homework too. A. *Anton* – They have to design a mentoring philosophy, and then they have to design a plan of how to implement it in their classes. They also do a peer review of each other's work. A. *Joe* – maybe about 16 hours.

Anton – The third one, the Online Module Course didn't really happen. SCULPT did have, for a period of time, a Canvas course. *Jessie* -- Ben and Heather are still using a version of it now.

Anton – About the fourth one, the Summer Engagement Institute – SCULPT has had a goal of having a Summer Engagement Institute for some time, but we haven't had the funding. What we have done instead is send some teams to CUR Institute trainings with the expectation that when those teams come back, they have to do something to spread what they've learned. They have to do write a proposal, or present a seminar to faculty, or something like that. We did one last year with a team from the College of Science, and the theme was on broadening participation in undergraduate research. And they come up with a document with some good ideas in it, and they are still pursuing it with the support of Danny Horns, the new Dean.

Anton – Then there's the whole creation of SCULPT that replaces a lot of the original plan in many ways. SCULPT by itself has been a big chunk of this. SCULPT was created – we originally used a big chunk of the grant money to send out four or five teams to different CUR institutes. (Jessi Hill was one of these.) The idea was that each team had to come back and come up with a plan, or a proposal, or a discussion about what are some of the things we could be doing to implement some of the things they learned. Which they did – some at the college level and some with OTL. I helped create the teams and recruit faculty to participate on those teams. We had cross campus representation on these teams. That was about the time I was diagnosed with cancer – when they were coming back and reporting. So that spring, we held the first meeting of what was to become SCULPT. I was in Salt Lake City in the hospital. I had my laptop and was participating from my hermetically sealed room. We had everybody there – as many who could get there who were from those teams – to talk about what we should do next. And the decision was to create SCULPT. We didn't have that name yet, because Olga Kopp came up with that name. *Janis* – Joe, were you in this original group? *Joe* – No, I came on a little later.

Q. Janis – I thought SCULPT was a brilliant idea for sustainability – to have the faculty take over instead of having an office do it. Can you talk about that?

A. *Jessie* – A long term out come from this initial moment is that Joe is on the Re-envisioning the Undergraduate Experience Committee (RUEC) and is pushing for undergraduate research as a high impact practice to be incorporated in the general education experience. So we're really integrating into the curriculum. *Anton* – In several ways. *Joe* – I could talk more about that. *Jessie* – we worked hard to do that in our curriculum too. We changed our program to include more opportunities. *Joe* – We have two new classes in research methods in our department.

Anton – So I think SCULPT has had these long-term implications, even apart of the defined things that we aimed to do, there have been other long-term implications. I just saw Ron a few minutes ago He said we now have 152 faculty members in SCULPT. We also have an Advisory Board, which is essentially the governing board of SCULPT. It has 14 members right now, including Joe, myself [Anton], and Jessie. So, what happened is that by the end of that Spring term, when I came home and couldn't do anything, I said I couldn't lead SCULPT. We created three co-chairs who were members of the advisory board, and they took over leading SCULPT, and I fell back to Advisory Board so I could still have input there. In addition to the Advisory Board, SCULPT has three subcommittees working right now. We have the Showcase Committee, which just finished their work for this year. We have the Student Recognition Committee that is working on how we actually recognize students for doing undergraduate engaged work of significant weight. And we have the Student Outreach Committee whose job is to broaden participation and find ways to include more students in undergraduate research. We've had other groups before. We've had a Bylaws Committee, and we had a group working on Assessment of Undergraduate Research, that morphed in to Jessie's group.

Q. *Janis* – Are the co-chairs over these three committees? *Anton* – The co-chairs are over all the finances of SCULPT, over the day-to-day operations of SCULPT, communications, members, strategic planning, and the committees. Jessie was a co-chair of SCULPT, but then the Faculty Senate called her. And you should note this, because it is an evidence of impact. The current President of the Faculty Senate, and the current Vice President are both members of SCULPT. Anne Arndt is the current President, and she was a co-chair of SCULPT. *Jessie* – When you're done being a co-chair, you go back to being on the Advisory Board, so we don't lose the institutional knowledge and experience that someone has acquired. They're still available to answer questions and help out with things that they remember from last year. *Joe* – This has been enormously useful. For example, Marissa Sotomayor, who was one of the major chairs of the Showcase Committee was a prior co-chair of SCULPT. Plus, having Joe there on RUEC. *Anton* – And on the RUEC subcommittee – its separate from SCUPLT and the Faculty Senate. It was created several years ago by President Holland. It's charged with thinking outside the box about how we can improve student success. And more lately, that has become more aimed at student

retention and completion. So Joe is a co-chair of RUEC (Re-envisioning the Undergraduate Experience Committee – under Faculty Senate) and a co-chair of SCULPT. *Joe* – It's good to have that cross-communication to help take on the endorsement of undergraduate research and creative work. *Anton* - I'm on the RUEC subs-sub-committee on HIPs (High-Impact Practices). Part of what we're doing is coming up with a certificate for undergraduate research, and scholarly & creative work. We are also trying to find a way to pay faculty during the summer so they will re-vamp an existing course to include more HIPs and engagement activities.

Q. *Janis* – Where will you get that funding? Anton – These are proposals that will go to the RUEC committee and then to the Faculty Senate and then to PBA.

Q. *Janis* to Jessie. Tell me about the GREEN grant you have.

A. *Jessie* – for this grant (with Heather Wilson-Ashworth), we are trying to do a census on campus of whose doing undergraduate research. We had some success finding those people, and when they identify themselves, we are going to investigate them with a research team to see what are good mentoring practices of their teams and what are good organizational structures of their teams so we can create a *Best Practices at UVU document* that will help new faculty coming in, or faculty in general who may want to assess what they're doing and adopt some new practices. And we're doing that through video observations of team research meetings to see if we can identify behaviors in a more objective way. We have a rubric for observable mentoring behaviors. We're going to survey the research mentors and their students to see if it's working or not, and if they have any idea of what's working or not. So we have 50 people that we're going to try to do this academic year. Half of them in the fall and half in the spring. Janis – Heather seems to be doing similar with the NSF Scholarships in STEM program under Geoff Zahn in researching the faculty-lead research teams in his project. *Jessie* – Geoff is also on our team, so there is some overlap of ideas.

Q. Janis to Joe – Tell me about your student's research in astronomy.

A. Joe – They're doing three different projects, but none of these are funded through Title III. They're funded through NASA and NSF. Two students are working on measuring the distance to galaxies that have super novae (have hosted super nova explosions) to different classes of stars to the expansion of the universe. It's a measurement scale, like a ladder, and uses space telescope data. Another student is working on measuring the brightness of stars in a distant galaxy from adaptive optics and a corrected image from a ground based observatory in Chile. So we have quite a bit of data from space and from south America right now to measure distances and to measure the brightness of stars to tell what their ages are, and their composition, and things like that. We're trying to measure the age of the universe so we can tell how fast it's expanding, which tells you what it's made out of – how much dark matter there is.

Q. Janis – I've been interested to meet with your group because I've felt that this part of the project took off in an unexpected direction, but a very good direction because the input of so many strong people on this project which creates a synergy of its own. You've gotten together a group of faculty who are themselves engaged in student engaged learning and undergraduate research, and you have a much more sustainable program than we had at first envisioned. Do you agree with that assessment?

A. *Anton* – Yes, I think so. I think we've had about 40 faculty complete the Mentoring Academy, and many in the Learning Circles. And those faculty may or may not do undergraduate research in the same way we are doing it, but they start to build it into their classes. It changes the way they think, how they interact with students, and all that. And that has ongoing ripples going out. *Joe* – So one way we know that's happening is this past year when we haven't had any Title III funding, we were able to secure funding through Academic Affairs and maintain all of the programs we developed over the past four years or so. So you can imagine that as soon as Title III funding was over, SCULPT would have just disappeared into everybody's busy schedules, like smoke in the wind. But the reality is that it has legs, that it's still going, even when the funding has ended.

Q. *Janis* – How has the project "acquired legs?" A. Joe – We have this core group of active members – the Advisory Board, who are willing to donate their time, basically, to maintain initiatives. Then the funding that we need for materials and student awards and micro-grants and that sort of thing has been provided through the regular PBA process and Academic Affairs. This year we are trying to get a separate funding line for SCULPT. Q. Janis – What have you found funding for, specifically. A. Joe – There's the Student Showcase of Creative and Scholarly Work. It's an annual event. Last year it was two for days, this year it was one day. Expenses involve student awards, printing costs, foods. Students submit posters, or performances, or other presentations of their work so that other students can see that students are doing this work (not just like professors doing things like this.) In fact, the professors don't submit, they just help out. There are also what we call micro-grants. We have a couple of thousand dollars each year that we give out to faculty who just need small amounts of money – a couple hundred dollars, perhaps – to purchase materials that allow them to do research in the classroom. This wouldn't be available through a research grant or the department. Q. *Janis* – how is that different than, say, a GEL grant. A. *Jessie* – GEL grants don't buy equipment. There was a real need for this. Joe – Micro-grants are for equipment that you can purchase through the Wolverine Market Place, usually ranging from $200 to $500. It isn't usually for major equipment that departments can buy, but just for things for experiments for an experiment of a student project. It could be expendable materials that they would use up in a lab, like sheep brains, supplies, books, computer hard drives for storage, a camera, etc. Some of this money has also gone to send teams to CUR institutes. (We're hoping to host a CUR institute here sometime.) We just sent one team last year to a CUR institute, because we didn't have a lot of money – that was a CUR institute on inclusion in research in Washington State. *[Jessie left for another obligation.]*

Q. Janis – You'll recall our proposal Title III funding (Anton was part of the grant-writing team) was quite unusual in that it gave out sub-grants and mini-grants to support faculty efforts in student engagement and undergraduate research. And I think it's been successful. And what your program has done is successful, and I see it growing into something that will be sustained at the university. Do you have any suggestions for us as go move forward in seeking funding for these kinds of big institutional projects?

A. Anton – in working with some of the first-year folks, and thinking about that book I was telling you about, we are trying find a way to build High-Impact Practices into the first-year experience. Well, you know there is the First-Year Seminar, but we still need to address how do you teach and get first-year students thinking about what research they would like to do in the next year or two. Get them started to think about how would you find a mentor, getting them to go to Showcase, things like this. SCULPT does have a committee of volunteers that are working on outreach, but it would be even better if it were institutionally built into the fabric of first-year experience. I think that would be even stronger. And then this idea of recognizing students, and also of funding faculty time so they can recreate their courses, especially lynch-pin courses – gateway courses, courses that students must take within their disciplines.

So one thing that SCULPT continues to struggle with, but where grants might be useful, is expanding that type of effort in the arts, business, education, and public service, maybe engineering & technology. The two biggest colleges that really engage in SCULPT are really the College of Science and the College of Humanities & Social Sciences. So if there were pots of money, like we had with the HEILG grants, and we could customize them to those areas that don't normally think that way, that would take what we've done and catalyze it even further.

A. *Joe* – Faculty training and development keeps coming up in our discussions as a way of improve student success. There are a lot of things people could do, but if the faculty don't know about them or how to implement them. More training like the Faculty Mentoring program, which reached a relatively small group, but if we had more funding, we could probably develop more training. *Anton* – I think especially in using cohorts, like departmental funding, or something like that. *Joe* – Because without compensation for mentoring research, faculty don't have a lot of motivation to do it. I don't know if that compensation should be in the form of a stipend that you

get for completing a course during the summer, or if it's for the buyout of a course so that you have time so that you have time for redeveloping a class, or something like that. Those things cost quite a lot of money – several thousand dollars to buyout a course. Q. Does that conflict with the institution's aims to have a high percentage of faculty teaching compared to adjuncts? A. *Joe* – Yes, there's some tension there. But we already balance this somewhat.

Q. What would you say have been your greatest successes?

A. *Anton* – That SCULPT is still going, adding members, and becoming more visible. Before he left, we had a meeting with President Holland where we all wore our SCULPT shirts. That was great. We started with 24 members and now have 152. We added about 44 new members this year. About 30 to 40 have served on the advisory board.

A. *Joe* – The Showcase has been very successful. Its format has evolved so that student involvement has increased. It's held in several places across campus – the science atrium, the dance studio, and the library. Instead of students just hearing or seeing presentations, they get involved, asking questions and engaging with other students.

A. *Anton* – The Mentoring Academy. I think that is really making a lasting difference in the way the faculty who participate think about and work with students. Unlike, say, if they were just to take a two-hour workshop, this gives them a real chance to think about the problems of mentoring over time and with colleagues, and to apply it to their classes and students.

Interview #15: Ethan Sproat

Office of Sponsored Programs,
Program Director of Proposal Development
(Hired in Spring 2019)
10-22-2019

Q. This Title III report covers the period of Fall 2018 to Fall 2019. I understand you weren't here for all of that. I see from the report I have that: "In March 2019, OSP hosted a training session for ten faculty participants on how to network with federal grant program officers." Did you do that?

A. Yes, that was just as I was being hired – I was in transition from my position in the English Department.

Q. Then the report continues: "Most of these faculty members eventually participated in a grant-networking excursion to Washington, D.C. In May 2019, OSP accompanied seven novice grant writers (who are all faculty) to Washington, D.C. to meet with federal grant program officers and colleagues from various federal grant-funding agencies, private foundations, and D.C.-area research institutions." Can you give me an example of what some of the faculty did in D.C.?

A. It was a lot of jaunting around D.C. frantically to maintain appointments with program officers for federal grant programs. Then we had a number of other visits with coordinators for large non-profits. We also met with colleagues who did similar research or had similar projects at universities in the beltway – universities that have a lot of experience working with D.C.-based program officers and what not. We were using public transportation and cabs, but mostly public transportation. It was a pretty exhausting schedule, but the meetings were productive.

Q. Objective 1.5 of the Title III project is for OSP to training and support to faculty in student-engaged, external grant-writing activities [aimed at strengthening the institutional capacity to sustain long-term student engaged learning and scholarly activities]. The proposal didn't specify all of the training and support activities that would be conducted, so this activity was decided upon later. Do you think this trip is effective?

A. Yes, so far it seems very productive. For example, Duane Anderson from Digital Media is building on conversations that started on that trip. He is working on a very promising NEH grant. He's also looking at foundations that he wasn't otherwise in the mindset for. Going to D.C. helped him build a vocabulary for having these sorts of conversations and seeking this sort of funding. His F.E.M.M.E. for training women filmmakers already has a solid track record. And the more he has been talking to program officers, the more confident he is in pursing external funding more aggressively. I think he's a good example.

Q. Any other examples?

A. Paul Weber. He has taken over as PI on an ATE Nanotechnology grant. He didn't get his second ATE nanotechnology project funded, but he's planning to reply. He's in the Physics department and he is very productive. He is now and a central figure in the department now for grant conversations. His onsite expertise is respected. He just seems to have his fingers in a lot of grant pots. Not so much getting money for them

yet, but in influencing them, including, there's a brand new Physics faculty working on the Mass Spectrometer for cancer diagnosis. And he's been mentoring him.

Q. Is it Dustin Shipp?

A. Yes, and Paul's working with him. And Paul is chairman of the Rank, Tenure, and Promotion committee in that department, and so having him having gone through this D.C. training augments his role as a mentor for junior faculty who are pursing grant projects. There's a ripple effect here. He has also been incredible support for Dustin Shipp's project, which is going forward with cancer physician at Huntsman Cancer Institute. He was also very supportive of Vern Hart's recent submission to NIH too. I think that the more faculty we can get in conversations with program officers, the more they can become resources to other faculty in their departments and programs.

Q. What did you learn in conducting the D.C. trip that you will carry forward next time?

A. I'm glad I'm actually in the job now, because starting now, in October is when I really want to start ramping up for that trip in May. The soon that we can get faculty identified for the trip, the sooner I can start following up with them to get them phone conversations with grant program officers. I'm convinced that we could pack in at least a handful more conversations for the faculty with good planning. The faculty are there for two-and-a-half work days. We could plan better for the trips by having them network more ahead of time to get more sit-downs scheduled and to cast the net a bit wider. One of the faculty who went, Sandy Wilson from the Dental Hygiene program, really diversified her networking strategy. She was probably the best on the trip. She was meeting with program officers and also an array of colleagues, like her counterparts at universities there in the beltway. That kind of networking completely altered Sandy's perspective of what it means to have a grant-seeking, grant-developing mindset. So I think I'd like to help faculty earlier, in the ramp-up to D.C., help them identify not just program officers, but also colleagues in belt way universities who they can network with while they're there. And also foundations that have offices in the greater D.C. area. We could really pack their schedules more (individually) than was done previously. That would be more satisfying and potentially productive.

Q. There are faculty receiving Title III funded grants to facilitate student engagement activities – GREEN, HIELG, and URSIG grants. Do you know who they are so you can follow up with them and potential external funding? Do you coordinate with Ala'a?

A. No, I don't. It seems like something we should do.

Q. So that is a suggestion that I will report to Ala'a – that you should know who has those grants now and who's looking (or should be looking) toward additional funding so you can coordinate them. Some of them have received PBA funding to carry their projects so they don't need external funding, and some of them you may already be working with, like Dustin Shipp.

A. Wait, Dustin Shipp has a Title III grant? Oh. All my conversations with him have been so focuses on the upcoming NIH grant that I didn't know about this.

Q. [I explained to him how Dustin Shipp's URSIG grant is preparing the mass spectrometer to do the NIH grant he is now preparing.]

A. That's awesome. So you know about the GEL grants here on campus [Grants for Engaged Learning]. Just in the past few months, Shelly Andrus, who directs that

program, and I have refined a referral process for faculty with the GEL grants. Now I'm a permanent member of the GEL reviewing committee (a non-reviewing member). I'm there to provide prospective about what it would mean for these projects for the faculty to orient themselves toward external funding. Then for everyone who gets awarded, particularly SEED (now CARROT) grants and their Community Partnership Grants, I'm included in the award email announcement. They're told in the email that they should set an appointment with me. Sometimes they respond back to me, but most of the time, I start corresponding with them. That pipeline has been very productive over the past few months. It seems to me that there is a similar pipeline that we can create with the Title III grants.

Q. Besides the Washington D.C. trip for faculty and the Summer Faculty Grant Writing Workshop, do you have any other programs coming up?

A. The end of this week for example, there will be a Grant Finding Training Lunch we are hosting for the School of the Arts. I had department chairs in the School of the Arts identify specific faculty that they wanted to invite. There's four from Design, two from Theater, Dance and Music have several, and then then there's a new director of the Norda Theater who will be attending as well. The idea of the luncheons is to target faculty who are, in the minds their department chairs, posed to benefit from external grants, whether they have current projects or upcoming projects. Then I offer grant finding training, SPIN and whatnot, specific to the range of disciplines in the college or school. You can imagine that the training we would give to people in the College of Science may feel a bit dissident to people in the arts and fine arts. And certainly an NSF grant would have different expectation than an NEA grant.

Q. Any other programs?

A. There are some other activities that I put in a report to Curtis. It describes our summer training, different collaboration and networking activities, etc. I'll send you the report.

Interview #16: Claudia Jorgenson, 11/4/2021

Associate Professor of Psychology

Janis Raje: So the Title III grant from Department of Education funded the HIELG, GREEN and URSCA grants among a number of other things. And you received funding under the HIELG grant for the POGIL project with Jessi Hill. Now, as the evaluator, I looking to see if there have been long-term benefits of the grant. But before I ask you about that, I need to understand more about POGIL and what you did with that grant.

Claudia Jorgensen: Yeah, so here's POGIL in a nutshell. You might have heard of team-based learning. For the purpose of a quick explanation, it is good to say that POGIL is a very specific type of team-based learning. But it's so it it's so special that some would say it's not team based learning. But, in a nutshell, here's what POGIL is. You have a group of students. Usually it's for students and they worked together on an activity, and this activity allows them, by a specific process of going through the learning cycle, to explore the material, to invent a concept, and then to apply the concept. So there's this specific learning cycle that in each learning activity needs to be there. It can replicate itself. But essentially, instead of lecturing and providing the information to the students, the students develop the understanding and the material themselves.

The idea behind that is you haven't given them the definition that they have to memorize. They will always be able to really develop what they have already developed beforehand, right? Because they have such a deep understanding of the concept that they don't have to straight out memorize the definition to be able to know what something is. They can redevelop it themselves. And so it really fosters this critical thinking component. They are able to dive deeper into the material than they would if they were just listening to passively listen to a lecture, This entire idea is that it is active. it is engaging, and it really focuses on those deeper levels of Bloom's Taxonomy, because you're not asking them, for instance, to name five specific things. You're literally asking them to develop the concept and then apply it in a different situation, and so the key in the key component here is also very unique.

And the groups themselves are very structured. In a way that they're essentially self-maintaining. Students develop very good team processing skills, because they essentially foster a community where each one of them gets to practice leadership skills. Each one of them gets to practice listening and talking – communication skills. So they really collaborate together in a self-managed team. Essentially, the professor is no longer standing in front of the students, sharing the information and guiding discussions. Here, the professor becomes a facilitator, jumping from team to team and just seeing if they need help. And so it is very engaging.

This is a different type of learning, that was established in a in the hard sciences. I think the first area where it started was chemistry, and then I think it spilled over to it biology. And then it spilled over into other areas of science. But the interesting thing here is that when Jessi and I encountered POGIL for the very first time in 2016, there wasn't really a lot of POGIL application in psychology.

And so, because of the way that POGIL works in the literature, it is so engaging because it's focusing on those deeper levels of understanding by creating this learning community. Students not only completed courses at a higher rate, including those with a high fail rate, but they would also retain the material better. So, learned about this, we were like "Oh my goodness, we have two classes in psychology that

have a very high dropout and a very high failure rate. And that's where our starting point was to write this HIEGL Grant. Jessi implemented POGIL in PSY 1010, general psychology, and for me it was PSY 2710, intuitive brain and behavior, because we had a failure rate that was in the double digits – at one point or another it was anywhere from like 15 to 30% that students dropped out or failed the course, which is monumental then you think about the importance of those lower division classes. PSY 1010 is a prerequisite for lots of upper division classes. PSY 2710 is a prerequisite for all of those bio psychology courses. So if you fail those, that's a dead end for you to be able to complete the psychology degree because you can't move on. And so again, it's a major roadblock. And so we were wanting to see we can use POGIL in psychology and if it would have an impact on our students. And so when we started there were no activities within the POGIL community for psychology at all. Jessi and I developed the first activities in psychology over the two years that we had the HIELG Grant.

So we broke down the two years into sub-chunks so that we would develop POGIL activities and start implementing more and more each semester. The first semester we implemented two or three. The second semester we would implement two or three more, and then by the end of that last final spring semester in 2018, we would have implemented all 12. So these two classes essentially have POGIL activities that run the entire semester, so not just once per week. Literally, instead of lecturing at all, everything would be POGIL.

The development of those activities is actually pretty complex, because it's not like developing a PowerPoint. You have to have a very solid activity. And because I'm the whole community is very, very particular about this learning circle, right like your activity, has to have the specific learning circle that the students are going through with this activity, it takes a lot of time to develop those activities. And it also then takes a lot of time to actually vet them, making sure do they actually work right. Do they have what they need for the students to look at the concept, developed the concept, and then apply the information.

And so, since Jessi and I started, the POGIL community, has developed a new way of reviewing POGIL activities, so that they can ultimately be licensed as actual POGIL activities. So both Jessi and I, since the grant has concluded, have undergone training to be able to submit POGIL activities, and so our long term goal is to actually get all of our POGIL activities published so that other people in psychology can use them. But it's a long process. I just got trained. I talked to Jesse yesterday. She has gotten a couple of activities submitted, so she's waiting for them to be reviewed. So what essentially happens is that other POGIL people review the activity. And since 2016 or 2017, they've added another component so POGIL activities are not just reviewed by someone reading them over, but there's an additional step where now someone else in a different classroom will run them in their classroom. And so ultimately, before they can get fully published and licensed as POGIL activities (fully approved and endorsed by the POGIL community), they will have to go through a multi-step process. But that's our long term goal. So Jessi has submitted two, and I just submitted two, so now I'm waiting to hear back on the review.

I have talked to the people who are doing who are overseeing that submission and reviewing process. They are aware of the fact that I want to submit them as an entire packet for the entire class. So I don't want to just submit one activity and then and another. I want to submit mine as the entire POGIL class that we have developed. And so, what they suggested for me to do is to submit two or three activities so that they get a better feel because most of the time, if there is an error or a weakness in one, they will see a similar error in the other ones. And so once they have reviewed those two, I will get feedback and

then we will make a decision on how to go forward with submitting the entire packet. But that's the goal.

Janis Raje: Thank you. So, in answer to my earlier question by email, I see that your work with POGIL is continuing. Has this effort had an impact on your other classes?

Claudia Jorgensen: So POGIL is really intense. It takes about 40-ish hours for each activity. Most of this is just for guiding an activity. This is not getting feedback using it in class and then modifying it. So it's all very, very time intensive. You don't just convert a class into a POGIL class easily, you can't do that. And 40 hours of writing the activity is only after you've already have an idea on how to frame the activity so that it actually has a good starting point for the students to jump in and develop their own knowledge. That is extremely difficult.

And so I've had several other classes where I was like to have some of the components of POGIL – the deeper level of thinking and having students working together. But I just don't have the time at all to come up with the POGIL activities. And you can't just modify one thing either. You know, you have one lesson, and you either converted into POGIL or you don't convert it into POGIL.

And what we have found (and we have to do a little bit more deeper analysis), but what we have found is that you don't have to convert the entire class. But again, when you're developing a POGIL activity, you can't just have half of a POGIL activity and then do half lecture for that data to your meeting. And so because POGIL is so time intensive, I have looked at different kinds of things to implement POGIL-like things into my classroom. I'm currently teaching fully online. And Heather Wilson-Ashworth in biology and Matt Horn in chemistry who are my POGIL vizards because they introduced us to POGIL – Jessi and I – and so they're very, very knowledgeable, but they've also had that same struggle in trying to implement POGIL fully in an online setting when it's asynchronous. This is because you don't have the same capability of facilitating the group work as you do in a classroom, but I've put in POGIL-like things into my asynchronous classroom when we went fully online because of COVID. So I developed the course with the premise in mind that I wanted to have this deeper level thinking. I wanted to have those lower levels know to higher levels of blooms taxonomy, and I wanted that group work component and so while it's not POGIL, I feel like the entire idea on how to set this up was really streamlined from the entire idea of my POGIL background. So, the class piloted last semester for the first time, and we I we haven't done the data analysis yet, but I was working together with Ala'a Alsarhan. He created the engagement survey so we had to students complete the survey; we're going to do the same thing this semester.

From the survey comments, we know that the students found that the class was highly collaborative. So what I did is I use teams. I forced them to work together in teams using OneNote. And so again, I don't know if I would have had that idea if it wasn't for my POGIL background Prior to COVID. Because there was no way that I was going to be able to pull off a an entire POGIL class, but I was looking for other types of techniques that I probably wouldn't have done if it wasn't for POGIL. It's really funny – there was a talk that I attended when I first joined UVU, and it's just been sitting in the back of my head somewhere, and then I had this POGIL exposure, and I'm like, OK writing POGIL activities is way too much for me at this time point. I want to revisit this later, but what can I do right now to engage the students more in team-kind-of-learning, focusing on those deeper levels of understanding. And so I came across what is called peer instruction, and so then I started implementing that, and then and then COVID happened. But we have some preliminary data indicating that that's also really meaningful for the deeper level of thinking.

So again, not directly related to POGIL, but I attribute right there that reaching out and trying to figure out. So what else can I do instead of just lecturing, which is really passive, to use the training that I had with POGEL where we learned hands on? And why you know POGIL activities are really engaging and interactive, and we are really just capturing the attention of students.

Anecdotally, we've always joked – Jessi, Heather, Matt and myself -- we would always comment on the fact that students would be sitting in our classrooms doing their POGEL packets and then nobody would check the time and you would give them, you know, like the 10 minute warning and they're surprised. They were so engaged by the activity that time just always flew by! A whole lot more so than you would see in a normal lecture based class, and so again like some of the things that I have been now using. Went back to that excitement and, sparking that curiosity and really just trying to tie students in. And so I there. There have been some online things that I have been able to attend. It's really interesting because POGIL is just so different from how most of us were educated, right? Like when you think back on all of our schooling, the teacher stands up front and provides you with the information and you write it all down. And you get to ask some questions. There might be some activities. But in a POGIL classroom that is so different because there's nobody at the front of the classroom, right? You have all of the groups working together and I walk around between each team and so there isn't. Every single group is working on learning the material by working together as a team, which is very, very different and so yeah, it's so much fun.

But again, it's so much work to develop whole activities and so it'll be really nice now that they have established a really well laid out path to get those reviews, to be able to get official feedback. We've gotten feedback from our students when we were running them in the classroom and Jessi and I have given each other feedback. But it will be really nice to get official feedback from other POGIL practitioners who are not in your field to be able to see how we can improve those and then hopefully get them published. I don't know what the timeline is. And so there's a little bit of a backup right now because of COVID.

Janis Raje: Besides you and Jesse and Matt and Heather, are there other faculty at UVU using POGIL that you know of? I think Jessi did a training for people who were teaching 10:10, and I tried to get a GREEN grant so that I could train people who are teaching he same 2710 class, but my grant didn't go through, and so I know that at this very second that there's nobody else, at least in behavioral science, who is teaching with POGIL. I know that there are multiple faculty members who will do small group activities to essentially facilitate deeper learning, but I don't think anybody is using POGIL per say. And that might also go back to right, like unless you have to official training at an actual workshop, you might not feel empowered enough to do it. Jessi and I went to a national conference in Seattle and the exposure there is quite different. So if you did a one hour workshop versus a two or three day conference where you learn all about the foundations of POGIL, that might make the difference on why people haven't fully adopted the technique.

Janis Raje: What are some of the things that you've learned from overall process that you will bring to your other classes?

Claudia Jorgensen: For the class that I teach, I wanted to do a little bit more of a comparison of how students fared in my class versus the other sections. And taking, you know, different kinds of factors into account. And then I'd like to look at how much POGIL do you need to do in order to make a difference. It looked like early on, and again that's just all preliminary data, that you might not have to commit fully to

an entire POGIL semester. It might be beneficial just to implement two or three POGIL activities in that first semester. It might be easier to, you know, have some other faculty try it out because it doesn't have to be a full time commitment for the entire semester and they can use an already certified activity.

I attended a conference about two weeks ago on how to write questions for people in working in teams to really hone in on a specific type of team working skill. So you know whether you want them to do something individually and then come to a consensus. And then also the other component focusing on specific aspects of that deeper level thinking based on Bloom's Taxonomy. Obviously, when you're writing any type of assessment, you know that regurgitation is just not the best way of figuring out if a student has mastered the curriculum.

But yeah, so again, POGIL has permeated many aspects of my learning for myself and for teaching. And so I've been using the literature really to find other techniques, other things, but always with the premise behind it on what have other people found? What kind of things might it work? If you made a small modification, would they retain the information better? Or is it because they're more engaged? Having been exposed to this entire idea that research can drive our understanding on what works in the classroom that students understand better and learn better and complete their degrees better, I've really become more, interested in figuring out what else can I do, and what research is backing it up instead.

Janis Raje: You said you assign such roles to team members and that helps the teams work well. Can you tell me more about how students react to this. Do they report success of their teams?

Claudia Jorgensen: So in a POGIL classroom, and there's usually 4 rolls, and they differ slightly, but one of them will be the reader, so that person will be in charge of reading everything out loud so that everybody can follow. Then there will be one person who is essentially writing in the name of the team, so that person is considered a scribe. There's usually a manager, and that manager essentially takes over the role of moving people along so that they can stay focused and finish the activity in the allotted time frame. And then there's a spokesperson, and the spokesperson essentially is the person who, if there is reporting out event, will share with the class what they have found. Also, the spokesperson is in charge of communicating to the facilitator (me) if they get stuck with something. So that means there's a very finite structure.

So if a team gets stuck, then I go up to this team. If the manager askes me the question, I'm actually not supposed to help them because the spokesperson has to ask me. Now what happens in POGIL most of the time is that there are permanent teams. So that it means the same for students will be working together throughout the entire semester. And why this really works is because those team roles change so that means every single person has to acquire those team working skills. Essentially, students have to step a little bit out of their comfort zone, but in in the security of their own little group, right? Like you don't have to do this in for the entire class. And so they learn essentially different types of skills and become better at each one of them throughout the semester, and so because of that, what research has indicated is that those teams really independently are self-regulated and self-operated.

So like sometimes, when you hear about work students working together in a team and it falls apart, like when there is a loafer in there, or someone who is doing everything by themselves, right? But by having broken down the team into those four specific roles, every single person has a purpose. Every single person is needed and they all need to work together. It's kind of like you know, if you're trying to do

something that is too big on your own and you need everybody to pull at the same time for this to work. It really works.

So I have found that whenever you students work in teams, there should be consistency where you have the same students work together throughout. They work a whole lot better. And so that's what I've been doing in my online classes as well where I assign them into teams that are permanent throughout the semester. Now I don't have them follow goals because it would be very hard for me to actually enforce that because in an asynchronous class. They're meeting outside of class time, essentially whenever they want. So I have no way of checking. Did the manager actually manage time this week?

I'm right now. Actually revamping another class that has never had any team based anything in it and it's a fully online asynchronous class. And guess what I'm going to put in? All of the stuff that I've just developed for that other online class where I've now have, you know, this is my second semester teaching and it works really well, and so I'm going to put that in that asynchronous class as well. Based on the learning outcomes of that course in the curriculum, there has to be a team case based component in there that's not the case, but I feel that what I have seen for the students to come out at the end it is so beneficial. So I'm definitely going to put that in. And so again, it's not a POGIL class because it's asynchronous. It's online, but I'm going to put in all of those little tiny POGIL like things that I have learned to love and realize that it's really meaningful for the students.

Janis Raje: So I read in the report that you and Jessi submitted for the Title III grant that when you first started, you had no knowledge of POGIL. So did the grant help pay for you to get the training you needed.

Claudia Jorgensen: Yeah. It did. I think that Jessi and I went to two POGIL trainings. We got the foundational training in the summer of 2016, and then we went to another POGIL training in 2017 that was paid for as well, where we got additional training on how to write high quality POGIL activities.

Janis Raje: But what else did the grant pay for?

Claudia Jorgensen: Uh, we had release time to pay for writing those POGIL activities. And we got specific POGIL equipment. I have a model of a brain right here. I wrote a POGIL activity involving this model brain, and so I needed to have ten of those in order to have ten groups in my class because they had to use this brain in order to complete the POGIL activity. And then there were other things there is. I have it over here as well. We ordered white boards for each group, so that when they have a reporting-out activity, they can just write on it and have the student hold it up so that they can do a quick reporting out, like you post a multiple choice question. The spokesperson has to put a letter on it and you can quickly check right the ten groups and the class. Did everybody get A?

So we bought a couple of different types of equipment like this. Another one that I absolutely love – red cups and green cups for the student groups to signal that they need help. And so again the student groups work very independently and so you are not micromanaging them. You want them to be independent. The POGIL activity should, if it's high quality, be set up in such a way that your scaffolding, the knowledge from nothing to higher, higher, higher, higher until they have the entire concept right, develop that you would normally be sharing in the lecture, and so the entire idea is that you don't actually want to interfere with their team work unless they need help. So when they need help, the students will just switch the cup from red to green. They don't have to raise their hand the entire time

until I come around. And so that came up in one of the POGIL trainings as well.

The grant also paid for course release time, which was monumental because we wouldn't have been able to teach full time four courses each semester and develop those POGIL activities because remember, each semester we were developing 2-3 sometimes 4 new POGIL activities to get to the total for the entire semester. Ultimately our goal was to have a POGIL activity each week of the 15-week semester. And since it takes about 40 hours – and this is without planning or reviewing an activity that you've already had developed – you can't teach four classes and develop high quality POGIL activities. And we also met with Matt and Heather who got compensated for their help with helping us.

Janis Raje: What do you think have been the benefits to you on your career of conducting this project?

Claudia Jorgensen: Again the lifelong learning, right? And obviously also sharing with others – what works and what doesn't work. And really having this idea that hey, I can make one implementation in my classroom and assess if it works and then share with the broader scientific community, right? And the hopeful goal is that Jessi and I have that we will be able to publish more things. Right now there's one POGIL chapter that we've already written with Heather and Matt that has been published that talks about the uniqueness of implementing POGIL in psychology. Also implementing it in a small versus a large classroom size because Jessi's classroom was 100 plus students and my classroom was 40. But then also going forward and hopefully getting the entire course packet that we have developed published so that other people can implement those in their classroom, right? And then foster the growth of the POGIL world. Because if I have gotten an activity that might spark someone else to write another activity, ultimately we will be able to have a bigger stack of resources, essentially in teaching neuroscience and psychology. You wouldn't have to reinvent the wheel, you can just use that activity in your classroom. That would be priceless, right? It's like the same thing as textbooks. Like you can use a high quality textbook because you know it has all of the information in it so.

This grant has really shaped what I'm doing now.

Janis Raje: So, with the National Science Foundation funds projects, they to fund projects that are transformative – for the research community, for the person who gets the grant, for the students who work with them or are taught by them. And it sounds to me like this grant project has been a transformative experience for you, that you're energized and that it's impacted the direction of your scholarly and creative educational efforts.

Claudia Jorgensen. Yes. And I want to go back, because you pointed out students, and that's the aspect that we haven't had any time to research yet because there was just so much turnover with different things. But we want to figure out on if we can work together with Institutional Research to compare the classes that were taught in the same time frame as we were doing our POGIL. Compare graduation rates maybe, but we don't know yet.

Our department was going through so many changes that we had to change the curriculum layout, and so Jessi was no longer as frequently teaching 1010. Now she's Chair. And, I'm not frequently teaching 2710 now, and then there were all of the other additional demands to develop online courses because of COVID, and so we haven't had as much free time to just sit down and really work out the logistics.

And, I'm going to do some more thinking process of how I can implement that in a face-to-face component. But the online version will have the same exposure where I have the students work

together as a team to solve a problem and essentially have them solve that problem to realize that we have to work in teams to be able to make it work. So that entire thing that I've developed for this online 3450 the behavioral neuroscience, I will use that exact same approach for that online asynchronous that will be the piloted next semester. Of all the classes that I teach 2710 is the intuitive brain and behavior that is fully POGIL, and then all the other classes that I teach half a POGIL, like the idea where the students work in teams, and there are permanent teams throughout the semester working to accomplishing things that I couldn't assign to a single student because it's deeper, more critically thinking required than one student alone could do. So yes, all of that. All of that is because of their exposure to POGIL in 2016, which is kind of really funny. They're not POGIL activities per say, but the entire idea behind what they're doing, why they're doing it, and how they're doing it is based on my training that I perceived with the POGIL, and so yeah, I only teach those four classes, and most of the time I only teach behavioral neuroscience and sensation and perception. But sometimes I also still teach psychopharm (2710), but I will only be teaching it as POGIL because where I've developed the POGIL activities, I will never go back to lecture.

Janis Raje: Have you have prepared or have you prepared or published anything that was not included in that report?

Claudia Jorgensen: Yes, we have. But I'm not sure what was included in the report. I'll check with Jessi and send you an update. I hope this conversation has been helpful to you.

Janis Raje: Yes, you have been very helpful to me – and very interesting. Thanks so much for your time, I appreciate it.

Claudia Jorgensen: Thank you as well.

Interview #17: Linda Shelton

Senior Lecturer, Department of English
8-24-2021

Janis Raje: It's nice to see you again. I want to talk with you today about your HIELG grant that ended in 2018. The grant was funded by the US Department of Education's Title III program, and I'm serving as evaluator on that program. I understand that you and Ben Moulton worked with others to incorporate the products of undergraduate student research into undergraduate student classrooms. Your project is in Composition, and his is in Mathematics?

Linda Shelton: Yes. I developed curriculum that includes research-based reading and writing on environmental challenges. This curriculum is taught in several sections of English 2010. As part of my class, I encourage students to volunteer for a 3-day field trip to Capitol Reef Field Station for more intensive study of these environmental issues, the conservation aspects of the facility there, and some writing time.

Janis: I think the Field Station has been closed during COVID. When it opens up again, will you resume going down there with your students?

Linda Shelton: Well, I'll have to see the situation. I know when they were thinking of opening last spring. But there were quite a few restrictions on numbers that could go, and what we could do because they were going to have to keep distancing and things, but even with an attempt at those restrictions, they really weren't able to have many groups go down. And now of course things are still uncertain. So we'll just have to look at the at the time.

Janis Raje: But regardless of going to the field station, are you still using Environmental Research in your classes?

Linda Shelton: Yes, my students are quite interested in it and there's so many more things to talk about now. It just seems like environmental challenges and climate change is at the forefront of our Daily News, and so we try to integrate that into the curriculum. And it's pretty easy to do.

Janis Raje: So, with the HIELG grant, what did you use the money for?

Linda Shelton: In my class, we used it for trips down to Capitol Reef to give this students this first-hand high-impact experience in learning about how to take care of the environment, things like water conservation and recycling and a lot of the plants and the wildlife there. How human interaction even from our location might affect them because the air quality and climate change certainly are things that will affect wildlife even quite a ways from where you actually live. And I don't think many of them thought about this before. And so it was a really good first-hand experience for many of them to talk about these things.

Janis Raje: In your closeout report, you listed three presentations you had given related to the project. Did you give any others after the closeout report.

Linda Shelton: I don't believe so. There were presentations that I gave at some conferences, and then my students gave a presentation at *Showcase*, which is an on campus. And students presented their

research at the Undergraduate Research Conference. And that was a good experience. I think I included that in the report.

Janis Raje: Yes, you did include that in the report.

Linda Shelton: But those are the main ones, and then of course conferences started being cancelled being cancelled in 2020, so we haven't had much opportunity to do that.

Janis Raje: In your report you also talked about UVU Sustainability day. Is that still happening?

Linda Shelton: Again, we've tried, except for COVID. I still meet with the Sustainability Committee on campus. And we have organized somethings virtually, but we're looking forward to when we can have some hands on interaction on campus.

Janis Raje: Can you describe any benefits to you or your students from working on the HIELG grant?

Linda Shelton: Yes, I don't think our trip to Capitol Reef could have been funded at all without that HIELG grant. So that really helped those that went on the trip, and there were about 20 each semester. And those students who weren't able to go still benefited because we did activities in the classroom that were initiated with the trip, and so they those that stayed in the classroom still learned about some of the things the other students had learned. They were able to share it and have discussions and activities.

Janis Raje: What would you say are the benefits to the students, the university, and the community of the grant project you did?

Linda Shelton: Well, the students benefit by increased learning, experience with undergraduate research and greater success percentages in English 2010. The university benefited from representation of the results at 3 national conferences plus increased awareness and usage of Capitol Reef Field Station. I think the community benefits from students who are educated about these local problems and who have greater environmental awareness.

Janis Raje: You say the students had greater success percentages in English 2010. What assessments did you use to evaluate the students?

Linda Shelton: Students' final grades were used to determine completion of the course, and those were tallied along with total enrollment numbers in the targeted sections of English 2010 to figure the percentages. Pre- and post-tests were given using the New Ecological Paradigm (NEP) scale. Those scores were calculated to measure any change in the students' environmental awareness. As a result, we found that course completion percentages for the 3 semesters the intervention was given (Fall 17, Sp 17, and Sp 18), averaged 96%. The UVU overall completion rate for English 2010 for Fall 2016 was 91%. That's a 5% point difference. On the New Ecological Paradigm (NEP) scale, students raised their environmental awareness slightly by 4% during those same semesters.

Janis Raje: So this way of engaging students, do you think it helps them persist in college and graduate?

Linda Shelton: Yeah, I think so. I don't have data that validates that because we didn't follow up with the students, but I think it does. It helps them to see that what they do in the classroom is very relevant to their lives, the lives of their family, their community, and I think they start making connections that class work is important and I think hopefully it motivates them to go on and to learn more.

Just from anecdotal experiences and the interaction I had with my students I believe it does. I wish I had the data to back that up.

Janis Raje: It would be nice to have the data, but anecdotal is sometimes very good. If you see students excited, it makes a difference.

Linda Shelton: Right

Janis Raje: I think that covers my questions. I do you have anything you wanted to add that I didn't ask?

Linda Shelton: No, I don't think so. But thank you for the chance to talk about this.

Janis Raje: I surely, appreciate your taking time in a busy week. Thanks so much. It's good to see.

Linda Shelton: No problem, thank you Janis.

Interview #18: Amanda Bordelon

Associate Professor of Civil Engineering
8-26-2021

Janis Raje: Today we'll be talking about your HEILG grant that was funded under UVU's Title III grant. I read your final report describing how you and your colleagues had redesigned ENGR 1000 Introduction to Engineering to better engage students and to be more discipline specific. Could you tell me more about how students were engaged through your project?

Amanda Bordelon: The class was entirely focused on giving the students a hands-on experience of what it's like to be an engineer. And so the way we decided to do that was to have them design a project all the way through. So at the beginning, they get into groups or teams, then they pick their own topic. They do research on the topic. Then they have to go through this process on how to decide which is the best solution for their problem. Then they have to actually make a prototype physically, so we also take them to a lab. We teach him software along the way and stuff like that as well.

So the that's the base of the class, and then for the HIELG grant, we tried to tailor each course to the different fields. That's where were the equipment we purchased through the grant came into play. So the class is two-fold. While they were doing the design project, we are also showing them what it's like to be in an engineer showing them these mini-experiences. Maybe their homework was to do research, but then while they're in class, but we decided to have these in class activities doing hands-on learning, so we would give them tools that are actually used by the industry or something pretty similar. For example, I bought water-related equipment had them during the class period, measure water quality and measure the flow rate coming out of the faucet. Then they see how this relates to the city planning for drinking water and things like that.

Or we did another where they had a truss kit which they had to optimize. They had to determine the economics of each part within the kit. We an assigned cost. So during again the lab or the in class time, they had to optimize how many of these pieces do I want, knowing that each piece costs a certain amount, and then they build it and measure the deflection and see how it performs and things like that.

We also did traffic. I felt like it was safer to not have to go out on the streets, because once you get into cars and stuff, there are issues. So I did pedestrian traffic – same thing. They walked around campus and they monitored how many people walked down the hall in a given amount of time. Then they had to observe the behavior of how person, especially if there was an obstruction. So they actually realized what transportation engineers do.

Also in the lab part, they did basic skills like how to you cut things out of wood. But we added to it the order aspect, so I had them make different types of concrete. And then they came back for another day and they would test him. So we actually broke up in the lab and it was around the same time as when they're learning their other lab skills. I had them also make a souvenir as fun thing that they could take home. But yeah, so I guess that was kind of the overview of it.

Janis Raje: Well, sounds much more exciting than book learning.

Amanda Bordelon: Yeah, because they're getting those experiences. What they do is it still the same

design project all the way through, but before, during lab time they would be usually sitting around in groups and they're supposed to be discussing, and they had a lot of downtime because sometimes they don't know how to manage their own time.

And I know the Electrical version, Afsaneh Minaie had equipment that she purchased through an NSF grant. So they did drones and they did a robot. They programmed a robot to walk.

So all of that got captured in the survey at the end, which I think was good.

Janis Raje: Was the survey on Qualtrics?

Amanda Bordelon: Yes. When we started the project, I found a survey from American Society of Engineering Education. Someone else had created the survey at another school, and we use the same thing. It was meant to see if the students will be retained and if they're engaged from the activities that they're doing. And I just put it into Qualtrics. I administered it through Canvas, for I think five points or something, at the end of the semester. And I think we got like 70% on average of people taking it. I don't remember the exact number now, but it was pretty good.

Janis Raje: So have you been able to carry the project forward anyway? Did COVID slow things down?

Amanda Bordelon: Yeah, So COVID kind of threw a funky aspect, of course. But before the time frame of the grant we had the regular version, which had none of these activities. We did have the design project, which is still engaged learning, right? And then we did this HEILG version where some of the sections you know depend on the teacher. They either did civil engineering activities, mechanical engineering activities, or electrical engineering activities. And so I have the survey data from comparing those two main versions of the course. And we also have comparisons between situations where they enrolled in a course but were actually in a different degree program – like if they were actually a mechanical engineer, but they took the civil version. Did it matter? You know we tried to do some statistics like that. And then we actually did it for a second semester. The ones where we had the different divisions civil, mechanical, electrical. Really, it was more of a mistake that we still never told the students course they had signed up for until they showed up. We had a hard time getting this information into the course registration for those divisions. So that's why it never showed up. But, anyway, we wrote a paper off of the early results and published it . Then we kept tracking to see if there's a teacher effect, because we started changing teachers after a while. We also tried going back to the earlier course version during the COVID year, which was pretty shortly after the HIELG grant, when everyone was live streaming the courses. We also had decided to keep collecting the survey data. And because it was so much harder to have all of these hands on tools virtually, we dropped that part of the course and went back to the original where we didn't have all these activities. But that was during COVID, so I don't know.

Janis Raje: So what are you doing this semester?

Amanda Bordelon: We've offered different versions of course. Over this past summer (2021) we offered the different division styles, the electrical, civil, and mechanical, but with high school students taking the class during a concurrent enrollment version of it. That's the first we first time we've offered it that way to high school students, but I haven't processed the data. I don't know what it says.

When we originally set this up, I was thinking of asking the students two years out if it made difference. And I did send out that survey, I got a pretty low response rate – like 50% or something – pretty low.

That would be 50% of the 70%, so 35% of the original class.

Janis Raje: What are you looking for? What kind of questions are you asking?

Amanda Bordelon: Again, we, it's modeled entirely off of this other one someone set up. But it asked things like, did the students feel welcome in engineering? Did that activities relate to other classes? If they were interested, engaged in engineering, something like that. Yeah, there are questions just to see if it if they felt engaged. If they're going to stay in engineering. I think the one downside I see and the survey is, I wished it asked specifically about the activities they did. It was very general. Because personally, I would like to know, regardless of how they felt at the end, was there certain activity that they liked, so that we could keep pursuing that specific thing.

So preliminarily, we found was that statistically it didn't matter if they were a mechanical student who did civil experiments or if they were electrical student who did mechanical experiments. They enjoyed the class regardless. All of them liked it because it's hands on activity is actually what we found out.

Janis Raje: Well, that's good for the department, yes?

Amanda Bordelon: Well, there were maybe two who said they didn't like because it wasn't the field they were going into, but for the vast majority they did like it. They just enjoyed the experience. It was nice.

Janis Raje: What have been the benefits to you of doing the HIELG grant?

Amanda Bordelon: The benefits to me and my program, because I'm in civil engineering, are actually pretty nice. We have this equipment now. In inner upper level classes, I'm able to also bring it back out and show things like again like water quality. We can use the same stuff have them actually do a water quality test. And at this point we've had students who took those versions of it, and they've graduated. And even in their senior year, they remember doing that stuff in the introductory class. And we've talked about it. And even yeah again, from what I can tell, most of them really enjoyed it. So, we've used the equipment again, for even upper level classes. And I've used it a couple of time for recruitment – once two summers ago to do very similar activities – to give them a demo of what it's like to do some of this. And I know the electrical equipment is being used similarly.

Personally, I find it really fun to actually come up with activities that are related to my field to give students that glimpse of what it's like. These projects were actually fun to develop. I was trying to show to freshman what a real-life transportation engineer does through a day or two activity.

Janis Raje: You said you had written an article. I don't think you'd written it by the time you gave your summary report. Can you send me a copy?

Amanda Bordelon: I will do that. Yeah, we gave a presentation at the conference and we did a paper. That was in 2020. I did it with Janice Loftus and Sean Tolman. In the paper we summarize the specific activities we did, so if someone wanted to try the exact same thing that they would at least an idea of the activities. In the paper, there's not enough room to share all of the details of the activities, but the intention is at least, to give them a glimpse of what we actually tried, and then again, showing that statistically we found out that it didn't really matter which area we emphasized.

Janis Raje: So have you applied for and received any internal grants from UVU.

Amanda Bordelon: Oh yeah. I've done a GEL grant for a concrete canoe competition.

Janis Raje: And they float?

Amanda Bordelon: Yeah, so if you come out this way you can see one of them out in the hall. It's the canoe from 2019 and it's just sitting out there. You can actually (someone didn't believe me) stand four people in it. It's a national competition that we did. But also engaged learning. It's a little different, because we do it as an extracurricular instead of a classroom experience. But we had a team and through the course of two semesters, they design and they actually build and then they raced the canoe. The canoe is made entirely of concrete. They do a swamp test where they submerge the entire canoe underwater and it has to come back up. They don't really need to do that to make sure it floats, but they're doing that because it's an added challenge that they have to figure out how to make the concrete float on its own. We do that with specialized aggregate that we put into the concrete.

Janis Raje: Wow. I'd like to see that.

Amanda Bordelon: As you know, we just started the engineering program. So our teams like this one are still growing and getting our feet wet. We got ABET accreditation formally this summer. We needed to become ABET accredited university for our students to get good jobs. Now, we're expecting big enrollment numbers in the next couple years. Actually, this class I did the HIELG grant for, we had three sections of it then, and now we are at 5 sections of it each semester because there are so many students. We cap it at 30 students. So yeah with so basically have 150 students this fall.

Janis Raje: So as it relates to this grant, I ask you if you received any other internal grants and you said you got a GEL grant. I know that you also got a grant from UDOT to do concrete analysis at the Salt Lake Airport, and that you applied with another engineering faculty member for a grant from NIST to incorporate instruction on standards into the curriculum. Now the Title III grants (which funded the HIELG program) comes from the US Department of Education. Our application was unusual for a Title III grant because we ask for a pool of money so we could give out sub-awards to faculty working on student engagement projects. We didn't see that anyone else had done that before. The question is, do you think these internal grants, like the HIELG and GEL grants are useful to faculty at an institution like ours?

Amanda Bordelon: For sure, yeah.

Janis Raje: Why?

Amanda Bordelon: Well, they're kind of easy to get in the sense that, yeah, I mean, you still apply for it, but it's not so rigorous. And they're small enough that I can do something with it – like actually have real projects where I get students involved. With the bigger grants, there are a lot of hurdles. Even the one from UDOT. They want previous experience for those kind of things. And if you we don't have a lab to do a lot of that early work, we can't. It's hard to do research and to get students trained on certain things. So you know, for going for bigger grants outside of the university, it's very difficult. I know in my field, to get that, even if the money is the same or a little bit more, it's not always worth the effort here. These internal grants are nice because it's a good chunk of money to get an actual project done. And then you can show that sometimes, either during or after, to get a matching grant or to get your feet

wet enough that you can show that you've done that work. I think the airport one. I'll be honest. I think I only got it because I've already done work in that field before I came here so that they knew me. But it was great opportunity to get federal or state funds.

Janis Raje: These are just small, but they're very workable amounts, and that's really all a faculty member needs sometimes to do a great thing. A small amount can do a lot.

Amanda Bordelon: Yes, with $5,000 bucks you could buy an equipment item or something to get your project going. But I maybe that's just me, but I'd rather spend the money on small equipment and supplies to get the students to try something, rather than on large equipment and faculty salaries. While for the big items that cost like $10,000 or something, I thought it was easier to borrow from BYU and University of Utah who already have that item and aren't using it. Then when students go to get a job, they may be able to say, I've used that, or I've seen that before. It can help them get the job.

Janis Raje: I really appreciate your taking time to talk with me. This is helpful.

Amanda Bordelon: Yeah, thanks if you have anything else I mean, please let me know.

Interview #19: Olga Kopp - Transcript of Interview

Professor of Biology
8-26-21

Janis Raje: I'm conducting interviews with faculty, administrators, and staff who participated in implementing UVU's Title III grant. I believe you were involved with SCULPT (the Scholarly and Creative Undergraduate Learning Partnership Team) from the beginning. In fact, I heard that you were the one who came up with the acronym SCULPT. Please tell me about your work with SCULPT.

Olga Kopp: Our idea was to expand inquiry-based learning, and we started from a 17 faculty and now it has greatly expanded and there are many faculty involved. So I started in 2015, and now in six years, there are other people involved in the Advisory Board and other people that are in the administration – the Co-Chairs. We tried to pass administrative responsibility along to other faculty. We now have a web page – you've probably have seen it, yes?

Janis Raje: I have yes.

Olga Kopp: Yeah, so there we try to make sure students get involved in research. We have faculty funding for involving students in research. We have also sources of money for students, and we try to help each other. We have a Mentoring Academy that has been going strong for several years, and we also have in every year, except the year of COVID, a symposium called Showcase where students actually show their research – the research in which faculty have helped them. So in that has been very successful. Students present a poster, or if they are from the arts like dance and music, so they may give a performance.

Janis Raje: It seems that SCULPT has become a dynamic benefit to both students and faculty.

Olga Kopp: Yes. What I like is that when we started in 2015, just a few faculty, we never imagined that it was going to become this strong and that actually was going to last for this long. So we are very pleased with that. And we want that to continue to support the students because undergraduate research for UVU is the way of learning for students and they get so much from that. And for the URSIG grant that we are going to talk about, in 2019 several of those students are already in graduate school. Some of them are working in areas of research. So it really helps them. They presented in Boston. They presented their research at several venues. I don't know if you have the posters. I could send you the posters if you want to see them.

Janis Raje: No, I don't have the posters, and I would like to see them.

Olga Kopp: Yeah, so I would be very happy to send them to you.

Janis Raje: OK, let me just let me ask couple more questions about SCULPT before we leave that. So you've been a Co-chair of SCULPT, and you've worked with the Learning Circles and the Mentoring Academy both.

Olga Kopp: Yes. But now there is another faculty on charge of the Mentor Mentoring Academy. But it happens every semester as there is good participation from faculty.

Janis Raje: Well, when we originally wrote the grant, we had this component happening under the

Office of Teaching and Learning, and they would do all the work. And when Anton fell sick and you faculty just rallied around him and did it, it turned out so much better than anything we had envisioned. It's just grown because faculty are excited about it and do it. It's amazing.

Olga Kopp: Because I think when things come from faculty instead of coming from above, people are more invested and that's what we wanted. We wanted to make sure that this remain kind of a grassroots organization that we people, all the faculty, know that this comes from the faculty for the faculty and for the students.

Janis Raje: So could you tell me more about what are continued benefits from SCULPT to faculty and students?

Olga Kopp: The benefits continue. More faculty are getting involved in research. Why? Our website lists sources of funding, which were not located in one single place. They can find other people with similar interests. We have information for students on why they should do the research and how can they started doing research. Normally I have gathered this information by myself. I have spent a lot of time going to different departments gathering information about the faculty and which type of research they are doing, which I put it in an Excel file. But it is overwhelming to for me and I cannot update that very often, so I try to update it in the summers. But having something that is more centralized helps students. I am very passionate about getting students involved in research and internships. So I spend a lot of time whenever I have a few minutes here and there, I tried to find internships and I send them to my students. I also send it to groups that are in Microsoft Teams – teams like the Latino initiative program and the Immigrant and Refugee Student Union. I send it to those people because, if one student listens, like with President Tuminez' s success, if I convince one student, I feel happy. I wish I could convince more, but one is enough for me. So I send it to everybody that wants to listen and sometimes, they apply and I get so happy. Yeah, it's because I never had these opportunities when I was an undergraduate, and I see those opportunities and I really I want to apply myself. I think, "I cannot believe they pay you for doing this." So I tell students, "you need to do this."

So actually from that URSIG grant was funded, we already submitted a paper and we are waiting for the response. I can find the paper we submitted and send that to you.

Janis Raje: That would be helpful. So I believe your URSIG grant was for two independent studies, one on biofilm formation on bacteria and one on micropropagation of two endangered plant species. I looked up those endangered species and got a picture of him so I could see what we were talking about there – they are really beautiful plants.

Olga Kopp: Yeah, so, on one of those, we finished the paper that was submitted for publication. The other one we have made advances. Right now they are doing the soil, and doing the ex-vitro rooting in soil. Hopefully we will get a publication out of that. In that project, we have now three students getting involved in working on that.

Janis Raje: When you got the URSIG award, had you already done research in this area before and this funding just continued it, or was this the beginning of research for this project?

Olga Kopp: The grant helped us to start this project – the one I am sending you so with the posters that were presented. We started and created research the foundation. After that, students apply for a SAC grant (Scholarly and Creative Activity Grants). Through the SAC grants, we continued with the results

that we got from the URSIG grant.

Janis Raje: So you've kept it going.

Olga Kopp: Yes, because in science, plants don't grow in six months or one year. They decide when they want to grow and how. We had to tweak around the different experiments, so that the paper went out only recently.

Janis Raje: OK. So for the summer 2019, you listed four students who were funded by the grant and five other students who worked but were not funded. Do you know roughly how many students have worked on the project since then – either funded or unfunded?

Olga Kopp: I could gather that – it's several semesters. I will here I can send you the list.

Janis Raje: The purpose of the Title III grant was really to help increase UVU's retention and graduation rates. We felt that student engagement was a way of doing that, and that students who were engaged were more likely to be retained and complete their programs. So even though this is kind of a trickle-down way of looking at it and only a small window or peek at the students who worked with, I'd like to know what has happened with your students. You said that some of them have gone on to graduate programs or jobs where they're doing research. When you give me the list of students, could you tell me which ones have graduated and gone on to do research or related activities? That would be very helpful.

Olga Kopp: Sure. I will do that, definitely.

Janis Raje: When we wrote the Title III grant, we kind of went out on a limb. Usually Title III grants are for different sorts of things. When I looked at what had been funded, I never saw a project like ours. We proposed to take a pool of money and award sub-grants to faculty for programs with merit to conduct student engagement activities grounded in best-practices. Do you think that these small grants to faculty make a difference at helping faculty at an institution like ours? For instance to conduct undergraduate research?

Olga Kopp: Yes, definitely, because without that money, we would not publish. Well, the paper we just submitted for publication and are waiting on, we know it's a very good quality paper because we did all the process in tissue culture. Sometimes people publish the papers without going all the way to the end of the process. But we did everything very comprehensive. Without that money, we wouldn't have had the foundation, for example the chemicals that we needed to be able to start the project. And we are an undergraduate institution. I teach 12 credit hours and it is very demanding. This allowed me to have the students to be able to work in the projects they've all day. They volunteer because they know it benefits them. And because I, I think I'm so lucky, is like I am blessed somehow, to have gotten these extraordinary students that take leadership and take ownership of their project. I am blessed somehow.

Janis Raje: Have you received GEL grants to over the years?

Olga Kopp: Yeah, but I don't remember when was the last GEL grant that I received them. But the students apply for SAC grants, mainly to buy the chemicals in the materials that we need, and then students also apply for travel grants. So we apply for both of them.

Janis Raje: You said in your report that you believe students should get involved in the entire process, not just one part of the project. Will you explain that a little bit to me about the entire process?

Olga Kopp: So there are some professors that just give instructions to students. Take the pipette here and put in 20 microliters of this. So they give them a protocol to follow, and to me students really don't know how that fits into the entire picture. So, I like them to write a proposal to provide their own ideas to troubleshoot. It's not me telling them what to do. It's "how can we solve this?" They also provide their own ideas and it is fascinating because I may have one idea and then student comes up with something that I didn't think about. That happens without me imposing on to them and saying, "OK, this is how it's done and that's kind of the only way of doing it." I don't agree with that approach because some young people that don't have experience don't know that things cannot be done, and that's the people who actually do things. Because we all may have this idea that it's impossible, but they don't know yet that is impossible, so they actually do it.

Janis Raje: When I talked with faculty who have participated in the Faculty Mentoring Academy, I've asked them how it informed their work with their student researchers. They said it really benefited them a lot. So I guess my question to you is, how has your work with SCULPT informed your mentoring of student researchers?

Olga Kopp: So it helps me. Before the Mentoring Academy, I didn't think about creating a contract with the students and working in a more organized way – this is what I expect from you, and this is what you can expect from me, and having that type of communication. So this has improved in that way.

Janis Raje: That's exactly what other faculty have mentioned to me – that it gave them a structured approach so they could be more successful as mentors in their students could be more successful in their research projects.

Olga Kopp: Exactly, yes, yes, that's it exactly. The structure really helps in and provides new ideas. So there is a better way that I could do this.

Janis Raje: So is there anything else you'd like to tell me that I haven't asked you?

Olga Kopp: No, but if I can think about something else, I can't, uh, email you. Or if you think about another question, or if you want me to read over what you write in in one my input, I can do that.

Janis Raje: I wanted to mention that your report was very clearly written and helpful. I appreciated that.

Olga Kopp: I sent you the posters that we presented based on the grant. They were for the American Society of Microbiology and the in-vitro poster that we presented to the Society for In-vitro Biology and then at Showcase at UVU. I will look for the paper that we submitted for publication and send it to you.

Janis Raje: Alright, thank you very much.

Interview #20: Maria Blevins Interview

Oct 8, 2021

Janis Raje: So I've been asked to do the evaluation for the Title 3 project and you were funded with the Earth and grant under that Title III.

Maria Blevins: So this is the presidential fellowship, is that right?

Maria Blevins: Oh, so this one was like three years ago. Two years ago. OK, yeah, yeah, that one.

Janis Raje: That that's the one – Gender and negotiating gender and outdoor guiding industry.

Janis Raje: So, so that was in the summer of 2018 – just one summer?

Maria Blevins: Yep, and it was.

Janis Raje: It looks like a really interesting project. I see you wrote that you had the project going before you got the grant, and that you planned to continue it after the grant ended. Have you continued it?

Maria Blevins: I have my book manuscript is almost done.

Janis Raje: No kidding! So you were able to continue your work through COVID, because you could write during COVID.

Maria Blevins: Yeah, you know, I kinda hit the COVID Jack pot and was on sabbatical last year. So I knew I wanted to finish this book. I had to keep teaching but, I had the year to just focus on writing.

Janis Raje: Well, that's exciting. I remember when we were working on the Utah Lake project you said you were going on sabbatical.

Maria Blevins: Yeah, I'm lucky to be juggling several grants.

Janis Raje: So what other grants do you have?

Maria Blevins: So this the Raft Guide project or the gender negotiation project was funded first by a Presidential Fellowship for $8,000; and then I had this Title III URSIG grant that really helped me finish getting my transcriptions and helped me have two student research fellows that they help me out; and then I have the NSF grant for Utah Lake; and then now I have another Presidential Grant for working with the team to study visitor use at Capitol Reef. I just finished the fellowship. I got to spend a month at CREFS to finish my book and it was awesome. That place is amazing.

Janis Raje: So the overall purpose of this interview is to see what were the long term benefits to you and your students and the university from the URSIG research project. So you did the research project in the summer of 2018, though it was part of a long ongoing project, and then you wrote the report to it. Now, in retrospect, I'd like to know what's happened from there and how you see that benefiting you and your students.

Maria Blevins: Yeah, so I'm gonna answer this in a few parts and if it's OK with you, I'm gonna broaden the answer to like I actually think this grant has had some societal benefits as well. So I'm gonna start with the students.

I got to work very closely with two undergraduate students and they really helped me analyze the data

and think through things. They did a lot. One of my RA's, Felicia, took over the like giving the names. You know we have to change the name of the participants. So like helping with that. So I think those students gained quite a bit of confidence and we're able to really get in and work with a data set in a way that they don't usually get to. The research really fired up Felicia to create her whole senior thesis project on it and she took it off into another real where she took some of the data and wrote a really great little paper on how we put the responsibility on women that they don't get harassed instead of the men to not do the harassing. So I think she did some really nice thinking through that. That one mentorship was really excellent. Felicia is applying for grad school and I would like to think that her experiences and RA helped make that happen. So those are. I think the benefits to the students. They were really able to be involved in a project.

Uhm, for me personally a this grant was able to help fund a bunch of extra interviews and transcriptions so Genesis project had a phenomena that I've never seen before. I did the bulk of my interviews between November. I think it was 2017 and like March 2018. And then that river season hit of the summer of 2018. And that's when I realized I needed more money for more transcript portions because people started calling me to say, hey, I heard you interviewed my friend. I really want to tell you my story. So, people reach out to me to be participants, which usually you know, I'm like begging people to be involved. So I would say I had another 15 participants reach out to me and say this. This has happened to me. I would like to make this situation better. So this grant in specifically helped me have the money to welcome those extra interviewees with and have money to pay for transcriptions.

This project has also helped me become a better thinker. This is kind of a new research line for me in that I had not studied sexual harassment or gender things before, and so it's been really great to have the time to look at that. I have presented already at several conferences, so I think I've presented at 2. Uh, right 3 academic conferences, papers, and the book is almost done, so I am still shopping for a publisher, but I feel very optimistic that this book is not only going to help specifically in the outdoor rafting community, I think it could. It presents a nuanced way to look at sexual harassment that I'm hoping will help all of us talk about it.

The other phenomena is that. I have teamed up with a crew of women and we've created an organization that is actively doing trainings to have sexual harassment minimize in the outdoor field. I've given talks at the Utah Outdoor summit and then I was invited back to do like a like a one on one with people from the ski industry. Three that are dealing with sexual harassment. I was asked to read an article for ski Area Management magazine so I am. I think out there really talking to the outdoor industry about how sexual harassment is like getting in this, so it's less formalized. I mean I am getting some academic traction, but like I think I'm out there doing the work of making this place more bearable. So I was just reached out to by an organization in Moab that does domestic violence work. They are going to put together a whole program for their river guide and I'm going to be involved with that, so I think there's a third thing that this grant helped to fund ,which is just some pretty exciting social change in this very small group of people.

Janis Raje: That's really exciting.

Maria Blevins: Yeah, it feels great.

Janis Raje: Would you send me a list of publications and presentations that you've done since the report?

Maria Blevins: I absolutely can send that.

Janis Raje: OK, so in the report you wrote that you felt that doing this research would help you earn tenure. Do you think that it's moving you along that?

Maria Blevins: I got tenure.

Janis Raje: Alright! So fun to hear that. Congratulations! And you included this project in your tenure portfolio.

Maria Blevins: I absolutely did. You know the conference presentations I had given. I would say that the project really gained traction last year when I was on sabbatical and had the time to really be promoting it, but the three conference presentations did absolutely help make my portfolio more robust.

Janis Raje: A reason that I was asked to do this evaluation is because I was involved with the original proposal for this Title III grant. But it was then and probably still is, a fairly unique grant in that Title III usually funds things like First-Year experiences and money systems to aid in retention, like Banner, and sort of thing, but to ask for a pool of dedicated money to be given out in sub-grants to faculty who had excellent plans for student engagement. That was unique. I have not had not seen it before and I haven't seen it since. And we kind of went out on a limb when we did it, thinking well, they're probably not gonna like it because they haven't funded that before, but they did. We worked hard to explain why it was important then, and now I want to look, in retrospect, at a couple of things. So do you think these kinds of internal grants, like UVU's GEL grants, are useful to an institution like ours?

Maria Blevins: Yes. I have a friend at an institution with a little more research focus. I feel like they have access to a few more pools of money. Like, they can say, oh, I need these transcriptions done or I need a little bit of money to go to collect the data. Or like for example of this Capitol Reef grant that we just got done is really awesome for UVU. It's an indirect partnership with the Park Service. Capitol Reef asked us for this data. I think it's built our credibility. I know that grant is a little different than this one, but the fact that I know I can go somewhere and say I need someone to pay for our gas money to get there, that we need food while we're at Capitol Reef, and that we'd love to hire a few students to help us out, makes the project a little more doable. You know, it motivates me to do that project and to do more applicable work. Otherwise, I might do an easier project, like a content analysis of a website, right? If I don't have money, but if I know I can go and ask for a little support to go do the work I want to do, I feel like the possibilities are much extended.

Janis Raje: Do you feel these small grants to faculty is something UVU should sustain?

Maria Blevins: Yeah. Yeah. I would say that it's something that makes me feel valued by UVU and, uhm, you know, I do. Because while the teaching is the most important thing to me, I do like having a research agenda, particularly if it's applied, and knowing that the institution supports me feels nice.

Janis Raje: Have you had other student researchers on your project after this?

Maria Blevins: No. I kinda hit a point where for this project I didn't need anymore help. I was not collecting interviews anymore and sort of the coding had to come down to me and it is like it is now just a giant project. I mean I ended up with almost 70 interviews so there was a huge amount of data to balance. There was a point where I just sort of had to do it.

Janis Raje: In your report you wrote that you had never supervised students before. Have you taken any of the faculty training activities that are sponsored by Title III, like the SCULPT Learning Circles and the SCULPT Mentoring Academy?

Maria Blevins: No, I'd like to get into the Mentoring Academy and it's always at the time that I teach. So it's on my To-Do-List actually now. I'm looking forward to taking those and I need take those.

Janis Raje: Then you said also with you were unfamiliar with the hiring process and procedures, so I would guess that many faculty who get grants are unfamiliar with these.

Maria Blevins: Yeah, I would say the only thing that keeps me from wanting to get grants. These projects are kind of extra, and working with these students is an extra, and I am not an expert in getting them through HR and their hiring process. And spending the money is a new thing, but they've just changed the how you access money. This is not relevant for the grant that we're talking about, but for my Presidential Fellowship grant, I needed to buy all the groceries is to go to Capitol Reef with my research team and so that process of buying food. I did 3 research trips to summer and the process changed every single time. And this most recent one has been like going through an obstacle course. It has been probably 6 hours so far of paperwork or being on the phone with the travel posts and like it's breaking me, Janis, because I barely have time to make it down to Capitol Reef to collect this data in the first place. Getting the shopping done also feels like a hard thing to do on top of teaching my core classes and then now you've added that the paperwork like how I spend this money. It's like 10 hurdles of things. I think processes have to change.

I don't know if it's training or just a standardized way, or like if there could be someone in the grants office or someone in HR that's specializes in getting students hired. Because like I don't know anything about TIMs and how the students are supposed to fill their time cards. And quite honestly, like I don't wanna know about that. You know, like I don't want to become a HR expert in addition to the expertise in my field. In addition to the burden of work, it becomes more so because you're doing more than just the research and the grant writing and the mentoring the student you're now also as administrator of all that paperwork. It's untenable. It feels like a punishment for doing a good job.

Janis Raje: I've heard this from many people as I've done interviews – that the purchasing and that the HR stuff is really onerous. Yeah, so I'll pass that along. I appreciate you telling me. Well, I think we've covered all the things I wanted to talk about. Is there anything else you'd like to add that I didn't ask you?

Maria Blevins: No, I think I would just say how appreciative I am again for this experience. I have the comfort of being tenured now, but I love thinking that in the course of my career, of I think of neat things that I want to look into, and I can. Uhm, I also I'm a little biased because I think this project is really important. That was funded and I already see the rippling impacts and effects in the outdoor community. And like if places can be more gentle for more people that feels good to me.

Janis Raje: Well, I'm just so excited that you got to do it, and you've done such a bang up job.

Maria Blevins: Thank you. I will get you that list of where I where I presented and where I've been, like all the tiny little interesting places where this data has ended up, whether it be a training for a company or weird ski magazine.

Interview #21: Trevor Warburton

Assistant Professor of Secondary Education
9-7-2021

Janis Raje: Thanks for agreeing to talk with me today about your GREEN grant, which was supported by UVU's Title III grant from the US Department of Education. I'm serving as the evaluator on that grant. I understand from your project report that you used funds to develop a local Edcamp – an informal professional conference for in-service teachers and pre-service students in secondary education. Your project ran from Fall 2018 through December 2019, is that right?

Trevor Warburton: Yes. We did it in the two years before the COVID pandemic.

Janis Raje: What has happened to Edcamp during COVID?

Trevor Warburton: So, before COVID hit, we had done enough where we had established some partnerships with the Nebo, Provo, and Alpine School Districts. So it was no longer something we were running on our own, but we were running it with them. We did two in person Edcamps before COVID hit and they went very well. And then we've done one virtual at camp since COVID.

Janis Raje: How did that go?

Trevor Warburton: It went well. Missing of course some of the things that you with in person, but I think, it maintain those connections and kept people interested. I don't have the numbers with me, but we had a good turn out and good engagement in that virtual one as well.

Janis Raje: That's good, so are you going to keep going now?

Trevor Warburton: Yeah. That is the plan. I have not heard from anyone that group for this year and I think we may still be figuring out. Do we dare try to do an in person one or do we stick with virtual format still? And but I do need to follow up with that group.

Janis Raje: So when you got the grant, how did you spend the money? Was it mostly for student employees? What did the students do?

Trevor Warburton: Yeah, so they were doing planning and organizing. They were finding sponsors and they were publicizing. And then running the at camp once we actually had it.

Janis Raje: So I think from your report you had 13 students working or volunteering on the project.

Trevor Warburton: That sounds about right.

Janis Raje: So, in one place on the report, you said "the project has resulted in approximately 150 educators and approximately 36 School of Education students attending," but an the earlier page, it said there were 105 teachers and 10 UVU School of Education students. Is that because you're reporting over two years, one fall, and then the next fall?

Trevor Warburton: Let me pull that up. Yeah, so the 105 and 10, that one that one was the final in-person one that we did. And then the other one. The other numbers I gave would have been altogether, including the prior year.

Janis Raje: Were the number of students participating from the School Education what you had hoped for?

Trevor Warburton: Yes, the early ones didn't have as many teachers as I would have hoped for, but that got better with the last one in particular.

Janis Raje: It sounds like it was a really beneficial program that helped both the students and educators.

Trevor Warburton: Yeah. It was pretty dynamic and I think people enjoyed it. Especially the last in person we we had. It's harder to get a sense of how much people are enjoying things on a virtual platform, but the last in person one in particular, it really felt like people were really engaged with it and really, really had a good time. You got some really good feedback, both from the teacher attendees as well as the students.

Janis Raje: So a question I'd like to ask you is, what were the long term benefits to you, your students, and the university community of you doing this project?

Trevor Warburton: So I'll start with myself. It's helped me connect to a much greater extent with the local education community and to connect me to that professional world outside of the university where I hadn't established myself yet in Utah Valley. I had some of those connections in the Salt Lake area because that's where I was before, but not down here. And so it's helped a lot in that regard.

For our students in particular, it helps them see things that we're teaching them here in a professional setting, so they're hearing it not just from us, but they're hearing it from practicing professionals. It also helps them make connections with professionals in their field as well, which furthers their education and gives them a different perspective, a different experience, just in terms of developing as a professional educator.

For the community, especially the educators that I was working with in terms of organizing and things like that, they appreciate it very much. It provides resources and connections to UVU that they hadn't had. They appreciated the support that we had as an institution were able to provide to this program, and so that helps educators think well of UVU. Then they become more likely to either come here themselves as Masters students or to recommend students to come here, but just creating better connections for the university and representing the university within the broader community.

Janis Raje: Thanks. So, the purpose statement of the GREEN grants says they are aimed at assisting junior faculty on their track to tenure. Do you feel like your participation in this project helped facilitate those aims for you?

Trevor Warburton: Yes, yes it did. It helped me get involved with students in ways that I wasn't before, as well as again making those professional connections in the local education community, both of which are things that are valued in the School of Education and will be helpful for tenure.

Janis Raje: Thanks. For a Title III from the Department of Education, this one was very unusual because we asked them for a large pool of money that we would give out as small grants within the institution. The funders generally want to see exactly what you're going to do before they give you the money. But we felt that it would be useful for talented faculty develop innovative projects to foster student engagement. Do you think that this kind of project in general, and small internal grants in particular, is useful?

Trevor Warburton: Yes, I mean, honestly, this is not something that I would have attempted without the grant. And it was something that I was interested in. I certainly would not have tried it that early in my career in higher education. I think it was very helpful in that regard.

Janis Raje: Thanks. Did you do any presentations about this project?

Trevor Warburton: I did to our School of Ed faculty.

Janis Raje: With school district support you've acquired, have you seen the need to apply for additional grants from Edcamp?

Trevor Warburton: No.

Janis Raje: Is there anything that you'd like to tell me that I haven't asked you?

Trevor Warburton: No, I don't think so. Nothing comes to mind.

Janis Raje: Well, I hope you have a successful year.

Trevor Warburton: Thank you.

Interview #22: Armen Ilikchyan & Elena Laricheva

Technology Management & Chemistry
9-12-2021

Janis Raje: So Elena, you're in Chemistry and Armen is in Technology Management. How did you two start this project together?

Elena Laricheva: Well I teach general chemistry – large section classes, so I have typically more than 140 to 150 students enrolled in the section, and I've noticed that many of them struggle with the concepts that they cannot see. You know, anything that's too small compared to human dimensions is just very difficult to visualize. And when I was a student myself, I was also struggling with that with the visualization aspect of chemistry. That's how I ended up doing computational chemistry because you can use programs that help you visualize molecules on the screen and it helped to remedy those poor visual spatial skills that they had. And I noticed in my class that I'm not the only one, and many of my students struggle with that as well. So for a while I was thinking about trying to implement something in my chemistry courses that will help students who struggle with the visualization aspect with mental rotations and things like that. And Armen, he's in the technology department, so he's very familiar with technology such as virtual reality, augmented reality. So it was a good collaboration to initiate so that we could combine our skills – so he can use his technology skills and I can use my chemistry as the subject matter expert, and then we can build an interdisciplinary team of students and now explore the effectiveness of those tools on visual spatial skills in students.

Janis Raje: So looks like you had three research students working with each of you, is that right?

Elena Laricheva: I had two students working more on my side, so one is from biology, the other one is from chemistry, and then we also had a team of students from computer science, then digital media and physics. Actually, the physics student is someone I had in my classes before, so two of my students had taken my general chemistry class before, and that's how we started working together.

Janis Raje: So on your report, you listed Timothy Smith from digital media. He is a students, not faculty?

Armen Ilikchyan: Yeah.

Elena Laricheva: Yeah, he's just a non-traditional student. So he, uh, I think Armen knows about him a little bit more than I do, about his career journey, but I think he switched from computer science to digital media and decided to pursue new career.

Janis Raje: OK, thanks. Now, so as part of the Title III grant we also funded activities to help faculty be good mentors to their research students – activities like the SCULPT Learning Circles and the SCULPT Mentoring Academy. Did either who participate in any of those activities?

Elena Laricheva: Yeah, I completed a mentoring Academy. I think it was right before the pandemic.

Janis Raje: And you did that after you had done this project. Is that right?

Elena Laricheva: I think it was concurrent with the semesters when we were doing this

Janis Raje: OK. Let me ask another question. Has your research on this project continued after the grant ended?

Elena Laricheva: So the grant ended in Spring 2019, I think it was.

Janis Raje: I have on the report December 31st, 2018, is that accurate?

Armen Ilikchyan: Uhm, that's when the grant ended. Then in the spring we had our students to present at a national conference and also UCR.

Armen Ilikchyan: The national conference was in February and UCR was in April. And then our students, they were senior students so they graduated. There was nothing in summer and then in the fall we were planning to continue our project. And then COVID happened, so everything kind of froze. But now we're working on something related.

Elena Laricheva: So, it's similar.

Armen Ilikchyan: We are exploring augmented reality, and we are currently developing an app for students, so basically it's very similar, but we believe it will be more accessible to students because in that case there will be no requirements for special equipment. They will be able to use their cell phones too to visualize certain images.

Elena Laricheva: So to answer your question, we continued this project, but after break that was related to the pandemic, the new project takes it in a slightly different direction, but it builds on the foundation that we have already established.

Janis Raje: How many students do you have working with you now?

Elena Laricheva: Uh, so right now we have none. So it's a project that where we are working collaboratively together, but we don't have any students at the moment, so they the grant. I applied for the grant we applied for the grant in the I think it was spring of the last year. At that time we were working remotely and I had no student at that moment who I could work with face to face, and the same was true for Armen, so the idea was that we developed the app.

So we started developing the app, and by the time the app is ready, then we can get another grant where we can take research students in to implement those augmented reality interventions in the classroom. So, while in the past our VR project included many steps, with the development and the implementation so this time we have, we decided that that will be a separate project. So the development happens first. It's on our it's our responsibility, and once we have the working version of the augmented reality app, then we can continue the work and enroll some students in the project to help with augmented reality interventions, data collection and data analysis.

Janis Raje: Many question came to my mind while you were talking. Let me think. Are you planning to seek external funding at some point?

Elena Laricheva: Yeah, so this was the original plan. And I think once we have the working version of the app and try it in class, then next step would be to apply for outside funding. I was actually looking at the at applying for the NSF grant in the next cycle, which I think is going to be in the program where I wanted to apply. I think it's in either January or February of next year.

Janis Raje: Is that the IUSE program that the when you're looking at?

Elena Laricheva: Yes, I think that's the one.

Janis Raje: That's the general National Science Foundation grant for all education programs. There may be some more specific ones, but that's usually the one people target. I'll just keep my eye open for anything that you might find useful in the coming year or so.

Elena Laricheva: Yeah, that would be great, yeah.

Janis Raje: So something that was different about this grant when we wrote it was that it would give us a pool of money that we could use to fund small internal grants. Now, the overall purpose of the Title III program was to increase retention and completion. We felt that if students were engaged, they would be retained and more likely to complete. Do you think, anecdotally, that this has happened with the students that you work with?

Armen Ilikchyan: So we have, I think, affected that two different groups of students with this project. One group of students are the students that worked with us directly. They had an opportunity to apply their skills to real project. All of them are graduated and now have jobs. Uh, so then the other group are students in the chemistry class who are taking chemistry as most of them are probably as a Gen Ed requirement. And so I'm guessing that there are number of students who look at it as the this difficult subject that they need to somehow managed to go through. It's kind of a scary subject – chemistry. I've done my undergrad studies many years ago and when I hear it chemistry, it still scares me.

So using technologies to help students visualize things, I think, engages them on multiple levels. One of them could be just, you know, a simple thing, as adding coolness effect. So it's not the traditional chemistry lecture that everyone imagines, but in fact they will be using this new technologies to study. On the other hand, we hope that by helping them see things that we can't see, we will change their perspective on this subject. I might be wrong, but I think the chemistry class may big play big role as a general education requirement class on overall dropout rates. I don't remember if it's actually listed in one of those gateway class. But I believe by helping those students to succeed in the class, or at least not see the subject as something scary, it will help to change their view on their university experience in general. Now we we've only tested it in one class, and this was more like a probe to see how this can actually work. And, speaking scientifically, we didn't get any statistically significant differences, but there were some, overall improvements if we look at the graphs comparing the two groups. And so, by continuing this project and maybe modifying it and making it more accessible, we can test on a larger group and then we can seem more conclusive results. Or if we actually help those students or not. We believe strongly that it will help students again on multiple dimensions.

Elena Laricheva: But of course we want to approach that scientifically and tests and get data, and analyze it.

Janis Raje: From your report, I was interested in research you cited that showed that students who were good at visualizing were more inclined to enroll in STEM fields. But then your research didn't bear that out. Or, with a small sample size, was it hard to tell?

Elena Laricheva: Armen mentioned that already so we had very small group of students who participated in this project. Or rather, we only had funds to assemble two workstations, which limited our ability to test all students in the class of the size that I had. We could break students in control and test group without testing their visual spatial skills and then do the interventions, but we limited ourselves to 1st identifying who have low visual space, spatial skills and then breaking them down and

groups. So and some students, as the semester progressed, stopped coming to classes. And so, there were several limitations, I think. And in order to be more conclusive, this study needs to have a bigger sample size, more sections.

Janis Raje: But I think your report came to the conclusion that whether or not they had strong visual spatial skills, they would be vent benefited by what you were doing.

Armen Ilikchyan: Yeah, and one of the reasons again to yeah to increase our sample size is we're switching to augmented reality instead of virtual reality because again, in that case we are not limited to available equipment. Most students have cell phones and all they will need. The control group was really small in our initial study. So we learned from that study what can we do differently to get better data, and so that's what we're doing right now.

Elena Laricheva: Also, think it needs to be more granular because some of the topics in chemistry do require visualization skills while others don't. Some topics that are just numerical problems where people have to solve questions and answer them mathematically, so it does not require any visual spatial skills. And I think looking at performance of students before the intervention with virtual augmented reality on specific subset of questions that require visual spatial skills, and then doing the same on similar questions after the intervention would be much better design of the study, as opposed to looking at the overall exam performance.

So, this was an exploratory study, so we've learned a lot.

Janis Raje: Now, I see that the GREEN grants were the grants (Grants of Research for engaged educators and Novices) were aimed at assisting junior faculty and on their track to tenure by funding opportunities to collaborate and work on impactful projects with student researchers. Do you feel that you're participating in the this project helped with your track toward tenure.

Elena Laricheva: Definitely yes.

Armen Ilikchyan: Yeah, I was tenured this last semester.

Elena Laricheva: And, I'll be applying for next year.

Janis Raje: So, did you have your work on this project in your tenure portfolio?

Armen Ilikchyan: Yeah.

Elena Laricheva: Yeah, including student presentations, and the fact I actually presented just recently at the American Chemical Society Conference. It was virtual this time. We were supposed to present our results before the pandemic, but then the meeting got cancelled – that was the biennial chemical education conference. Today got cancelled so we presented our work this fall instead.

Janis Raje: Could you send me a list of the publications and presentations that were made related to this project after the report was concluded?

Elena Laricheva: Yeah, absolutely.

Janis Raje: Do you think that that having internal grants at UVU is helpful to you and the kinds of projects you aim to do? We did already have the GEL grants, but Title III funding added more to that

pool of funding by having the HIELG, URSIG, and GREEN grants. Do you think these kinds of grants or helpful to your work?

Elena Laricheva: In my opinion, yes. In general for because I think this grant is unique. For example, if you do fundamental research in chemistry, you can apply for GEL grant or the SAC grant to cover the expenses, but there is not much money. So if you, for example, if you have an interdisciplinary project, you need to fund researchers from several disciplines. Our purpose was to engage the students on both sides – lower division students in the classroom and upper division students who want to get exposure to conducting educational research, and I think this fits well with the GREEN grant itself. Then it also fits well with the aims of the university, but it doesn't fit well with the GEL grants.

I think this project still it would still fit with the GEL grant, but I think this is specifically for faculty who are, as you said, studying engaged education and novices, right – faculty who are on tenure track and are trying to specifically engage students in the classroom and in research. I think this GREEN grant is unique, in my opinion, compared to GEL.

Armen Ilikchyan: Yeah, and then I think GEL grants have some limitations. In the case of the GREEN grant, there weren't the same limitations. So right now we have a GEL grant, but there were limitations of release time, and on doing summer research. In our department, we can't use it in the full amount because my department already grants release time for projects, and so there is no additional release time with GEL grant, and so I think we end up using only Elena site. So I just use our department resources to do the project, and fortunately our department has resources. But I think Green grant was more flexible and we could apply in many more ways for our project.

In terms of internal grants, I think these grants are extremely helpful, especially for new faculty – for someone who is just starting and trying to establish some kind of a foundation for their research and for their projects. Because I'm not very experienced with external grants, but my understanding is that with external grants, it's always good to demonstrate some kind of foundational work that's been done and these internal grants are extremely helpful exactly for that.

Janis Raje: Have you worked with the Office of Teaching and Learning?

Armen Ilikchyan: Yeah, they have a program that works with faculty who are conducting some kind of research work in the field of education, and so we participate in that program. We, made a couple of presentations in that group. We also present it on a tech conference that OTL organizes and we were the keynote speakers on that conference. I think it was February 2019 when we presented some of the findings from our project.

Elena Laricheva: Yeah, we've worked with very closely with the Office of Teaching and Learning regarding this project.

Janis Raje: In your report, you indicated that you had problems with purchasing specialized equipment.

Armen Ilikchyan: Yes, so our experience with ITI, they think every purchase of computer has to go through special approval and we were limited on what we can purchase because we needed specialized computers that can handle Graphic intensive applications. We had to buy something outside of what is typically offered, and I think it took us a long time – a month or two. And even after that, we couldn't purchase what we originally want it. We had to kind of find a compromise. The way the system is set up

in at UVU to purchase some of this equipment is extremely difficult, and I had the same problem earlier when my department was purchasing a robot industrial robot. It was extremely difficult.

Janis Raje: You're not the first person I've heard this from. So are you still using the equipment that you purchased for this project.

Armen Ilikchyan: Yes, we still have the equipment and as soon as we can hire students, we will use it for our research again. Right now we gave some of the equipment to the VR lab, but just because we don't want it to sit during the pandemic. It was just sitting without anything, collecting dust, so it was sad to see that equipment to be wasted. So we gave it temporarily to the virtual reality lab, so at least the students there can use it and. But as soon as we can hire students and get to work on our research, then yes, that equipment will be useful.

Janis Raje: So, even though you've already addressed this in many ways, what would you say have been the long term benefits to you and your students and the University of this grant that you worked on. Do you have anything to add that you haven't talked about already?

Armen Ilikchyan: Well, I think that. Again, if we can prove that a relatively simple thing such as visualizing certain images will help students succeed in their studies, it will open a huge opportunity for additional work. So for example, with our project that we're currently working.

Elena uses a specific textbook. It's an open source textbook in chemistry, and textbook comes with a really nice visualization, but it's all 2 dimensional. And as far as we've explored that, we couldn't find the use of augmented reality in university textbooks.

And the question is, why not? It's not a complicated thing. It can be it can come as a package with the textbook, and students can download the app and use it to explore visualization. It would enhance the visualizations that are presented in the textbook, especially on difficult topics such as chemistry. So far I, don't think there is anything like that, and so if we can have a proof of concept, that opens opportunities for many others to start working in their fields and, not to mention the visual communication students and department would have all these new projects they can work on by developing additional apps for physics for geography, for biology and so on.

Elena Laricheva: Yeah, I was just going to add there are augmented reality data apps that allow you to visualize images in scientific papers, right? Peer reviewed research papers. There are some journals that started doing this. This is interesting that there are apps that allow you to visualize complex interactions and complex proteins, but something as but there is nothing available at the undergraduate level, so those apps, they mostly target graduate level students and researchers who read those papers. And but I don't know of any app that comes complimentary with undergraduate chemistry textbook for example.

Janis Raje: Interesting. Have you spoken with the Technology Transfer Office about this?

Elena Laricheva: Yeah. And we will talk more in the future.

Janis Raje: Well, I reviewed grant projects that were funded by UVU's Title III program, I was very impressed with your project. Thanks for taking time to talk with me. Do you have any questions for me?

Elena Laricheva: Not the moment, thank you.

Armen Ilikchyan: Thank you.

2019 Interview Questions for HIELG, GREEN, and URSIG Grant Recipients

Name: _____

A. How many students involved? _____ primary; _____ secondary;
_____ courses; _____ extra-curricular

B. How many faculty involved? _____

B. When did your project begin? _____
When did or will it end? _____

C. What grants had you received before this one? _____ internal; _____ external

1. How did you use effective models or strategies for student engagement in planning and conducting your funded project? [relates to objective 1.1]

2. Did you participate in any of the faculty training activities funded by the Title III program before (or after) you applied for this project? [SCULPT Learning Circles; SCULPT Mentoring Academy.] If so, which ones. To what extent were they useful in designing and conducting your project? [relates to Objectives 1.2 & 1.3]

3. How were students engaged in your project? What did the students do? How did they learn? What were the benefits to them? [relates to Objective 1.1]

> Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? Can you cite any instances?

4. This type of grant to a university to disburse funds to meritorious student engagement projects is very unusual. How did this opportunity benefit you and your students? [relates to Objective 1.1]

5. What did you learn about planning and conducting student engagement activities over the course of this project that you will carry into the future? [relates to Objective 1.1]

6. Do your future student engagement plans require funding? If so, where will you seek funding?

> Have you worked with the Office of Sponsored Programs to acquire external funding? Have you taken any training offered by OSP? [relates to Objective 1.5]
>
> Do you think your experience with the project has prepared you for successful external funding?

7. Do you have any publications, presentation, or conferences as a result of this project?

Interview #23: Maureen Andrade

Position: Professor, Organizational Leadership
Type of Award: HIELG
Title: Team ePortfolios: A High Impact Practice

A. How many students involved? ~300 students (about 110 each semester) _____ primary;
also 2 student researchers
8 (3 + 3 + 2 sections of MGMT 3000) _____ courses;
B. How many faculty involved? 1
B. When did your project begin? Fall 2018 (3 semesters)
When did or will it end? Summer 2019
C. What grants had you received before this one? 1 internal; _____ external
I had a small a small summer grant through the Office of Engaged Learning.

1. How did you use effective models or strategies for student engagement in planning and conducting your funded project? [relates to objective 1.1]

A. I was building on the components of High-Impact Practices to make learning more effective. Both team work and portfolios are a high impact practice, along with collaborative projects, writing intensive projects, peer review, experiences with diversity, and so forth.

Q. It seems like the structure you give them, even though they have to do things themselves, the structure helps them be successful. A. Yes, definitely. By starting with the charter, they know they have different roles and responsibilities. And if they run into the problem somewhere in the semester, I say, "What does your charter say?" So it's not just something they do the first week of class and then it just sits there. At the mid-term reflection, I have them look at their charter to see if they need to change anything – if it's still working, or if it needs to be more specific. Yea, that's one tool. And then just guiding them with assignment instructions, rubric, and feedback helps too.

2. Did you participate in any of the faculty training activities funded by the Title III program before (or after) you applied for this project? [SCULPT Learning Circles; SCULPT Mentoring Academy.] If so, which ones. To what extent were they useful in designing and conducting your project? [relates to objectives 1.2 & 1.3]

Q. Did you know what was being funded by Title III when you oversaw the Office of Teaching and Learning? [She was the Associate Vice President over OTL for the first years of the Title III project.] A. Yes. I know they collaborated – Richard Tafalla, Stephanie – they collaborated a lot. One that I was involved in was the Gateway Course Initiative. The OTL did a lot of training and faculty support. They did a really super job. And then the faculty would submit proposals for funding to redesign their courses. OTL brought in some outside experts as will to help train and mentor faculty in redesigning their courses and collecting data. That was a really good. There was definitely a lot of collaboration.

Q. Did you participate in any of the SCULPT programs? A. SCULPT was really off on its own, and then it came under the umbrella of OTL because it was better to coordinate everything under that one office.

3. How were students engaged in your project? What did the students do? How did they learn? What were the benefits to them? [relates to objective 1.1] [first question]

Q. You were working with portfolios, but for teams rather than individuals. Will you tell me how that works? A. So, logistically, how they work is that I divide students into teams at the beginning of the semester, and I have them create a team charter that outlines their roles and responsibilities, their norms and behaviors, and expectations. So basically, it's something for them to follow, something that they all can agree on – like who's going to do what and when, and how they are going to communicate with each

other. I give them suggestions and ideas for that. I do this assignment in both online-hybrid and face-to-face classes. So the online sections have to figure out do they want to have video conference meetings, how are they going to connect. I have them choose their roles, so they choose a leader. I have them do a little survey so they can look at different team roles, and then if they want to, they can change those during the semester and take different roles to they get more experience with that. And then basically, they create artifacts in their ePortfolio about what they're learning. So, I've done it a number of different ways, but basically they choose a concept or a theory in Organizational Behavior, and they present their understanding of that theory and how it can be applied, and then they reflect on what they learned through their study of that theory or concept, and they work together as a team.

Q. Do they write their reflections individually or jointly? A. They to it all as a team. They discuss together as a team what they learned, and then they write that out in their artifact. Q. So all of the members of the team contribute to the writing, or it's for them to decide out? A. It's for them to decide, but they all contribute. There's enough content in an artifact that one person can't do it all. So they divide it up, delegate. They might have one person responsible for editing, making sure everything fits together. That's pretty important, because sometimes when I review the artifacts, you can tell that they had four parts with a different person doing each part, but no one came in and looked at how they all flowed together, so they miss points. So they have to figure that out for the next time. I grade them on their writing – how they organize, grammar, editing, spelling, etc. It has to be a very polished, professional looking piece. And I tell them to demonstrate to employers that they know how to collaborate and work together in teams. It shows skills in communication, application of learning, working with diverse people with different backgrounds. So they can explain that to an employer when they show their ePortfolio. They all have access to the ePortfolio after the class finishes.

A. In the middle of the semester, they do a team reflection. I give them some outline and structure, some tools and rubrics and questions to ask to assess how effective their teamwork has been. And they talk about what's not working so well, and what is working well, and they set some goals. At the end of the semester, they each give each other points. So that's another measure of accountability. They do a peer review of each other's contributions. Q. How many artifacts will they typically produce in a semester? A. I started with 14, and actually, that worked fine. So they basically did one every week on what they were reading and studying that week. And they had a little time to work on it in the face-to-face classes. But I've been gradually reducing it, just because it's really hard for me to grade all of those when I'm teaching three sections. Even though they're team ePortfolios, I spend a considerable amount of time on each one. I'm still trying new things based on student feedback and what I see students doing.

A. The teams also do peer review on each other's artifacts and give feedback. I use rubrics, the reflection pieces, . . . They also do a service learning project, which they document in their ePortfolio as well. They write a proposal for it, they find a company that they can work with in the community. Then they identify an organizational behavior problem – something related to people or organizations – it could be motivation, or job satisfaction, or job design, or personality, or leadership, management, any of those kinds of things. Then they collect data and analyze it. Originally, they created a traditional report, but now they create an artifact in their ePortfolio. And I have outlined all the different parts they have to include in that report. Then they make recommendations based on all the theories and concepts they've been learning about. I pretty much have them do everything in their ePortfolios so they come away with a record of everything they've done in class.

Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? Can you cite any instances?

Q. This sounds like a very dynamic class. How do you see it impacting the student? A. I do individual reflections at the end of the semester, and students say, "Wow, I've never done anything like this before!" Like, they've never heard of ePortolios, and they really like it. And often they'll say, they've had

bad experiences with group work in the past, but it really worked well in this class. And I've had students, even in an online class, say that their team mates have become their best friends. So, it's been pretty amazing in terms of what students are learning. Some have said that they learned the concepts much more deeply because I had to almost teach them to someone else through creating the artifact. They were accountable to each other. And, they generally want to do their part. Also, all of their work for the class is in the ePortfolio, so they have something to show an employer. This will help them get good jobs.

4. This type of grant to a university to disburse funds to meritorious student engagement projects is very unusual. How did this opportunity benefit you and your students? [relates to objective 1.1]

Q. From my observation, there are some really excellent projects that have come out if the Title III funding dedicated to internal grants. A. There are a lot of creative faculty here who are very dedicated to teaching. Sometimes they just need a little funding to facilitate their activities, but they don't really need a huge grant proposal to external funders to accomplish this.

5. What did you learn about planning and conducting student engagement activities over the course of this project that you will carry into the future?

A. I learned a huge amount. I've continued to make changes every semester based on student feedback. I've expanded what I've done with the ePortfolio so that they document all of their assignments in there. And then just refining and structuring it to help make students more successful, since it's really new to them. I've been amazed at their reflections on what they've learned. It's far surpassed my expectations. They've just got so much more enthusiastic about working with teams. I've had students say they recognize a lot more of their own potential and that they have more confidence, just all kinds of things.

A. I'm still learning and improving. I think one challenge has been making sure they're not just coming up with their ideas out of the blue and that they're basing them in the theories and concepts for the course. Because they can come up with all kinds of creative solutions for an organizational challenge, but I really have to emphasize that they base this on theory and concept, and how it's applied.

A. The project has been a lot of fun. I enjoy creating things, designing curriculum, revising it, seeing how it works, making improvements to it, seeing how the students respond.

6. Do your future student engagement plans require funding? If so, where will you seek funding?

I put in an application (with Title III) for funding this coming year as well. One part of the project was a survey – a quantitative piece. Ala'a helped me with the statistics related to the survey, and then he gave me some super good ideas. Then I revised the survey. What we're aiming to do is create an instrument that shows learning as the result of ePortfolios that could be used across higher education. So kind of along the lines of his engaged learning instrument, but this would just be for ePortfolio learning. There isn't currently an instrument on that. I went through the literature, and the student researchers helped with this, and pulled out all the factors and outcomes that have been identified as student learning as the result of ePortfolios, and then I created a survey with those factors. Then we did a preliminary test in summer, but we didn't have a lot of students then, so we will be doing it in seven sections this fall. And then Ala's will analyze the data for me. So that's the next step – creating an instrument to demonstrate what students are learning with the ePortfolio.

Q. Then you might want to seek federal funding to carry it forward? A. What would that look like? Q. Well, you'd probably want to bring in colleagues from other institutions the test at their institutions so you have implementation and results beyond just UVU. A. Yes. That would be great! This assessment tool has huge potential. It's really exciting. We'll know more at the end of this semester about where we're at.

Have you worked with the Office of Sponsored Programs to acquire external funding? Have you taken any training offered by OSP? [relates to Objective 1.5]

She had not.

Do you think your experience with the project has prepared you for successful external funding?

Didn't ask.

7. Do or will you have any publications, presentation, or conferences as a result of this project?

A. I have published about this. Mostly related to the reflections I talked about. I've analyzed those. Some of the students I hired as part of this grant. They helped me do the literature reviews – summarize the articles, analyze the reflections, organize the reflections, etc. That helped a lot. I've done a couple of papers on the reflections and the results that have come out of them. The student researcher's names are on those papers as well. There were probably a couple of presentations as well with the students.

Interview #24: Leigh Ann Copas

Position: Writing Center Director
with Elena Garcia (UC) and Kelsey Hixon-Bowles (UC)
Type of Award: HIELG
Title: Embedded Tutoring Support for Writing Enriched Courses (Writing Across the Curriculum/Writing in the Disciplines Support)

A. How many students involved? 5 → 10 primary; ~ 500 per semester; ~1,500 total secondary; 2-3 → 25; about 15 sections courses; _____ extra-curricular

B. How many faculty involved? 3 faculty, 1 part-time assistant coordinator (paid by grant)

B. When did your project begin? Fall 2018
When did or will it end? Summer 2019, extended through December 2019

C. What grants had you received before this one? X internal; external
Received GEL grants for 3 years

Q. How many Writing Fellows did you have. A. We started out with 5 Writing Fellows on the project, and as it expanded, currently we have about 10 total who have worked on the project. We have 5 tutors on the grant at any one time. Q. How many semesters have you done this? A. For about half of Fall 2018, full Spring 2019, a small portion in summer, and then Fall 2019.

Note: They are working with more Writing Fellows and courses than just those funded by the HIELG grant, which mostly focused on History 1700. Funding for other courses and fellows comes from the Writing Center itself (through PBA), and from our Dean's office to gain more data and eventually more PBA funding. There are generally 25 Writing Fellows employed by the Writing Center at any one time.

1. How did you use effective models or strategies for student engagement in planning and conducting your funded project? [relates to objective 1.1]

A. We had a hard time just adapting a national model effectively at UVU. National models didn't seem to work here. We merged the popular model of SI (Supplemental Instruction) from UNC with the idea of Writing Fellows, which is the one-on-one, discipline focused, kind of Writing Center tutoring. We have tutors assigned to specific classes. They attend classes and work with both the professor and the students. [See notes to Question 3 about what Writing Fellows do.]

Also: 1) Having students reflect about their tutoring experiences in weekly training meetings [see notes to Question 3]; and 2) Giving or Writing Fellows a chance to present and talk about their experiences in professional settings such as conferences [see notes to Question 7].

2. Did you participate in any of the faculty training activities funded by the Title III program before (or after) you applied for this project? [SCULPT Learning Circles; SCULPT Mentoring Academy.] If so, which ones. To what extent were they useful in designing and conducting your project? [relates to objectives 1.2 & 1.3]

A. Yes, I have. I've been involved in more of the tech side of the training that OTL offers, like understanding CANVAS and incorporating it into the classroom. I'm actually doing their online training in that right now. I've also done an in-person training. And then we've co-sponsored some training with OTL. We've worked with them to provide FAFSA Fests for the Women's Success Center; we do the workshop on writing scholarship essays. We also helped OTL when they were running the Academic Integrity Week.

3. How were students engaged in your project? What did the students do? How did they learn? What were the benefits to them? [relates to objective 1.1]

Q. So I think the tutors have the opportunity to tutor individually, and then they have the group sessions? A. Yes. They conduct one-on-one tutorials with students from the class they are assigned to. They also have group sessions both during class-time and outside of class. In class, the Writing Fellows instruct students on things professors say they struggle with. They create resources for their instruction and have these checked by the Assistant Coordinator. The resources that are developed are passed on to other Writing Fellows and tutors. They host writing workouts (workshops) outside of class as well. Some of these may have 50 to 60 students in attendance.

Q. So you have the Writing Fellows who are engaged and they're engaging students from the class. So when they work together, both of them are engaged. Is that how you see it? A. Yes, absolutely. So that's actually a question we ask in our interview process with our tutors. "How do you think your classroom work will inform your work as a tutor?" and vice versa "How will your work as a tutor inform your work as a student?" And we have conversations with them in ongoing, weekly training were we talk about the engaged learning experience they get by being able to practice what they're learning and put it into practice in tutoring. And we talk about how the students are engaging in that learning process. We put a lot of emphasis on the fact that we are able to provide the students with some of the experience they can't get in the classroom because of the limited time the instructor has one-on-one with students and the limited time they have in the classroom period.

Q. There's a big research component of this grant. Who is doing the research – the Writing Fellows or you? A. It's mostly me and the part-time assistant coordinator. We also have a full-time coordinator of the Writing Center who manages our Writing Fellows program (not paid for by the grant), but she leads the overall assessment of our Writing Fellows program. So she has helped some with the research for this project as well. The tutors that are Writing Fellows, they do help with the assessment portion to a degree in that they help us collect a lot of the data. So we do pre- and post-surveys that we used to have them distribute physically. We have since moved that into an electronic means through Qualtrix. They help post reminders; the speak to the faculty each semester to remind them (now that it's in the electronic form) to make sure that students pieces for us. And then we gather some assessments from faculty regarding grades, and we work with IR [Institutional Research] to pull some of the data regarding grades.

Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? Can you cite any instances?

A. Yes. For the students being tutored, look at the grades and student disposition toward writing (pre- and post-surveys). We are finding that what they learn in tutoring transfers into other courses as well. In fact, tutoring has positive effects in three critical areas – social, application, and community building. Studies show a lift in persistence and an increase in retention and graduation. They receive A's in key courses at a higher rate, which is a known indicator of student success. They also have shown (in the History course) a decrease in DFW grades.

For the Writing Fellows themselves, they experience a level of satisfaction with their university experience. It also prepares them for their future work. Writing Fellow alumni report that tutoring prepared them to teach in the classroom, to work one-on-one with students, and to control a group. About 99% of our Writing Fellows are placed in a job or go onto graduate school after receiving their bachelor's degrees.

Q. Your table on pre- and post- scores seems to show that those students who participated in both the workshop and the one-on-one tutoring scored higher in the post-test on self-efficacy than those who did only the one-on-one sessions. Is that true? A. Yes and no. It depends on the

particular group. [The table was only for History 1700 in Fall 2018.] We found that in terms of certain group dynamics and the specific discipline courses, some of them did find it more helpful going to the group writing, but for others, the outcome is a little higher in for the one-on-one sessions. For History 1700, which is a large section the students who did both were getting more practice time, and the group work was done in class as opposed to out of class. So we're interesting in seeing if the number of exposures makes a difference, because we've started seeing a little evidence of that. We focused a large attention of the funding of the grant in the class in the History course because it is a very large class (about 75 to 150 students), so we have to double up Writing Fellows. When we do the writing workshops we have to have two or three people there just because we have 50-60 students show up for the workshops when they're held outside of class. And we have a large presence in class as well. There's usually one if not two or three Writing Fellows in the majority of the class meetings throughout the course.

Q. In your research, to you track how many times students participate? A. Yes, we do track the number of times that they participate. Q. Does the number of times they participate make a difference? A. Yes and no. Sometimes it depends on the individual student. But what is interesting is that a lot of our data shows that even just one interaction with a Writing Fellow usually has a positive grade impact. They often do about 10 to 20 percent than student who don't participate at all. I think a lot of it comes down to the peer-to-peer focus we have in the program – that a student is more likely to listen to their peer than to listen to their instructor, even if the peer is reinforcing a lot of what the instructor has said. The feel like they're getting inside information from a friend rather than a professor.

4. This type of grant to a university to disburse funds to meritorious student engagement projects is very unusual. How did this opportunity benefit you and your students? [relates to objective 1.1]

A. Yes. Not only did it benefit about 10 Writing Fellows who worked through funding for this grant and the 1,500 students they worked with, through our assessment efforts, we were able to show the institution through PBA that this is a valuable program. With the funding we received through PBA, we can expand the program and serve more students.

5. What did you learn about planning and conducting student engagement activities over the course of this project that you will carry into the future?

People don't always do what you expect them to do. I found I need to tell students why taking the pre- and post-surveys are helpful in updating the program, not just to get funding, but to improve our service. We also needed to get faculty buy-in for the pre- and post-surveys. We've started to use electronic surveys on Qualtrix, but we still need to remind teachers and encourage students.

Faculty involvement is also a valuable thing. The Writing Fellow and faculty member need to communicate about their expectations, about problem areas in writing were the tutors can help, and about assessment. While we hope to match Writing Fellows with classes suited to their majors, etc., it's sometimes difficult because their class schedules conflict.

6. Do your future student engagement plans require funding? If so, where will you seek funding?

A. The money we gained from the last PBA process in July will replace the money we received for the HIELG grant. So we've already been able to find permanent funding to carry forward. And that happened much quicker than we had anticipated.

Have you worked with the Office of Sponsored Programs to acquire external funding? Have you taken any training offered by OSP? [relates to Objective 1.5]

A. I took the summer grant writing workshop offered by OSP a few years ago.

Do you think your experience with the project has prepared you for successful external funding?

The efforts of this grant did help us get PBA funding. It helped us gather qualitative and quantitative data that allowed us to put forward a strong PBA request, tailored for UVU students.

7. Do or will you have any publications, presentation, or conferences as a result of this project?

Students will present at some of the conferences here on campus, like the Conference on Student Success, the Conference for Social Changes, the UCUR Conference, and also regionally, we're part of the Rocky Mountain Writing Centers' Association. A lot of tutors have had opportunities to present on their experiences in these mediums. And occasionally we are able to receive funding to take students to present at national conferences – the National Conference on Peer Tutoring in Writing and the National Writing Center Association Conference. It's amazing to put them at the helm of a presentation and give them that experience. It's extremely valuable for them and for us.

Interview #25: Krista Ruggles

Position: Assistant Professor, Elementary Education
Type of Award: GREEN grant
Title: Integrating the "M" in STEM Across the Content Areas in a Teacher Preparation Program

A. How many students involved? 74 Jr. & 335 Seniors primary (UVU); 1,635 elementary secondary; 8 Elementary Ed courses; 8 STEM Fairs extra-curricular

B. How many faculty involved? 6 faculty

B. When did your project begin? 2018
When did or will it end? Aug 2019

C. What grants had you received before this one? X internal; _____ external

1. How did you use effective models or strategies for student engagement in planning and conducting your funded project? [relates to objective 1.1]

A. I would say that we went through the Design Thinking Process, which is kind of like the writing process, where you first have to determine that is the problem, what is the need, and then you plan what you're going to do. Then you implement it and you look for issues – you need to debug the issues. And then you share out whatever you've done.

2. Did you participate in any of the faculty training activities funded by the Title III program before (or after) you applied for this project? [SCULPT Learning Circles; SCULPT Mentoring Academy.] If so, which ones. To what extent were they useful in designing and conducting your project? [relates to objectives 1.2 & 1.3]

A. No. The only thing I've done with the Office of Teaching and Learning is to teach their Equity Pedagogy course, which talks about equality vs. equity in the classroom. And our project also supports equity pedagogy by making sure that students get what they need and not giving everybody the same thing. / / I am going through the HEA process though. It's a Higher Education Academy; it's an international faculty designation. There's a big push at UVU to become an HEA fellow.

3. How were UVU students engaged in your project? What did the students do? How did they learn? What were the benefits to them? [relates to objective 1.1] (First question)

A. Ultimately, we modeled how math can be integrated into the curriculum in 8 different Elementary Education classes and then provided experiences for students (pre-service teachers) to do that through the STEM Fairs. First, I hired the two students as part of the grant, which actually ended up being three because one of them had to resign due to heath issues. Initially, those students ran a special development for the faculty members and gave them ideas on how to incorporate math in their content areas. And those professors taught Social Studies, Reading, Language Arts, Creative Arts, Curriculum & Assessment [all in the Elementary Education program]. There was a Math Methods professor too (and I taught Math Methods too). I included the Math Methods professor because I wanted us not to just think about teaching math in Math Methods, but teaching other content areas.

Q. So these students taught the professors how to do this? – Yes.

Q. And you said they prepared some online support for them? – Yes, they did. They did a presentation for them and then they wrote lesson plans for the faculty to use. But that was one glitch we had is that those lesson plans haven't gone our website yet, because the website is being re-

developed. But I have all the lesson plans. And then they checked in with the professors as the semester went by to see if they needed anything.

Q. So they mentored the professor through this? – Yes, it was interesting. And once the one student had resigned, I hired another student who was in secondary education, and his task was to write a white paper. And I mention that as being a challenge too, because he just got too busy. He started it – he had to go back and read everything the first student had done, and that took a while. And then he started to work on the paper. And then he was done – have time to finish it.

Q. So, they helped faculty redesign these courses? – I wouldn't say redesign it, but rather get ideas on how to incorporate math. You can see in the Evidence section of the report (pages 10 to 12) some of things the professors did. So, in the technology class, which I taught, in incorporated more math-focused ideas, you can see, using robotics & mathematics. In creative arts, she has a list of different concepts here that she integrated through visual arts.

Q. This is very interesting. – Yes, I lot of the things we taught they kind of were already doing it in some cases, but they just didn't recognize that they were doing it. Which makes sense for elementary education because we are generalists, and we can cover a lot of topics as the same time. But actually recognizing it, like Carrie Measom who teaches language arts started to have students analyze data (see page 12). I'm really excited about Dr. Gearing. She's the math methods person who was hired last fall, and she's been using a lot more technology to teach math since we started this. And we have a new math professor, Dr. Disney, who has been asking how she can use it too. The two of us just did a presentation together to all of the tech leaders in the state on how to use finch robots to teach measurement and data analysis. So that was pretty cool. And then Dr. Gearing has been using the Spiro robots to teach angles. . . . I just did a workshop at the National Council for Teaching Mathematics on Friday on how to use stop motion animation to assess students' understanding of math concepts.

Q. You have some online videos about this (the stop motion animation)? – Yes, I have a lot.

Q. So what you've been telling me about so far has all been at the college level. Then you had the STEM Fairs at the elementary level. Will you tell me about those? – Yes. We did a lot of STEM fairs at the schools where we (the pre-service teachers) presented different tasks. I trained all of the pre-service teachers to go to elementary schools and do a STEM fair and teach the children. That's how we come up with the 1,600 students. We actually had about 200 pre-service teachers (UVU students) in the Spring of 2019. So all of these students (page 7) went to 8 elementary schools. There were eight STEM Fairs on the same day as part of the Engineering and Technology Week activities for UVU. So all on the same day, for about two hours, all of these students taught lessons to children. And then the professors who were integrating math into their courses – a lot of them went to be facilitators that day – to make sure the students were where they needed to be. I have pictures of the STEM fairs too. For example, they went to Vineyard Elementary where there were 15 tables with different activities at each table, and then our UVU students were facilitating those activities with all of the fourth or fifth graders. The faculty member was there to just make sure everything was under control. It was a big event.

Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? Can you cite any instances?

A. That's a tricky question because Elementary Education is a professional program. When students come into the program, they are committed to becoming teachers. I think that going through these experiences, they can see beyond what the status quo is in elementary schools, which have a focus on testing, and they're seeing alternatives, which motivates them to want to finish their programs to become teachers who are more innovative. So the ultimate goal for me is to train teachers to change a system, because when I went through my undergrad program, things were different. We learned how to do multi-disciplinary units. And then the educational system shifted towards standards and

standardization, but now we're going back again with more project-based and problem-based learning. So I'm excited to prepare teachers. Even for our pre-service teachers, all of the education was based on standardized testing and getting a certain score – not thinking creatively and collaboratively. They call it the 4Cs – creativity, collaboration, communication, and critical thinking. And that's a shift that's taking place because we realized we weren't preparing the workforce to think outside the box. We were training everyone to think the same way or do things the same way. It's becoming evident now, for example in the STEM fields, that we need people in the workforce who are more innovative.

4. This type of grant to a university to disburse funds to meritorious student engagement projects is very unusual. How did this opportunity benefit you and your students? [relates to objective 1.1]

A. Yes, it gave us an opportunity that I don't think we would have had otherwise. And as you can see, it effected a number of faculty, courses, and students at UVU, in addition to those in the elementary schools.

5. What did you learn about planning and conducting student engagement activities over the course of this project that you will carry into the future?

A. I know by how my students talk about my courses that they are excited to come to class. So I will continue to do project-based learning – in Math Methods I, in the Educational Technology Course. My students are responding much better to having opportunities to be creative than to me just lecturing. My classes are fun. The students are always out in the hallway with robots because there isn't enough room in the classroom. The Dean has to step over them as she walks through. It's just fun.

Q. Were you already doing project-based courses before this? – I was lecturing more, and now I have taken more of an inquiry stance where I pose a problem and then have students create some kind of product. So instead of telling them how to do something first, I let them figure it out. It drives them crazy, but I tell them that this is what we want our classrooms to look like. We want to stop telling students how to do something and instead let them figure it out on their own. I also learn better by trying things out and by problem solving than by listening to someone tell me.

One of the biggest challenges has been hiring students to do the work. Most of them don't have time. A lot of them are taking 15-17 credits and a lot of them work. There are only so many hours in the day. I've found that with other grants too. They are excited and want to do things, but then they have class assignments and family things come up, so it's really challenging. I've found the same thing with research. I came from a research one institution (University of Florida) and there were lots of doc students who could do the work. But here, even our Master's students are full-time teachers. It's hard for them to do something extra. Though it helps them tremendously in their careers. We have some really incredible stories of students who have done things for us and they are not leaders in the community.

Q. All of these STEM Fairs on the same day was a big undertaking. Would you do it that way again? – Never. This year we are having the elementary students come here on the 19th or 20th of February. So we'll do the same concept. We'll have about 400 elementary students come and then have the UVU students facilitating activities. We'll probably do that every year, because now we have a partnership with Kazem Sohraby in the College of Engineering & Technology (E&T).

6. Do your future student engagement plans require funding? If so, where will you seek funding?

A. This project has really helped our relationship with the College of Engineering & Technology. We've started doing a lot of things together. We just funded for a UVU SEED grant for $30,000 each for the same project. We are creating what we call T-pods. They're really physical, moveable pods that have all supplies to teach the new SEED (Science and Engineering) standards for K-12. The

school of Education is writing the curriculum and training the teachers and the College of Engineering and Technology is buying all of the supplies. This year we will be working on 3rd grade only, and I just hired the four students to do the research and write the curriculum. The School of Education is doing the curriculum and training the teachers. I already have three elementary schools in Provo who have agreed to participate. So we have some third grade teachers and principals who are ready to start this spring.

Q. Is SEED the name of the new standards or the name of the internal UVU grant? – Well, they are both called SEED – one the Science, Engineering, Education standards and one the GEL SEED grant.

Q. Did this GREEN grant help facilitate the SEED grant? – Yes. Absolutely. Q. Tell me how. – Because of the STEM and the math. I taught elementary school, and I'm a generalist, so I see how teachers, who will have to teach the new SEED standards in K-5, if they can have math connections to those science standards, it will be easier for them. So I want to be involved in helping the teachers not just look at the SEED standards for the science content, but also how math can be incorporated into that.

Q. Is there a chance that the Utah State Office of Education will pick up funding for your project? – Yes. We have been working with USU and having meetings for the past six months. They want to do the same project, but they didn't get funding for this year through USU, so we're acting as the pilot. Then we want to go for national funding. But the state is still interested because this would be a state program, because we are working with state standards. The ultimate goal of the School of Education and the E&T is to create these pods that are based on a common theme, like force and motion, which is a common theme across multiple grade levels. And then these pods can move around to different schools so that everyone is teaching the same concepts ad the same time and having the same supplies, technologies, and consumables, and all of that. The pods have rolling carts that can go out into the classrooms, unlike E&T's original plan to purchase large trailers to serve as mobile classrooms. That's why the School of Education and the E&T need to work together – because we have a much more realistic approach to what can actually be done in the classroom.

Have you worked with the Office of Sponsored Programs to acquire external funding? Have you taken any training offered by OSP? [relates to Objective 1.5]

A. I took the Faculty Summer Grant Writing Workshop a few years ago. I've considered an NSF grant, but just wasn't ready yet. I think we're working toward that in the future.

Do you think your experience with the project has prepared you for successful external funding?

A. Yes. I think I've collected a lot of evidence that will support things that have worked.

7. Do you have any publications, presentation, or conferences as a result of this project?

Yes. [See the three presentation listed on page 16 of the report.] I did a presentation at the Utah Coalition for Educational Technology. I'm going tomorrow to Las Vegas to do the one on K-6 students and retelling. (Not just retelling stories, like literature, but also math problems.) On Friday I presented at the National Conference for Teachers of Mathematics (this one isn't in the report). I presented how to do stop motion to teach spatial reasoning.

Interview #26: Sally Rocks

Position: Assistant Professor, Chemistry
Also Eddy Cadet in Earth Science and Gary Naisbitt in Forensic Science
Type of Award: GREEN
Title: Microplastic Pollution in Utah Valley

A. How many students involved? 7 primary; _____ secondary;
_____ courses; √ extra-curricular

B. How many faculty involved? 3 (also 1 high school student)

B. When did your project begin? Spring 2019 (and through Summer 2019)
When did or will it end? Fall 2019

C. What grants had you received before this one? √ internal; _____ external
Small internal grants, from like the Scholarly Activities Committee

1. How did you use effective models or strategies for student engagement in planning and conducting your funded project? [relates to objective 1.1]

One of my goals was to take advantage of a best practice for student retention which is getting students who are interested in STEM into research as soon as possible. That means first and second year students. And the challenge associated with that is that they don't have the discipline-centric knowledge yet to be effective researchers. So if I want to throw them right into a lab and have them design a molecule, they don't know how to do that. But the project we worked on in environmental chemistry doesn't require a specialized skill set, so students who are truly novices can come to the project and learn on the job – they can learn what they need. And I also think it's great to get students engaged in making a difference in their own backyard. So the students we actually able to go out in their own environment, that they care about already, and try to effect change. So I tried to get them engaged and motivated, which helps with retention, so I specifically targeted students in General Chemistry for the project, and had great success.

2. Did you participate in any of the faculty training activities funded by the Title III program before (or after) you applied for this project? [SCULPT Learning Circles; SCULPT Mentoring Academy.] If so, which ones. To what extent were they useful in designing and conducting your project? [relates to objectives 1.2 & 1.3]

Yes, I am an active participant in SCULPT. I participated in the Mentoring Academy and completed that. And then as far as OTL, I've done at least one Learning Circle a semester, where it's a study of pedagogy & best practices. I've also completed the Online Teaching Pathway, the Writing Enrichment Training, and I just got back from the Great Teachers Summit that OTL offers over fall break. It was really wonderful. It's a bunch of UVU teachers who are enthusiastic about becoming better. It's two days of sitting around talking about teaching, challenges, and successes and trying to improve each other.

3. How were students engaged in your project? What did the students do? How did they learn? What were the benefits to them? [relates to objective 1.1] (first question)

Q. So from your report, I see that you had five chemistry students working with you, then you had one student in forensics science and one in earth science who would instruct your chemistry students on the things they needed to know from their disciplines so they could conduct the research. Do I have the right idea? A. Right. That's why the proposal included more than one faculty member too – there was Eddy Cadet in Earth Science and Gary Naisbitt in Forensic Science because then they were getting their students involved on this project.

Q. [main questions above] A. So the project was divided up so that every student had ownership of a piece. I think that's important. They all could make contributions independently toward the greater goal. And, instead of being directed, to do this or that, I let the students drive the project. So, we got together, we talked about our overarching goals, which were microplastic pollution within Utah Valley. I let them explore the literature and discuss amongst each other how to go about this problem, even though I already knew what I wanted to do. I wanted them to start fresh and talk about these ideas, and I was flexible about what we were going to do, and just how we were going to go about achieving things.

A. Then the first thing the students did is I had them design their own sampling systems. For example, for the atmosphere, we collected particles in the air. There are commercially available sampling systems, but there's nothing special to them, and they weren't perfect for our application. And so the students designed their own. It was awesome to go through all these iterations of design. Then they had great ownership of each one of these little things because they had assembled them themselves. Q. Where were the samplers? I see from the map that they were mostly around the lake. Why was that? A. We have a sampler close to downtown Orem, one on campus, and then we have samplers scattered around the lake. The purpose of the atmospheric is that microplastics are transported on the wind. They blow off the landfills, they blow off trash, so that's one of the ways they are moved in the environment. And we want to know, based on the wind currents and the locations of some of these sources, like the landfill, is there a certain area where there are more microplastics in the air verses others, or are they evenly distributed across the whole valley. Where are the plastics in the air? And this is becoming more and more interesting because after we started the project, a paper came out looking at plastics on the top of the Pyrenees. These are really remote locations – no were close to any kind of urban environments, and there's plastics there. So the only way the plastics can get up there is through wind. And our study is finding plastics in the air. If it were only isolated to the waters of Utah Lake, people wouldn't care about that, but if it's in the air, people care about it because we breath it. We are breathing plastics. I would want to know.

Then we worked with Dr. Cadet to start looking at water and lake sediment. He's done some much work on Utah Laue – he's just a fantastic repository of everything Utah Lake. We worked together over several weeks to decide where in the lake it would be important to sample. So the students worked out exactly on a map what we were going to do for sampling and we figured out our sampling schedule. Students collected all of the samples. Then we also collected a bunch of extra samples, not very scientifically, as practice. The students spend a lot of time practicing on those samples figuring out how to find the plastic particles and identify them, so that our real samples we could treat with the upmost care in the most reproducible way possible. So this was teaching students the scientific method and how to design processes, which is actually tricky.

Q. So you've developed procedures for separating the plastic particles from the sediment. A. Yes. A. I see from the report that the students have develop procedures for the light microscopy and for separating out the plastic particles from the mineral sediment, and you're still working on identifying polymer types, is that right? A. Yes. Q. But you're letting the students design the procedures? A. Yes, based on literature precedents. They are getting experience of learning from the literature and then translating that to a new system. And it's not directly transferrable because our samples are not identical. So we have had to modify things. They are learning what you can and can't change and why we do some of the things we do. And the same thing is being done by Gary Naisbitt's student with the identification of the plastic types – with the spectroscopy. That's been very tricky, but she has been doing a wonderful job trying to isolate these particles and looking at background, and making sure she gets the signal from something incredibly small compared with the area that she's irradiating. So it's a lot of development.

Q. So you're working with beginning STEM students in something you said didn't require a lot of technical background in their field. But it seems like even though they're starting with this and working through the procedures themselves, they're doings some rather cutting-edge thinking on this. Do you see it that way? A. I sure think so. I hope so. Yes. I want them to experience the thought process that goes into science. We teachers use works like problem solving and critical thinking – that means different things to different people – those are nebulous words. But I want students to be able to approach a problem and be able to logically, and creatively (because those are not mutually exclusive – both are important) find a solution. And this is a great way for them to do it.

Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? Can you cite any instances?
A. Of the seven students involved in the project, six are still in STEM at UVU, and the seventh was called up for military service. He's coming back, he hopes, but leaving was rather involuntary. So in that respect, we had success in keeping students involved and continuing on in their STEM major. A side benefit of having younger students in the project is that having the more inexperienced students paired with the experienced students, there's a lot of peer-to-peer learning. And that kind of environment is an incredibly effective teaching tool, and it also results in the formation of a community where my students know each other really well. They have each other's phone numbers, they call each other, they plan things. I'm trying to form that community where, UVU not being a residential campus, it's hard for students to get that connection to UVU. And if we can't form a connection with UVU, we can at least form a connection with UVU students. I think this program has been an effective means of building that community and fostering peer-to-peer interaction, both as a teaching tool and as a retention tool.

A. And as I said, research has shown when you get STEM students into research as soon as possible it helps retain them in their programs. This is especially true for no-traditional students because it's difficult for them to visualize themselves in a technical field. The role models aren't there. Like, if you want to be a scientist, and they're all white males, where does that leave you? So it's important for students to be placed where they can immediately act as a scientist, act in that role. Q. I think it's also important for first-generation students. And I've never heard anyone talk about this before, but I think there should be a special category in STEM for first-generation STEM students, whose parents may not know the demands of a STEM field. A. Yes, and again, they need to be able to see themselves in that role and see it as attainable. I think that's one of the motivating factors.

Q. Am I right that this was conducted in the spring, summer and fall semesters. So did the students have to sign up to be with the project for the whole time? A. Yes. It was a considerable commitment on their part. One reason is that I wanted them to experience the different stages of the project – design (planning), sample collection, procedure development, sample preparation, data analysis. And this way, they're actually still with me going into the spring. They're presenting at a conference in the spring. So the same students who designed the project are able to carry it all the way thought to present their data an actual conference. Right now we are bridging between the procedures for acquiring data and the analysis of that data, so that in the spring they should have everything they need to present.

4. This type of grant to a university to disburse funds to meritorious student engagement projects is very unusual. How did this opportunity benefit you and your students? [relates to objective 1.1]

A. From a faculty perspective, without this grant, I would not have been able to attempt this project at all, because this is brand new research for the university and brand new research for me. So it was instrumental in getting the project going. From the student perspective, there are no research opportunities available for such inexperienced students in chemistry. So when I

approached general chemistry students and advertised this project, I was actually so overwhelmed with the number of students who wanted to work on it that I actually had to have them write up a paragraph on why they thought they'd be a good fit. Then I tried to take into account if they were underrepresented, if they had had experiences like this before, and what they want do to and if this would help them. This was actually extremely stressful. Because normally I don't have to pick. Students just want to work on a project and I can let them. So it was definitely filling a need. The students were so excited about it. And I think it's definitely changed the way students see their science. Normally it's not until upper division courses that students as something that's formulated. Now they actually get to see real science and they can apply the concepts they've learned, and that the question doesn't always have a nice answer, which is the fund part – dealing with that uncertainty. Not knowing if you're right or not, not knowing the right answer, is part of the stress and the fun of research. And it's good to get that experience. I will teach them what they want to do in science. If they really, really love it, the maybe research is something they can pursue after they graduate. If they don't love it, then that's great too, because they learn they shouldn't pursue research after they graduate. They've also learned some good skills that they could take into many occupations. I'm hoping it will also help them succeed in their courses, but it is the same skills that they could also apply to any of their classes too.

A. Also, our facilities have been build up, so we have nice microscopes so we can look at our samples. Q. Were they funded by this grant? A. Yes. This allows us to continue this project, to continue to get early students involved on this and look at different aspects of this pollution. The GREEN grant ($28,000) was enough that I was able to invest in equipment.

5. What did you learn about planning and conducting student engagement activities over the course of this project that you will carry into the future?

A. I learned that if you let students direct their research, the benefit to them is immense. The cost is on the project timeline. You have to let students explore and struggle a bit with problems and that will make things go more slowly than if I just said, "I'll do it." Then they don't learn anything. So I learned to patient. I also didn't know at UVU whether paying students or having them take research for credit would work for different students. I did a combined model for this grant. They took research for credit during the school year, but over the summer, they received an hourly salary. The salary was really important, especially to non-traditional students. To do research with me, they had to give up work hours that they would normally use to pay for their college in the fall. Q. So that's another reason why grants like this are important, so you can pay those students? A. Right. We don't just have students looking for unpaid internships, they need the money to finance their education, if not their rent and food.

A. I also had a high school project participate in the project over the summer. She was an unpaid volunteer who just wanted to get the experience in research. She approached me and asked if there was anything going on that she could contribute to. She spent a week with us in the field. She put up samplers all around Utah Lake. Q. Would you do this again? A. Yes, I think I would like to bring a high school student or two into the summer project in the future.

6. Do your future student engagement plans require funding? If so, where will you seek funding?

Q. Do you have any ideas about where you'd like to go from here? A. I have so many ideas! I really want to extend this project. Because of this grant, it really allowed us to build up the competency, and my know-how so I can think about ways to extend this. But also, our facilities have been build up, so we have nice microscopes so we can look at our samples. We've just started collecting samples going up the Provo River – from Provo back into the Uintahs. We are trying to get an idea of microplastics entering the watershed. I want to do a snowpack survey at some point, because if there are microplastics in the snow in the Pyrenees, there's bound to be

microplastics in the high Unitahs. And I just talked with Eddy Cadet; we're going to collaborate more. We're going to look at the history of microplastics in Utah Valley. Where microplastics is almost just a buzzword right now, but back when I first thought of doing this, it wasn't so popular. But it's becoming more and more in the public domain and more visible. People are hearing more in the news and becoming more concerned about this. It's not, however, a new problem; we're just becoming more aware. And if you think about how long we've been using plastics – they're so useful – We've been using plastics at almost the same level since the 60s. So when did they start making it into the environment? Eddy and I are going to look at core samples of the lake. We're looking at a lot of different impurities, but the core samples give you a timeline. As you go deeper and deeper into the lake, you get older into the sediment. So we can look to see when (and where) microplastics started showing up. So for all of this, I need more students. And this will allow me to take those early students who are dying for research experiences and providing them with the chance to experience this.

Have you worked with the Office of Sponsored Programs to acquire external funding? Have you taken any training offered by OSP? [relates to Objective 1.5]

Q. Will you need more funding? A. I will. Especially, because I'd like to continue things over the summer as that's my most productive time, when I don't have the teaching load. I'll need funding for student support there, so I can make sure they can spend the time on the project. Q. So you're not looking for large amounts of money, but rather smaller amounts to cover students' salaries. And I suspect you are limited in the numbers of students you can work with? A. Yes, but now I have students in there who have two semesters and a summer with me, if I take some additional students next summer, it's not entirely on me to train them, because now I have experienced students who can help bring them up to speed as well. They will establish a peer-to-peer knowledge transfer.

Do you think your experience with the project has prepared you for successful external funding?

Didn't ask.

7. Do or will you have any publications, presentation, or conferences as a result of this project?

Q. We have just applied to present at the American Chemical Society Meeting in the spring. They have a special section on micro-plastics. The students are very excited to attend that. Then there's a big undergraduate poster session where they will be presenting their work with environmental chemistry with like-minded undergraduates. A. We are hoping to get a SAC grant for travel, and if, for some reason we can't do that, I'm hoping to get departmental funds. But I'm confident we'll get them there.

Interview #27: Dustin Shipp

Position: Assistant Professor, Physics
Type of Award: URSIG
Title: Raman hyperspectral imaging of biological cells and tissues

A. How many students involved? 8 primary; _____ secondary;
_____ courses; summer extra-curricular

B. How many faculty involved? 1

B. When did your project begin? conducted summer 2019
When did or will it end? _____

C. What grants had you received before this one? 3 internal; 1 external
Some of the students have also applied and received for URSIG grants for this research.

1. How did you use effective models or strategies for student engagement in planning and conducting your funded project? [relates to objective 1.1]

[Answered in other questions.]

2. Did you participate in any of the faculty training activities funded by the Title III program before (or after) you applied for this project? [SCULPT Learning Circles; SCULPT Mentoring Academy.] If so, which ones. To what extent were they useful in designing and conducting your project? [relates to objectives 1.2 & 1.3]

A. A year ago I did the SCULPT Learning Circle on incorporating research into classes. And then I did the Mentoring Academy in the spring. Q. I ask because these activities were funded by this grant. A. Really! Q. So the idea with this Title III grant was, in part, to strengthen faculty support for engaged learning. Were these activities useful to you. A. Yes. Especially the Mentoring Academy. Maybe because I'm thinking more in a research context right now. I'm getting a pretty large number of students in my research group. The Mentoring Academy helped me come up with ways to evaluate what kind of help I'm giving them and to structure communication for those students to make sure we're on the same page – that I'm giving them what they need and that we all have the same expectations about what's going to happen in the research and in our mentoring relationship.

3. How were students engaged in your project? What did the students do? How did they learn? What were the benefits to them? [relates to objective 1.1] (first question)

Q. Your report indicates that you and your students are working on improving upon the Raman spectroscopy instrumentation that was recently acquired by UVU. I understand that instead of buying a mass spectrometer, as others had been trying to do previously, you bought the components and assembled it here. Why did you choose to do that?

A. It's definitely less expensive to acquire the pieces and then put them together ourselves. And also, it will give us a lot more flexibility to really have the system to exactly what we want it to do and be able to adapt to multiple situations. And it's more fun for the students. A. So you had the "fun for the students" in mind when you did this? A. Yeah. Students don't learn very much if they just pull something out of the box and start pushing buttons. I was looking at pre-assembled versions, and they were on the order of $120-130K.

Q. I liked in your report the table that showed what each student was doing. So you have the students doing instrument alignment, and then you have the students doing programming. Do they come to you with programming skills already? A. Yes. Matt especially, I think he's still majoring in both computer science and physics. I know he's going on the get a Ph.D. in Computer science.

Q. So you had eight students working for you? A. Some of them ended up not being on the grant because, well, Bianca had a baby, and some of the students [3] were working for free, but I listed all of the students to show what was being done.

A. Can you go into more depth about that the students were doing and how they were learning through your project? A. Sure. So one thing I tried out this summer that I think was pretty successful was that we had a journal club where all of us working on the summer project would meet every other week. We took turns choosing Raman spectroscopy papers from the literature to read together. Maybe not work for word, but look at the highlights and discuss it – what worked and what didn't, what we could do better, what ideas we could borrow from them, things like that. This was really good to overcome that fear that a lot of students have of getting into the scientific papers, because they're kind of incomprehensible if you're not used to that. And also to just learn the basics of Raman spectroscopy that way. Q. So the students had to choose the articles – they had to look through several and choose the ones of most interest to the project? A. Yes. I did the first one to model what it would be like, and then we went on a rotation after that.

The big pushes we had were the instrumentation and the hardware – trying to get that finalized and take measurements. So there were a few students in the lab tweaking mirrors and running various tests on the system. And some students were working on the biological aspect, making sure that when the instrument ready, we would have something to measure. These students did things like growing cells and growing bacteria. Then there's the programming aspect that we talked about. Now Jess, instead of growing her own samples was making tissue phantoms (substitutes for tissue) out of agar (more or less Jell-O). As she makes this "tissue" she is controlling the optical properties of the Jell-O so that we can see how Raman spectroscopy behaves in different situations – for different types of tissue, say skin, breast, bone and things – and see how the environment will affect our measurements. Q. Is she changing the density? A. No, not the density. Like she's adding a few milliliters of skim milk to change how cloudy the tissue is. She's getting the recipe pretty well down so she can get a wide range of different types of tissue. So now what she's doing is putting plastic beads into those phantoms. The beads are pretending to be our tumor cells. And so we're seeing who far away from this bead can we be and still detect that it's there, and how do the scattering properties affect that proximity. A. Did Jess come up with different ways of approaching this problem? Well, the overall idea was mine, but a lot of the details on her own. I've never made tissue phantoms before, and I still haven't, because she's done all of the work on that. And just coming up with experiments to quantify these differences. She's come up with experiments to of how she would actually measure the scattering, and then refining those texts to get more precise.

Q. What kind of challenges have the students had to deal with? A. Well, we had a problem over the summer where we could acquire spectra, but not save them on the computer. We were literally taking screen shots. So one of my students, Lance, was applying for the Board of Trustees Grant and had to take screen shots to make his presentation. It worked well, but isn't a long-term solution. So now we've gotten to the point, thanks to Matt's programming, we can take spectra and save them. Q. Would the out-of-the-box equipment have had the capability to save? A. Yes, but this way is great for the students. I mean, instrument control is not one of the things that's taught. Even in the Computer Science program, I don't think there's a lot of talking about instrument control, because it's a very niche market. It doesn't show up in computer science courses. It's fundamental to physics, but it's kind of a foreign concept to computer science. Q. Do the big research schools like University of Utah teach this? A. Probably not. From my experience it's a skill you are expected to learn on your own because it will be so specific to every device you are using. But it makes me wonder if there is a way to generalize that with some very basic equipment to learn the basic skills on.

A. About how many hours a week were the students working in the summer? A. I think most of them were maxing out how many hours they were allowed to work, so 28 – 29. Matt had an exception because he had an NSF REU [Research Experiences for Undergraduates opportunity] at Boise State. Q. And then you continue to work with most of the same students during the year? Do they have classes with you or a 495 Research for credit or what? A. Some of them are getting credit. Some have URSIGs that they are getting right now. Most of them are involved in some way.

Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? Can you cite any instances?

A. Definitely yes. Really, it's that as a student in class, they are just receiving, but here they're giving something back – they're involved, they're necessary. So, that alone makes them more likely to keep coming to school, because other people are relying on them being there. And that doesn't even bring to mention the more physiological aspects that their realizing that what they are learning in class is applicable in real life and is really cool. That is motivation to keep them involved and engaged.

Q. How is this preparing them for their careers and future education? A. For most of these students, the next step is going to be graduate school. And what they're doing – working in the lab – is exactly what they're going to be doing in graduate school. And I think they'll be more likely to get into a good graduate school because the grad schools will be looking at their applications and saying, "Oh, of course, they're going to succeed in this environment – they already have."

Note: Dustin is on the Faculty Senate and working to support undergraduate research.

4. This type of grant to a university to disburse funds to meritorious student engagement projects is very unusual. How did this opportunity benefit you and your students? [relates to objective 1.1]

A. I think it's worked well. I like it. At research institutions, summers are always for research, so here, it was nice to have a mechanism to research project and support a good number of students on that. Q. Would it be difficult to find that kind of finding (relatively small amounts) through external grants? A. Yes, it would be very hard. In one year I'm not going to get the preliminary data I need to qualify for a grant. Even if right when I got to UVU [a year ago] and I submitted a grant then, the money probably wouldn't even be in by the summer. To have some funding for research in my first summer – I can't think of any other way that would have happened.

A. My students and I have really benefitted a lot. This was a great experience for all of us.

5. What did you learn about planning and conducting student engagement activities over the course of this project that you will carry into the future?

A. Every time a write a proposal and actually get to do it, I learn to manage expectations. I guess in a research project you're always going to say that you're going to do more than actually gets done, but that reality keeps on showing up over and over again.

A. And then, also, with the Journal Club idea, I was really hesitant to try it because I didn't know if the students would buy in. It's not directly related to what they're doing; they're not getting course credit for it; they may think there's really nothing in it for them. I was wondering if I would just be sitting there reading a paper by myself in an empty room. But it actually turned out really well. And I think because students saw the value of it. They knew what I was trying to do, and they saw that it was going to work. That increased my confidence in trying things like that in the future.

6. Do your future student engagement plans require funding? If so, where will you seek funding?

[Dustin is currently working with the Office of Sponsored Programs to submit a proposal to NIH (the National Institutes of Health) in the spring.]

A. I talked with a program officer ad NIH last week about the project. She said her institute did not fund what we are proposing, but that if we just adapted it a little bit, it would. And you could send your original project to another institute within NIH. So now I have two potential projects.

A. There's also another professor we just hired, Dallin Durfee. He and I have been talking about writing an NSF grant, but luckily, he would be the PI for that. He is not a new professor. We just

poached him from BYU. He has a technique that's pretty mature. They've shown a lot of results from that already, but I'm seeing a good opportunity to combine that with Raman spectroscopy to make the imaging happen even faster. And that's one of the biggest concerns in Raman spectroscopy is just the speed of imaging, which is usually a very slow technique. But combining these, I think there is a good opportunity for some really exciting results. It would require a lot of instrumentation and software development. One of my goals has been to hit a steady state, after we've built the instrument and can run it, now let's just measure a whole bunch of stuff. We're getting pretty close to being there. We just got some College of Science money for the lab space that Vern Hart and I share with Biology. This will fund our own resources and lab so we can do that on our own, independent of the Biology Department. That should close the loop and make our research happen a lot faster. What I'm finding successful is having a physics student paired with a biology student, and they work together on their project – some application of the Raman system. So one group is working on bacteria, another on differentiating different types of cancer cells, one group on doing things to the cells and watching those changes happen over time, etc. I've been talking to other faculty too about other things we can measure on the system. I think that now we have an instrument that's working, the goal is to see all the different ways we can use it.

Have you worked with the Office of Sponsored Programs to acquire external funding? Have you taken any training offered by OSP? [relates to Objective 1.5]

[Dustin participated in the OSP Faculty Summer Grant Writing Workshop this past July.]

Do you think your experience with the project has prepared you for successful external funding?

Q. One of the ideas behind this Title III grant was that if the faculty at the university started with smaller grants at UVU, it would help them as a stepping stone to other grants. A. Yes, I think that's working pretty well. Q. So did this help set up the grant that you are now applying to for NIH [National Institutes of Health]? Yes, in some ways. We are getting to the point now where we will be getting some preliminary data that will be useful in writing either of the two grants, depending upon which direction we want to take it. Q. Was the alignment of the instrument and the coding necessary before you could collect this data? A. Oh yes, we couldn't do anything until the system is completely aligned. We've gotten to the point now where we can get some data, but we're not getting the type of data we want until we get a little bit more coding done.

7. Do or will you have any publications, presentation, or conferences as a result of this project?

A. Jess actually presented a poster on the phantoms she's been making at the UVU Showcase, which was last week. But the next chance we'll get a chance to present is that both Lance and Jess will be presenting at an international conference in San Francisco in February. There's a lot of work to be done before that.

Interview#28: Matt Hasara & Lucas Smith (student)
Position: Assistant Professor – Transportation Technologies
Type of Award: URSIG
Title: UVU Endurance Race Team tire and brake research

A. How many students involved? 12 → 10 primary; _____ secondary;
_____ courses; √ extra-curricular

B. How many faculty involved? Matt and an advisor

B. When did your project begin? conducted summer 2019
When did or will it end? completed

C. What grants had you received before this one? had two HIELG grants previously

1. How did you use effective models or strategies for student engagement in planning and conducting your funded project? [relates to objective 1.1]

Matt works with revolving teams of students for each project or year. He tries to have serious engagement experiences for the students. He selects two (or three) student leaders who each have 5 to 6 students under them. Each team is responsible for a section of the car. They get together, and on a chalk board they list all the things that need to be done, and then divide up the tasks and assign them to the groups. The student leaders are responsible to work with their team members to see that they know their assigned tasks and are doing them the right way. Matt keeps an eye on things to see that the groups are going well and that the work is being done correctly. It's not a very complicated structure, but it works well.

Also, Matt has a mentor in Todd Low of the same program. His student teams build and race cars on the Bonneville Salt Flats. This has really accelerated his learning how to carry out student-engaged projects.

2. Did you participate in any of the faculty training activities funded by the Title III program before (or after) you applied for this project? [SCULPT Learning Circles; SCULPT Mentoring Academy.] If so, which ones. To what extent were they useful in designing and conducting your project? [relates to objectives 1.2 & 1.3]

A. Matt – Yes, I've done a lot with OTL (the Office of Teaching and Learning). They all know me by name. I did the online class, I do Learning Circles, and I'm now working on my HEA (Higher Education Academy) senior fellowship.

3. How were students engaged in your project? What did the students do? How did they learn? What were the benefits to them? [relates to objective 1.1] (first question)

A. Lucas – For our project, we are doing tire and break research. The quickest way we found to do that is through endurance racing because of how much harder you push the car than you would on the street, so it accelerates the wear much quicker. So you can get results in a shorter period of time. We decided to do this project because we love racing, and you go through a lot of tires when you race. In a day, you might go through 2 sets. Tires are expensive, so having the research to know what the best tires are, and like if you can spend a little less and still get the same performance. Everyone that's racing is looking for that same thing, so we can share that information with them. What interested me in it is that it's a 24-hour endurance team. We took a Miata and stripped it all down to what the specs were for the races. We're doing research on tires and breaks to figure out

which ones are the best to use for a 24-hour race next year. So, I've always loved cars and I'm interested in race cars and doing special modifications to them, so this was a start to that.

Working with us students on this project is awesome because we're all in kind of the same group – we're all kind of newer. Some of us are a little more experienced, but were all in the same group. It's nice to be with peers. It's not like you're with 50-year-old guys who know everything and they're just telling you what to do. Matt just guides and makes sure that we're doing things correctly. It's also a lot of fun. I'd like to run a shop, so I think this will help prepare me. This is working on a car, and there's a deadline we have to hit. There's a budget – you only have so much money to race with. These are all things that apply to running a shop.

A. Matt – These students are more passionate about cars than maybe some other students, which means they are more driven to be successful. They want to be in a team environment so we can run this race car and have a lot of fun.

A. Lucas – Working with your peers is really a lot of fun. It's nice that there are some first-year students and there are some 4- or 5-year students as well. I think it's really good to mix.

Q. (To Lucas) What did you do as a team leader? How did you work with students? A. Lucas – I met with the team and made sure each person knew what his job was and how to do it. If they didn't know something I helped them learn how. If we had a problem, we took it to Matt. Q. Do you think the students on your team did good work? A. Lucas – Yes, they really went above and beyond what they had been capable of. They didn't want to let the other team members down, so they worked hard.

Video. Narrator: You get to the track, it's cool, you're setting up your kits, the sun's coming up, it's a beautiful morning. . . . All the cars fire up, and then they Go. As soon as they all start, it's just like that – they leave. It's like, all of this work, and then relief – "Hey, look, it's going." But then you're still going, because if the driver relays information and you have like a minute to figure out what we're going to do. Then he comes and pits and we fix it and get him back out. And right when you finish, when the car runs that whole endurance race, that's awesome.

Narrator – Doing the research on this car adds another layer of depth to the program because now that we are actually running and testing the car, we can research different things.

Q. So you're not just running one race, but you're running several races? A. Matt – if you broke it down, we ran 4 individual races through the summer. The first two races were on Memorial Day weekend, and the last two races were at the end of July. Q. So you're testing breaks and tires for a single race, not changing them out during the race? A. Matt – Right, one of the races. So we would take one set, because when you're racing like this, you have to pit for fuel about every 1 hr 47 mins. (That's another problem we're trying to solve with our current research – we're trying to get our car to 2 hours.) So the second the car would pit, all of these guys, over wall with all of their test equipment. They would rotate around the car and do all the testing on the tires. Q. On the breaks too? A. Matt – Not the breaks during the pit stops – the breaks are tested after the 8 hour run. Our main test was the tires, but we thought, while we are doing tires, we could do breaks too. Then, that night, when the race was through, we'd tear it all off and do our measurements, and run the next day with a brand new set.

[The video hangs and we can't get it started.] Matt – The video shows in the end when we actually won the race, which is very rewarding. It shows the cockpit camera, because the race lead put a camera in our cockpit. I don't know if they had an inkling that we were going to do well. The race series puts a camera in three or four of the cars. Then you could watch the whole race on YouTube, and they would use our camera as part of that. So we have two or three hours of actual in-car footage from a camera mounted in our car. Then they show these races live through their YouTube channel.

Q. Who drives the car? A. Lucas – only Matt and a friend of his drive the car. A. Matt – UVU policy doesn't allow the students to drive the cars because of the liability, but it does allow the instructors and the advisors to drive the car.

Q. How did you get the car. A. Matt – We had two HIELG grants before this – that's what built the car. The groups of students rotate through, because our program is only two years. So the guys who built the car four years ago are long gone. But new guys come in, like what just happened, which surprised us, and they saw what we're doing – "You're building race cars and running them? Can I be part of the team?" So every year, we lose the students who are graduating and new students come into the program.

Do you think the project assisted with institutional aims of improving retention and completion? Of better preparing students for careers and/or continued studies? Can you cite any instances?

"Yes, undoubtedly!" Matt says they have a lot of students come and go from their two-year program without obtaining a degree. The race team guys complete at twice the rate of other students. Having students engaged with a project they really love and are interested in keeps them going in the program and teaches them a lot that will be useful in their careers. Many students are really interested in racing, so building and racing cars gets them excited. Students ask if they can be on the team. They are admitted to the Transportation Technologies program, and then they see that we are building race cars and racing them, and they say: "I want to be a part of this!"

Lucas says he has a passion for racing. Being involved in this program pushes him to go further, to reach a whole different level. To do this successfully, you need to learn above and beyond the normal classes. The teamwork is also critical and fun. Others are invested too, so there is an energy in the project.

4. This type of grant to a university to disburse funds to meritorious student engagement projects is very unusual. How did this opportunity benefit you and your students? [relates to objective 1.1]

In his three projects, well over 100 students participated in serious engaged learning. There was a HUGE impact for a very small financial investment.

5. What did you learn about planning and conducting student engagement activities over the course of this project that you will carry into the future?

Matt says: "You need a committed faculty member to do engaged learning successfully. It requires serious oversight." He observed another student engagement project in the department last year. Students were each given a task and then let go without supervision. There were a lot of problems with students not doing the work, not doing it correctly, having friction with other team members, etc. The project went on for a year and nothing was accomplished. The students didn't learn much. He will carry on the strong organizational structure that allows students to learn with supervision and become more and more independent.

6. Do your future student engagement plans require funding? If so, where will you seek funding?

Yes. Since they won the Champcar Endurance Series, they have been invited to enter the Laguna Seca race in Monterey in December, even they are a student team. This is a really big thing. They are trying to raise funds for the car, travel, and lodging. The $22,000 entrance fee will be waived because they are a student team. But the problems in going are not just financial. They also need to obtain permission from the dean and department chair.

Have you worked with the Office of Sponsored Programs to acquire external funding? Have you taken any training offered by OSP? [relates to Objective 1.5]

A. Matt – Not yet.

Do you think your experience with the project has prepared you for successful external funding?

A. Matt – Yes. We know we can do a project on time and within budget.

7. Do or will you have any publications, presentation, or conferences as a result of this project?

A. Matt – Yes. Two of the students will use this research to apply to NCUR. Lucas Smith will use the tire research and TJ Larsen will use the brake data to apply to the NCUR conference. These two students can also be seen on the final report video supplied with this report. We will also share our findings with both the Lucky Dog Racing Series and the Champcar Endurance Series so that the teams that race with them can benefit from our information. For instance, we found that you don't need to spend hundreds of dollars on brakes pads in order to obtain performance. Our findings on the tires are described in the final report.

Appendix D: Assessment Tool Dashboards

Repository of Engaged Learning Activities

Courses Summary

3563	3000	563	422	85	2493
Courses	Active Courses	Deep Freeze Courses	One HIP- Active courses	More than One HIP- Active courses	No HIPS- Active courses

HIPs by Category

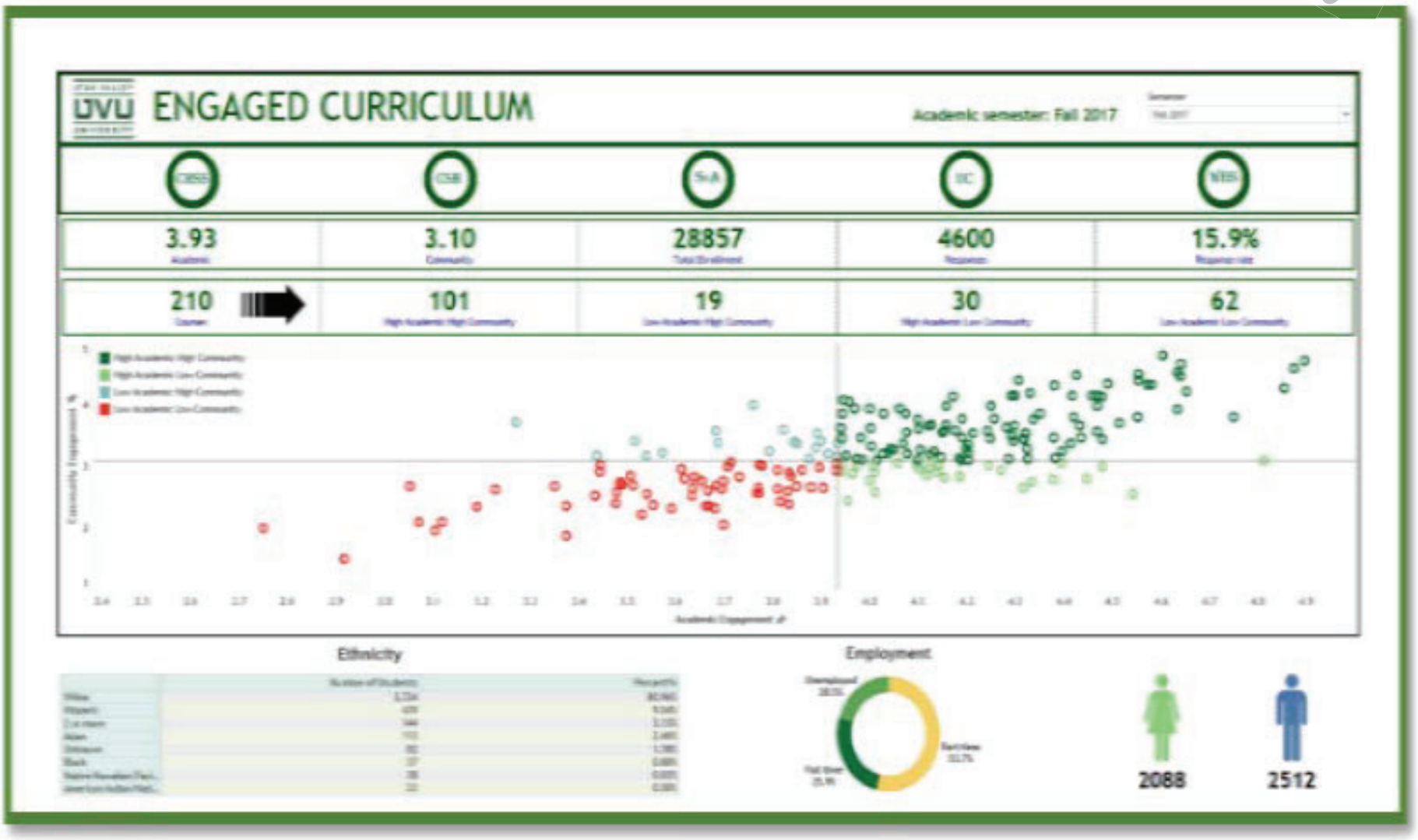
61	36	117	35	104	41	25	22	120	58	3
Study Abroad	Writing intensive	Global Intercultural	Capstone	Internship	Undergraduate Research	Common Intellctual Experience	Learning Community	Service Learning	Collaborative	First year

HIPs By College

College	Study Abroad	Writing intensive	Global Intercult..	Capstone	Internship	Undergraduate ..	Common Intellct..	Learning Comm..	Service Learning	Collaborative	First year
COLLEGE OF HEALTH AND PUBLIC SERVICE	2	25	23	6	16	6	23	20	15	22	0
COLLEGE OF HUMANITIES AND SOCIAL SCIENCES	38	2	69	4	23	18	0	0	33	1	0
COLLEGE OF SCIENCE	2	0	3	4	14	13	0	0	20	0	0
COLLEGE OF TECHNOLOGY AND COMPUTING	0	4	7	11	25	3	2	2	11	26	0
OTHER ACADEMIC PROGRAMS	2	0	0	0	0	0	0	0	0	0	0
SCHOOL OF EDUCATION	0	0	3	2	4	0	0	0	10	0	0
SCHOOL OF THE ARTS	13	5	3	3	7	0	0	0	1	9	0
UNIVERSITY COLLEGE	0	0	2	1	2	1	0	0	4	0	3
WOODBURY SCHOOL OF BUSINESS	4	0	7	4	13	0	0	0	26	0	0
Grand Total	61	36	117	35	104	41	25	22	120	58	3

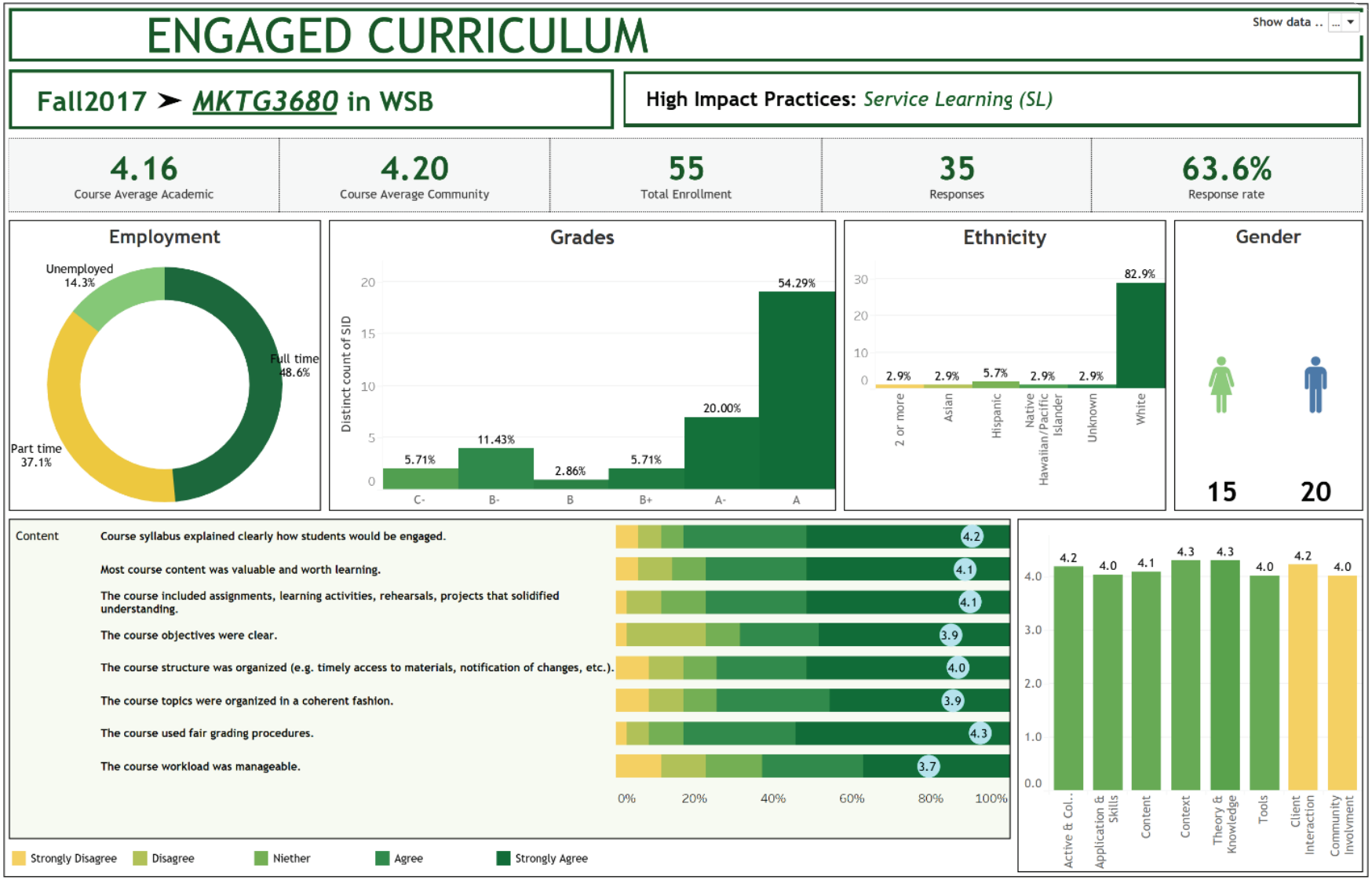
Sheet 1 | Sheet 2 | Active courses | Deep_freeze courses | HIPS-cat1 | HIPS-summary | HIPS-summary (2) | Active.courses | Hips.by.college | Dashboard 1 | Sheet 9 | Sheet 10

In-Class Engagement Dashboard, College-Level

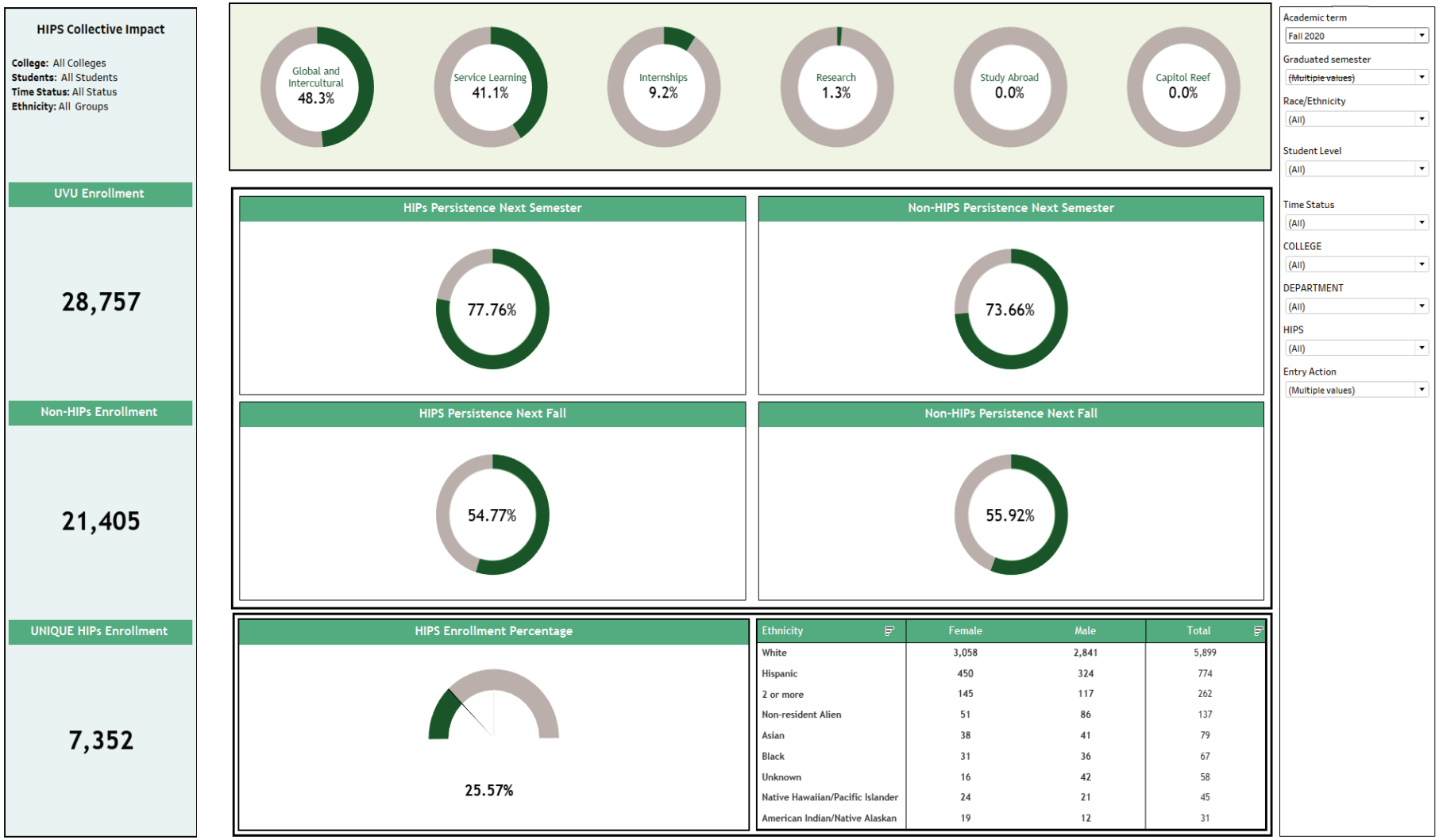


High Academic, High Community; High Academic, Low Community; Low Academic, High Community; Low Academic, Low Community

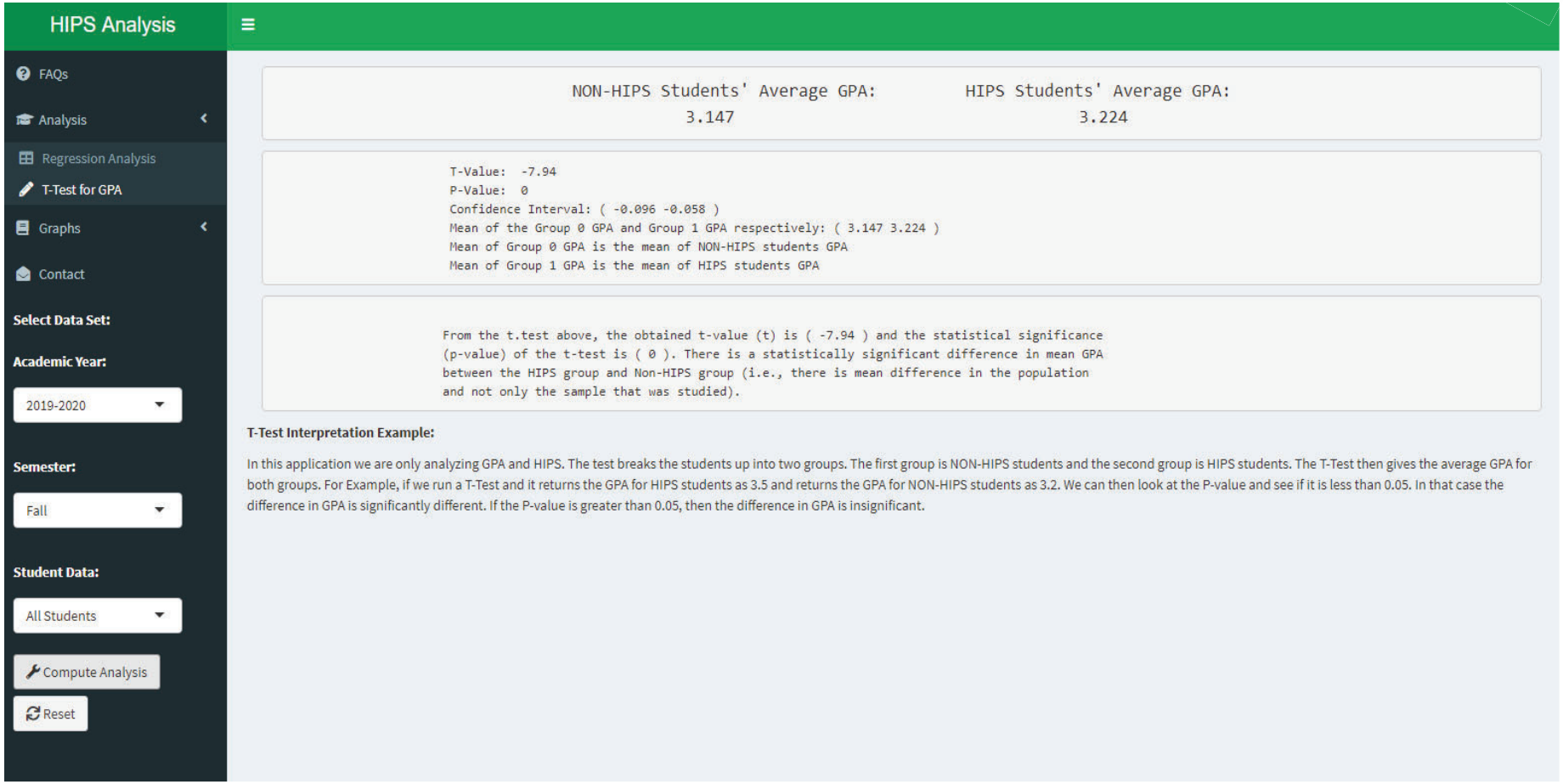
In-Class Engagement Dashboard, Course-Level



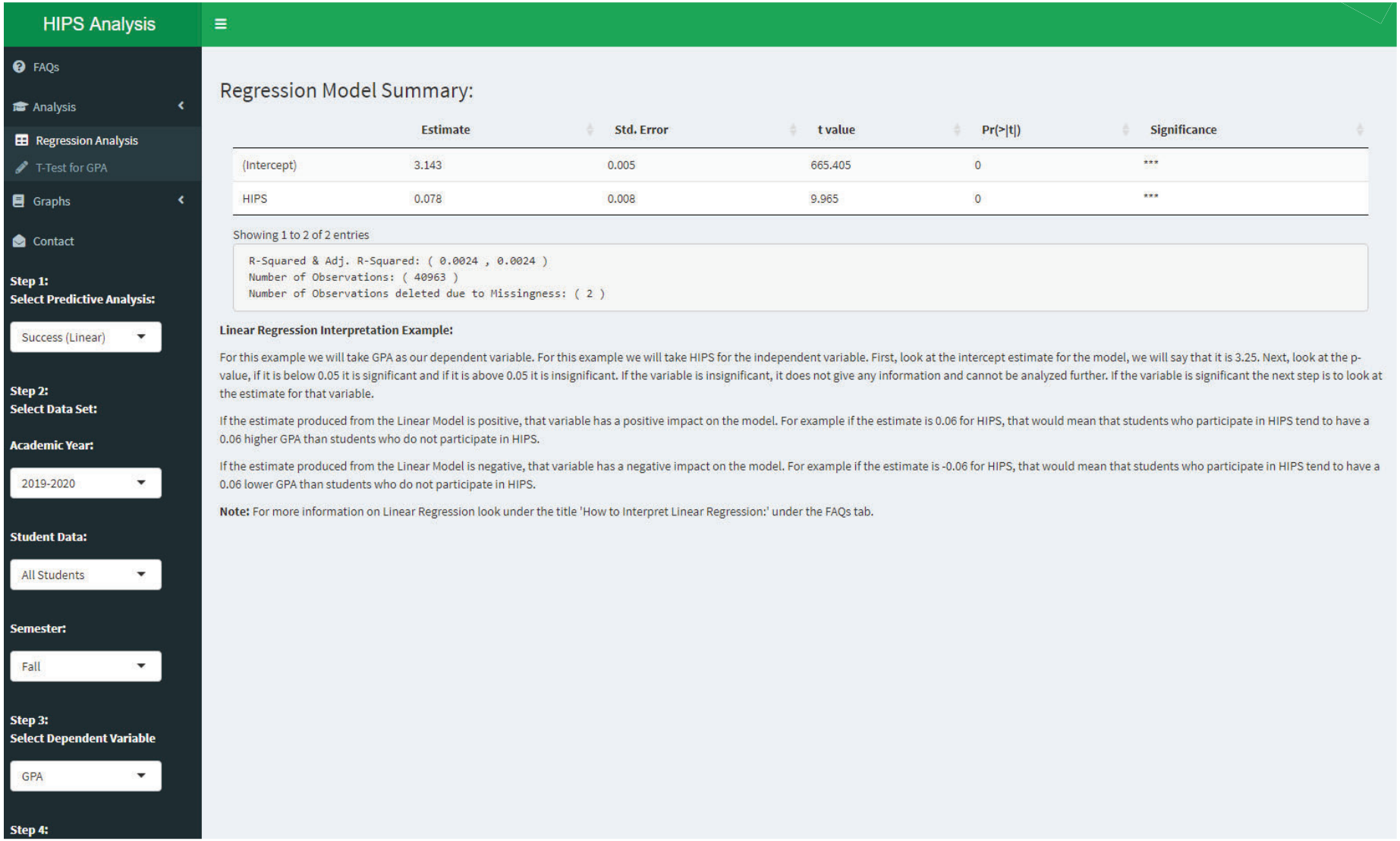
Collective Impact of HIPs Dashboard



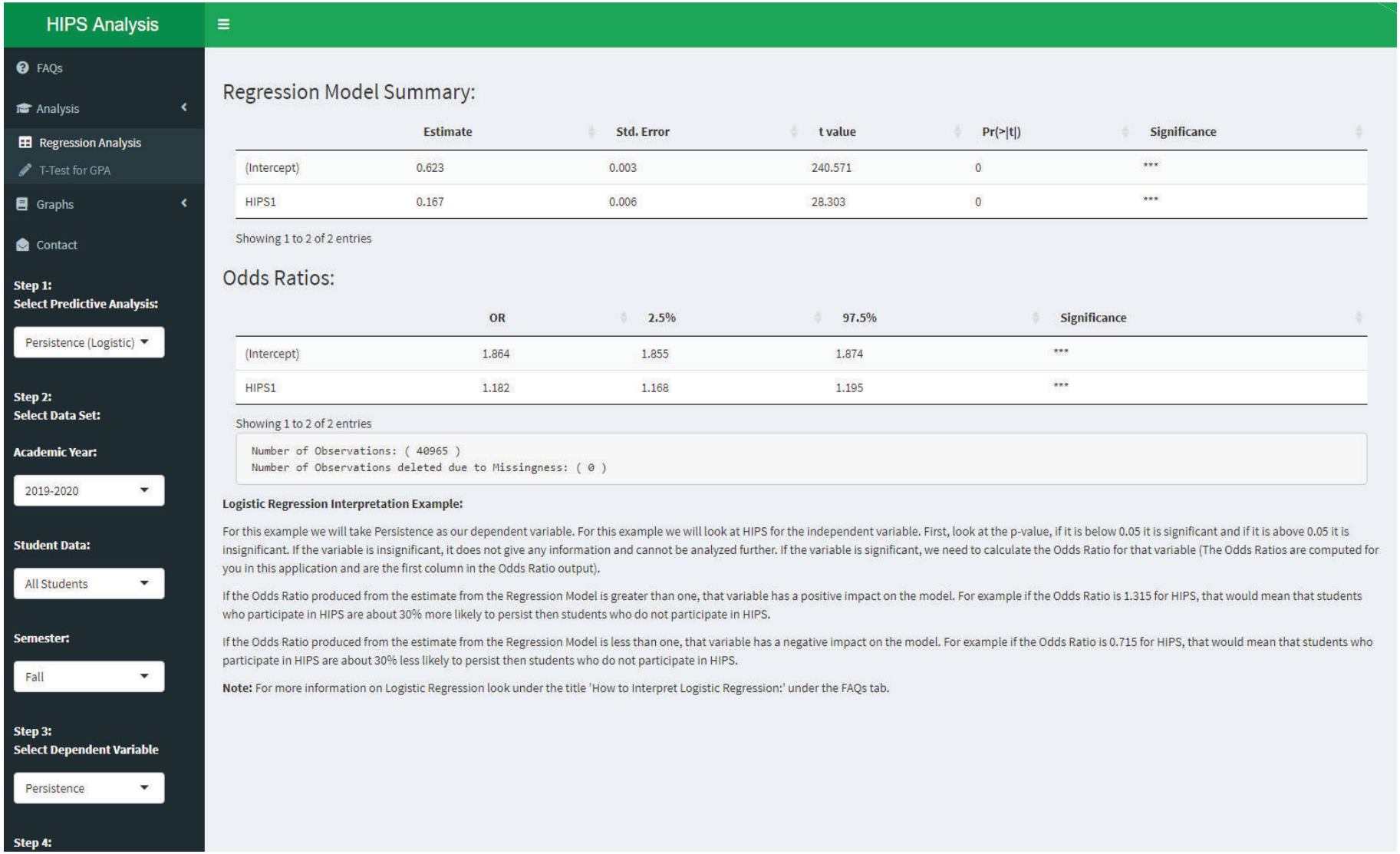
Collective Impact of HIPs Tool, GPA Groups Test



Collective Impact of HIPs Tool, GPA Prediction



Collective Impact of HIPs Tool, Persistence Prediction



Regression Model Summary:

	Estimate	Std. Error	t value	Pr(>|t|)	Significance
(Intercept)	0.623	0.003	240.571	0	***
HIPS1	0.167	0.006	28.303	0	***

Showing 1 to 2 of 2 entries

Odds Ratios:

	OR	2.5%	97.5%	Significance
(Intercept)	1.864	1.855	1.874	***
HIPS1	1.182	1.168	1.195	***

Showing 1 to 2 of 2 entries

```
Number of Observations: ( 40965 )
Number of Observations deleted due to Missingness: ( 0 )
```

Logistic Regression Interpretation Example:

For this example we will take Persistence as our dependent variable. For this example we will look at HIPS for the independent variable. First, look at the p-value, if it is below 0.05 it is significant and if it is above 0.05 it is insignificant. If the variable is insignificant, it does not give any information and cannot be analyzed further. If the variable is significant, we need to calculate the Odds Ratio for that variable (The Odds Ratios are computed for you in this application and are the first column in the Odds Ratio output).

If the Odds Ratio produced from the estimate from the Regression Model is greater than one, that variable has a positive impact on the model. For example if the Odds Ratio is 1.315 for HIPS, that would mean that students who participate in HIPS are about 30% more likely to persist then students who do not participate in HIPS.

If the Odds Ratio produced from the estimate from the Regression Model is less than one, that variable has a negative impact on the model. For example if the Odds Ratio is 0.715 for HIPS, that would mean that students who participate in HIPS are about 30% less likely to persist then students who do not participate in HIPS.

Note: For more information on Logistic Regression look under the title 'How to Interpret Logistic Regression:' under the FAQs tab.

APPENDIX E: PUBLICATIONS & PRESENTATIONS RESULTING FROM PROJECT

► **Title III Project, HIP Assessment**

Qudisat, Rasha and White, Frederick H. (2022). "Measurement and Evaluation of HIPs within a Centralized Model" in *Delivering on the Promise of High-Impact Practices: Research and Models for Achieving Equity, Fidelity, Impact, and Scale,* Editors: John Zilvinskis, Jillian Kinzie, Jerry Daday, Ken O'Donnell, and Carleen Vande Zande AAC&U (June 2022). https://styluspub.presswarehouse.com/browse/book/9781642673616/Delivering-on-the-Promise-of-High-Impact-Practices

Alsarhan, Ala'a and Qudisat, Rasha (2019). "Course Engagement: Beyond HIPs." High Impact Practices in the States Conference. February 20-22, 2019, Western Kentucky University, Bowling Green, Kentucky.

► **Title III Project, SCULPT (Scholarly and Creative Undergraduate Learning Partnership Team)**

Kopp, Olga (Panelist), Arendt, Anne (Panelist), Sotomayor, Maritza (Panelist), Workshop UVU Faculty Convocation - 2016, "Boosting Student Learning and Retention through SCULPT," UVU Office of Academic Affairs, UVU Orem (August 17, 2016).

► **Allen, Jordan – Twins in Higher Education: An Examination of Twins' Social and Academic Achievement at UVU:**

Turner, A., Allen, J., & Allen, N. (2021). "Soul-Sibling" and Soulmates: Communicative Negotiation of Romantic Relationships by Twins." Presented at the National Communication Association Annual Convention, November, 2021.

Allen, N., Allen. J., & Munz, S. (In Press). "Inheriting Scientific Racism through a Convenient Jingle: Nature versus Nurture as a Scientific-Political Topos." *History of Rhetoric*.

Allen, J. and Allen, N (2021). "Family Communication Scholars Chat about Research Methodology," Invited research presentations at the University of Tennessee - Knoxville - 10/4/2021; https://volumes.lib.utk.edu/features/family-communication/

► **Andrade, Maurine – Team ePortfolios: A High Impact Practice:**

Andrade, M. S., & Ziegner, S. (2021). Team ePortfolios in management education: Insights into students' skill development. *e-Journal of Business Education & Scholarship of Teaching, 15*(1), 40–54. https://files.eric.ed.gov/fulltext/EJ1299989.pdf

Andrade, M. S., Kakegawa, Y., & Johnson, J. (2020). The use of peer review in student teams - An impetus for improved performance? *Journal of Higher Education Theory and Practice*, *20*(14), 32–48. https://doi.org/10.33423/jhetp.v20i14

Andrade, M. S. (2019). ePortfolios and online learning: Applying concepts of organizational behavior. *International Journal of E-Learning and Distance Education, 34*(1),1–15. http://www.ijede.ca/index.php/jde/article/view/1096/1724

Andrade, M. S. (2022, February 3). *Engaging students with team ePortfolios.* UVU Thrive Conference. [Conference presentation]. Orem, UT

Andrade, M. S. (2022, January 5–9). *Team ePortfolios - Developing employer-valued skills*. International Academic Forum (IAFOR). [Conference presentation]. Honolulu, HI.

Andrade, M. S. (2021, October 20-22). *Team ePortfolios in business education: High impact practices and 21st century skills*. [Conference presentation]. Institute for Global Business Research, Las Vegas, NV.

Andrade, M. S. (2021, August 31-September 3). *Team ePortfolios in management education: Developing 21st century skills*. [Conference presentation]. British Academy of Management 2021 Conference.

Andrade, M. S. (2021, June 7-11). *Team ePortfolios in online business courses: Developing transversal skills*. [Conference presentation]. Association for the Assessment of Learning in Higher Education (AALHE) 11th Annual Conference.

► **Bi, Qianwen Rachel and Jinpeng Tang – How Blockchain and AI Affect Financial Software**

Qianwen Bi, Jingpeng Tang, Brad Van Fleet, Jason Nelson, Andrew Ossola, Ian Beal, Candra Ray, Software Architecture for Deep Learning and Personal Financial Planning, Intermountain Engineering, Technology, and Computing Conference (i-ETC), Orem, Utah, May, 2020.

Jingpeng Tang, Qianwen Bi, Bradley Van Fleet, Jason Nelson, Carter Davis, and Joe Jacobson, Software Architecture Integrating Blockchain and Artificial Intelligence for Medical Data Aggregation, Int'l Conf on Health Informatics & Medical Systems (HIMS 2019) July 29 - August 1, 2019, Las Vegas, USA.

Jingpeng Tang and Qianwen Bi, *Software Architecture Integrating Blockchain and Artificial Intelligence for Medical Data Aggregation,* The 5th International Conference on Health Informatics and Medical Systems, 2019 World Congress in Computer Science, Computer Engineering, & Applied Computing (CSCE).

Jingpeng Tang and Qianwen Bi, *Apply AI and Blockchain in Personal Financial Planning,* UVU WSB Research Seminar, 2018.

Jingpeng Tang and Qianwen Bi, *Engaging Students in Undergraduate Research and National Competition,* 3rd International Teaching Forum, 2018.

► **Blevins, Maria – Identifying Sexual Harassment in Organizations: Outdoor Guiding Community**

Spielhagen, A., Hernández, L. H., & Blevins, M. (2021). "My dude, are you tired? I'm tired:" An Intersectional Methodological Intervention. *Frontiers in Communication*, *6*, 722465. https://doi.org/10.3389/fcomm.2021.722465

Blevins, M., & Leslie, K. (2020) Unprofessionally professional: The consequences of no organizational expectations of professionalism. Submitted as competitively selected paper presented at Western States Communication Association annual convention, Denver, CO.

Blevins, M. (2019) Advocating for more approaches to identifying sexual harassment in organizations: Strategies individuals in the outdoor guiding community employ in an organization where harassment is the norm Competitively selected paper presented at Western States Communication Association annual convention, Seattle, WA.

Blevins, M. (2018) Negotiating gender in the whitewater rafting industry. Competitively selected paper at the Intermountain Gender Conference, Pocatello, ID

Radio Interview: January 10, 2021. Stopping sexual violence in the outdoor recreation and tourism industry. *KZMU*. https://soundcloud.com/user-921179167/this-week-in-moab-stopping-sexual-violence-in-the-outdoor-rec-tourism-industry

Book in Progress: Blevins, All forward: Sexual harassment in the whitewater rafting industry.

Also, 2 competitively selected panels, 5 invited presentations at non-academic conferences, and 2 podcasts.

► **Bordelon, Amanda, Susan Thackeray, Sean Tolman, Jane Loftus – Refocused Engaged Design for Discipline-Specific Introduction to Engineering**

Bordelon, Amanda C, Susan L Thackeray, Sean S Tolman, Jane M Loftus. "Venturing into Discipline-Specific Activities for Different Sections of the Same Introductory Engineering Design Course," *ASEE Annual Conference and Exposition*, June **2020**, 1530.

► **Chapman, Jared – Project Delphinium, a Unique and Exciting Approach to Student Engagement**

Barrus, A., Chapman, J., Bodily, R., Rich, R., (In Print) Using Educational Technologies to Scaffold High School and College Students' Skill & Will to Learn to Learn Better, in *Educational Technologies: Challenges, Applications and Learning Outcomes*. (book chapter)

Chapman, J., Andrade, M. (In Submission) Improving Part-time Instructors' Academic Outcomes With an Educational Engagement Information System (EEIS).

Chapman, J., Kohler, T., Gedeborg, S. (In Submission) So, Why DO Students Perform Better in Gamified Courses? Understanding Motivational Styles in Educational Gamification.

Chapman, J., Kohler, T., Rich, P., Trego, A. (In Submission) Why Does Educational Gamification Work? It May Not Be What You Think. An Experimental Assessment of Self-Determination and Flow Theory in Gamification.

Chapman, J., Rich, P., (2018) Does educational gamification improve students' motivation? If so, which game elements work best?. Journal of Education for Business, Volume 93, 2018 - Issue 7.

Chapman, J., Rich, P. (2015). In John Humphreys (Ed.), *The Design, Development, and Evaluation of a Gamification Platform for Business Education*. Academy of Management, Proceedings of the Seventy-fifth Annual Meeting of the Academy of Management.

Software Developed: Chapman, J. (2015-Present). *Project Delphinium - A flexible educational gamification framework.*

Chapman, J. (2013). *Gamification Platform for Canvas*. Also, 29 presentations.

► **Goldfarb, Nathan – Tuberculosis Drug Discovery: Optimization of Potent Hip1 Inhibitors by Structure-Based Drug Design**

Provisional patent: "Composition and Method for Hip1 Targeting Inhibitor Compounds"

Talk a Utah State University: "Tuberculosis Drug Discovery, Hip1 and Anhydrohip1: A Tale of Two Structures."

Pena, Karla (poster presentation) Expression, Purification, and Cocrystallization of Hip1 with NS-049-2, a Lead Compound for the Treatment of Tuberculosis, at Utah Conference on Undergraduate Research (UCUR) (Dixie State University).

► **Hart, Vern – Establishment of an On-Campus Artificial Intelligence Lab for Inter-Departmental Cooperative Data Science**

"*Machine learning-based auto-segmentation of polystyrene microbead phantoms for cellular confluence measurements,*" A Johnson, M Parr, D Reeves, T Hoyt, C Rawson, and V Hart. Utah Conference on Undergraduate Research. Feb 2020, Logan, UT..

"*A Deep Learning Approach to Early Cancer Detection using Near-Infrared Laser Scattering Profiles,*" M Acree, C Berneau, P Densley, G Jensen, and V Hart. National Meeting of the American Physical Society (APS), March 2019, Boston, MA..

"*A Deep Learning Approach to Early Cancer Detection Using Near-Infrared Laser Scattering Profiles,*" M Acree, C Berneau, P Densley, and V Hart. National Conference on Undergraduate Research (NCUR), Kennesaw State University, Apr. 2019, Atlanta, GA..

"*A Deep Learning Approach to Early Cancer Detection using Near-Infrared Laser Scattering Profiles,*" M Acree, C Berneau, P Densley, and V Hart. Utah Conference on Undergraduate Research (UCUR), Weber State University, March 2018, Ogden, UT..

"*Mixed Cell Culture Phantoms for Cancer Differentiation Studies (Poster),*" P Densley, C Berneau, A Johnson, D Erickson, and V Hart. Annual Meeting of the Utah Academy of Sciences (UAS), Weber State University, March 2018, Ogden, UT..

"*Green Fluorescent Protein Transfection for Improved Auto-Segmentation of Co-Cultured Cell Lines,*" T Hoyt and V Hart. Utah Conference on Undergraduate Research. Feb 2021, Provo, UT.

"*Digital Holographic Microscopy for Instance Segmentation in Adherent Cell Cultures,*" R Russell, T Daynes, J Wilde, M Phillips, E Evans, T Hoyt, J Tait, J Aubrey, H Welch, C Winward, S Rasmussen, B Jolley, S Gummadi, M Barton, C Rawson, and V Hart. Utah Conference on Undergraduate Research (UCUR), Feb 2022, St. George UT.

► **Hasara, Matt – High Performance Tire & Break Wear under Extreme Endurance Racing Conditions**

UVU Race Team Research Project, available at http://www.kaltura.com/tiny/4ryyv .

► **Hill, Jessie, Claudia Lieberwirth (Jorgensen), Matt Horn, and Heather Wilson-Ashworth – Process Oriented Guided Inquiry Learning (POGIL) as a High Impact Engaged Learning Practice**

Jorgensen, Claudia (Presenter & Author), Hill, Jessica C (Presenter & Author), Horn, Matt (Author Only), Wilson-Ashworth, Heather (Author Only), 4th Annual Teaching For Learning Conference (T4L), "Efficacy of Process-Oriented Guided Inquiry Learning in psychology", Provo, UT. (March, 2020)

Hill, J. C., Lieberwirth, C., Horn, M., & Wilson-Ashworth, H. (2017, March). *Students POGIL their way to retention and completion*. Paper presented at the Annual Teaching for Learning (T4L) Conference, Utah Valley University, Orem, UT.

Hill, J. C., Lieberwirth, C., Horn, M., & Wilson-Ashworth, H. (2017, March). *Increasing student success: The POGIL way*. Interactive session presented at the Annual Teaching for Learning (T4L) Conference, Utah Valley University, Orem, UT.

► **Huo, Yang – Bankruptcy Prediction Model in the U.S. Restaurant Firms,** and **A High Impact Engaged Demand Survey: Application of Data Mining in Student Retention Strategy**

Yang Huo, (2022) "Bankruptcy Prediction Model in the U.S. Restaurant Firms," International Academy of Business & Public Administration Disciplines (IABPAD), Orlando, FL, January 2 – 6, 2022.

Huo, Yang , Milbourn, Angie (Author Only), Maeng, Jiyeon (Author Only), WAM (Western Academy of Management) 2021 Virtual Conference, "A High Impact Engaged Demand Survey_ Application of Data Mining in Student Retention Strategy Using Decision Tree Module", Western Academy of Management, Virtual (Hawaii). (April 24, 2021)

Wilde, Zachary, Kim, Doohyun, (2021), "Bankruptcy Prediction Model in the U.S. Restaurant Firms," UCUR & NCUR Virtual Conference, 2021. Student presentation.

Milbourn, A. (Author Only), Maeng, J. (Author Only), 2021 UCUR & NCUR Virtual Conference, "A High Impact Engaged Demand Survey: Application of Data Mining in Student Retention Strategy Using Decision Tree Module." Student presentation.

Huo, Yang, Rachel Anna Messenger, and Doug Miller (2022), "Students' perspectives on why they drop out and possible retention strategies," Higher Education, Skilled and Work-Based Learning, Emerald Publishing, 8 February 2022 https://www.emerald.com/insight/search?q=yang+huo&showAll=true https://doi.org/10.1108/HESWBL-10-2021-0189

Working Paper: "Bankruptcy Prediction Model in the U.S. Restaurant Firms." Submission to a journal in June 2022

► **Ilikchyan, Armen & Elena Laricheva – Integrating Virtual Reality into Traditional STEM Curriculum**

Laricheva, Elena N, Ilikchyan, Armen , ACS Fall 2021 National Meeting, "Engaging undergraduate students with virtual reality in both classroom and research", American Chemical Society, Atlanta, GA. (August 26, 2021)

Smith, Tim , Gray, Daniel , Barnes, Logan , Ilikchyan, Armen , Laricheva, Elena N, National Conference for Undergraduate Research , "Development and utilization of virtual reality

educational content for use by students of chemistry", NCUR, Kennesaw State University, GA. (April, 2019)

Chelepis, Iryna , Whiteside, Jared , Laricheva, Elena N, Ilikchyan, Armen , National Conference for Undergraduate Research, "Exploring the relationship between visual-spatial skills and student performance in chemistry", NCUR, Kennesaw State University, GA. (April, 2019)

► **Jackson, Gregory – Reconciling Modernity, Democratic Liberalism, and Islam in the 2014 Tunisian Constitution**

Elzinga, S. and Jackson, G. (2020). "Understand Ibn al-Khattab's Influence on Jihadist Thought in Chechnya, Dagestan, and Beyond." Presentation at School of Global and International Studies at the University of Indiana on September 10, 2020.

► **Kopp, Olga – Bacterial Biofilms and Plant Tissue Culture**

Kopp, Olga (Presenter & Author), Larson, Joseph (Author Only), de Nittis, Alyson (Author Only), Perez, June (Author Only), Botanical Society of America meeting - 2020, "Ex-vitro rooting and acclimatization for the micropropagation of Lepidium ostleri, and edaphic endemic plant species." Botanical Society of America., Virtual conference (July 31, 2020).

Hillock, Tyson, Karaleen Anderson, Cyrill Slezak, Paul Slezak, and Olga Kopp, "Inhibition and Stimulation of Fungal Biofilms with Low-Frequency Ultrasound and Extracorporeal Shockwave Therapy," American Society for Microbiology Conference on Biofilms, Boston, Fall 2019.

Brunetti, Bryce, Tyson Hillock, Cyrill Slezak, Paul Slezak, and Olga Kopp, "Electrohydraulic Shockwaves as a Possible Treatment for Bacterial Biofilms," American Society for Microbiology Conference on Biofilms, Boston, Fall 2019.

DeNittis, Alyson (Author Only), Kopp, Olga Ruiz (Presenter & Author), In Vitro Biology meeting - 2019, "Micropropagation of Lepidium ostleori," Society for In Vitro Biology, Tampa, FL (June 8, 2019).

DeNittis, Alyson, Stephen Florence, Stayner Richards, Cameron Kapp, Michelle Piepgrass, June Perez, (Olga R. Kopp), "De Novo Shoot Organogenesis in Lepidium ostleri, an Edaphic Endemic Species," Society for In Vitro Biology Conference, June, 2019.

Balderrama, Ashley, Iryna Chelepis, Tyson Hillock, Jedediah Orullian, Olga R. Kopp, "Anti-fungal Synergistic Effect of Amphotericin B and Posaconazole, Thymol and Cinnamaldehydeagainst *Rhizopus oryzae*Biofilm," National Conference on Undergraduate Research, 2019.

Gunnerson, Shane, Nick Hoehn, Amanda Neely, Tyson Hillock, Levi Neely, and Dr. Olga Kopp, "Investigation of the effect of various intensities of photodynamic therapy on Mucormycosis-causing *Rhizopus oryzae*fungal biofilms," National Conference on Undergraduate Research, 2019.

Babb, Eric, Carlos Nunez, Nanasi Sekona, Ashley Balderrama, Alissa Landefeld (Olga Kopp), An Investigation of Protein Expression from *Rhizopus oryzae*Biofilms, Utah Conference on Undergraduate Research, February, 2022.

Bryce Brunetti, Ashley Escarate, Matthew Conway, Olga R Kopp and Mohammed Islam, "Synergistic Effect of Vancomycin and Electrohydraulic Shockwaves Against *Staphylococcus Aureus*Biofilms," Utah Conference on Undergraduate Research, February, 2022.

► **Moulton, Ben – Environmental Research-based Math and English Composition**

Environmental Initiative in Mathematics: Engaging Students in Environmental Projects, presented at the conference of the American Mathematics Association of Two-Year Colleges, Denver, Colorado, November, 2016.

► **Pauly, Jessica & Stevie Munz – Understanding Women's Educational Experiences**

Munz, Stevie and Jessica Pauly, edited volume -- Feminist Mentoring in Academia, Lexington Books, in progress.

► **Rocks, Sally – Micro-Plastics Pollution in Utah Valley**

Johansen, Chase , Cram, Joshua , Pete, Jacob , Rasmussen, Braiden , Rocks, Sally , 259th American Chemical Society National Meeting, "Determination of Microplastic Concentrations in the Water of Utah Lake," American Chemical Society, Virtual. (March, 2021)

► **Ruggles, Krista – Integrating the "M" in STEM Across the Content Areas in a Teacher Preparation Program**

Gearing, N. & Ruggles, K. (2019, November). Preservice teachers' understanding of the M in STEM tasks. School Science and Mathematics Association, Salt Lake City, UT.

Student created stop-motion animation videos that incorporate a math problem appropriate for elementary students on *Uploads from Krista Ruggles*, available at https://www.youtube.com/playlist?list=UUVRQIFQIzQqoD6OlJaBioHw.

► **Seibi, Abdenour – Enter an SPE International Compeition through the Establishment of a "Drillbotics" Students Club ad UVU – a Multidisciplinary Project**

Designing a Drilling Rig for the Society of Petroleum Engineers' Drillbotics Competition, Team Members: Devon Allen, Matthew VanAlfen, Daniel Arias, Yousuf Mohan, and Tim Honing, Faculty Advisor: Dr. Abdennour Seibi; Capstone Project.

► **Shipp, Dustin – Raman Hyperspectral Imaging of Biological Cells and Tissues**

Hales, Jordyn (Presenter & Author), Jones, Jessica (Author Only), Shipp, Dustin (Author Only), OSA Biophotonics Congress, "The effect of scattering on spatial resolution of Raman spectroscopy in tissue," The Optical Society (OSA), Online. (April 14, 2021)

Jones, Jessica (Presenter & Author), Hales, Jordyn (Presenter & Author), Shipp, Dustin (Author Only), Conferences for Undergraduate Women in Physics (CUWiP, "The effect

of scattering on spatial resolution of Raman spectroscopy in tissue," American Physical Society (APS), Spearfish, SD. (January 18, 2020)

Jones, Jessica, Jordyn Hales, Dustin W. Shipp, SPIE Photonics West, “The effect of scattering on spatial resolution of Raman spectroscopy in tissue,” Paper 11236-32, Poster presentation. (February, 2020)

Buck, Lance (Presenter & Author), Shipp, Dustin (Author Only), SPIE Photonics West, "Differentiating cancer cells using Raman spectroscopy," SPIE, San Francisco, CA. (February 2, 2020)

Durrant, Bianca (Presenter & Author), Bennion, Sean (Author Only), Shipp, Dustin (Author Only), Utah Conference for Undergraduate Research, "Building a classifier to discriminate bacteria with Raman spectroscopy", Utah Conference for Undergraduate Research, Logan, UT. (February 7, 2020)

Ballantyne, Eliza (Presenter & Author), Shipp, Dustin (Author Only), Utah Conference for Undergraduate Research, "Raman imaging of single cellular metabolism", , Utah Conference for Undergraduate Research, Logan, UT. (February 7, 2020)

Durrant, Bianca (Presenter & Author), Bennion, Sean (Author Only), Shipp, Dustin (Author Only), Utah Conference for Undergraduate Research, "Building a classifier to discriminate bacteria with Raman spectroscopy", Utah Conference for Undergraduate Research, Logan, UT. (February 7, 2020)

Rivera, Haidy Rivera, Priscilla Lagunas, Dustin W. Shipp, Tissue phantom study to characterize detection of cancer cells with Raman spectroscopy,, Utah Academy of Sciences, Arts, and Letters (March 20, 2021)

► **Thulin, Craig – Method Development for Identifying Low-abundance Proteins**

Thornton, TJ, Anderson, TB, Harding, CD, Lyle, RE, Rawson, CD, Sherwin, AD, Thulin, CD. “Proteome Comparison of Different Honeys Using Electrophoresis and Mass Spectrometry” Protein Society Annual Symposium, Seattle, WA, June 30-July 3, 2019.

Thornton, TJ, Sherwin, AD, Harding, C, Lyle, RE, Thulin, CD. “Quantification and Comparison of Protein Concentration in Honeys from Various Origins” Utah Academy of Sciences, Arts & Letters, Ogden, UT, March 23, 2019.

Sherwin, AD, Bergman, JD, Crandall, DA, Lyle, RE, Spires, TB, Thornton, TJ, Welch, JH, Thulin, CD. “Proteome Comparison of Honey from Different Sources” American Society for Mass Spectrometry Annual Conference, San Diego, CA, June 3-7, 2018.

Bergman, JD, Crandall, DA, Lyle, RE, Sherwin, AD, Spires, TB, Thornton, TJ, Welch, JH, Thulin, CD. “Methods for the Study of Honey Proteins” Utah Academy of Sciences, Arts & Letters, Cedar City, UT, April 7, 2018.

Thornton, TJ, Bergman, JD, Crandall, DA, Lyle, RE, Sherwin, AD, Spires, TB, Welch, JH, Thulin, CD. “Proteins Observed in Honey Through Mass Spectrometry” Utah Academy of Sciences, Arts & Letters, Cedar City, UT, April 7, 2018.

Note: We are currently preparing a manuscript for publication in a peer-reviewed journal. (The pandemic has significantly complicated the preparation of this manuscript, but we hope to eventually get it submitted.)

► Westover, Jonathan – Utilizing Service-Learning to Foster Increased Engaged Educational Experiences within the Technology-Enhanced Online Modality

Andrade, Maureen , Westover, Jonathan , 27th International Conference on Learning, "Service learning – Approaches to assessment," The Learner Research Network, Valencia, Spain [Cancelled]. (July, 2020)

Westover, Jonathan (Presenter & Author), 8th Annual Conference of Scholarship of Teaching and Learning, "Reaching for High Impact Community Service Learning Experiences for Students", , Utah Valley University, Orem, UT. (March 31, 2016)