



Dr. KRISTA RUGGLES
Assistant Professor - Elementary Education

Dr. Ruggles is an Assistant Professor in the Elementary Education program at Utah Valley University with a focus on STEM and educational technology. She will begin her fifth year at UVU in August. She teaches undergraduate and graduate courses in the School of Education. Specific areas of interest include preservice teacher preparation, technology integration, and culturally responsive teaching. Her current research concerns teachers' and preservice teachers' understandings and implementation of STEM lessons.

Impact of Integrating the ISTE Standards in an Educational Technology Course on preservice teachers' Technological Self-Efficacy

The Utah Education Network (UEN), supported by the Utah School Board of Education, has recently begun offering ISTE Certification to Utah educators in an attempt to bring "transformative change" to Utah's classroom. As a teacher educator, it is also critical for me to participate in this professional development opportunity in order to prepare my own preservice teachers to be ISTE Educators. Participants ($n=59$) in this study were first semester juniors enrolled in three sections of EDEL 3250: Instructional Media during the Spring 2020 semester. After completing a hybrid ISTE professional development training over the course of four months, I integrated and intentionally modeled the ISTE Standards in my classes. At the beginning, middle, and end of the semester, participants completed an ISTE Standards progress tracking sheet where they ranked their confidence (1-4) in each standard and developed corresponding goals. These ratings and goals were analyzed and adjustments were made to the course. Comparing the participants' confidence, over the semester, revealed the positive impact that integrating the ISTE Standards can have on preservice teachers' technological self-efficacy.

Impact of Integrating the ISTE Standards in an Educational Technology Course on Preservice Teachers' Technological Self-Efficacy

Purpose

The purpose of this study was to intentionally integrate the new International Society for Technology Education (ISTE) Standards in an elementary education preservice teacher preparation course. Technological self-efficacy was the guiding theory utilized. Not only is it important for teacher preparation programs to consider the types of educational technology introduced in technology integration courses, it is also critical to present this knowledge in a way that will develop preservice teachers' technological self-efficacy. Technological self-efficacy, in addition to technical competency, has been documented as an important influential factor in classroom practices (An, Wilder & Lim, 2011; Wang, Ertmer & Newby, 2004).

Context

- 3 sections of EDEL 3250: Instructional Media
- 59 Elementary Education Majors in their first semester of the program.
- 8 Face to Face classes, 3-week online field assignment, 3 online modules

Methods



Research Question

What is the impact of intentionally integrating the ISTE Standards on preservice teachers' confidence in an educational technology course?



Learner	"Educators continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning."
Leader	"Educators seek out opportunities for leadership to support student empowerment and success and to improve teaching and learning."
Citizen	"Educators inspire students to positively contribute to and responsibly participate in the digital world."
Collaborator	"Educators dedicate time to collaborate with both colleagues and students to improve practice, discover and share resources and ideas, and solve problems."
Designer	"Educators design authentic, learner-driven activities and environments that recognize and accommodate learner variability."
Facilitator	"Educators facilitate learning with technology to support student achievement of the ISTE Standards for Students."
Analyst	"Educators understand and use data to drive their instruction and support students in achieving their learning goals."

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Implementation

Phase 1

- Participate in initial ISTE training provided by Utah SBOE
- Review ISTE Educator Standards
- Integrate standards into syllabus and course timeline

Phase 2

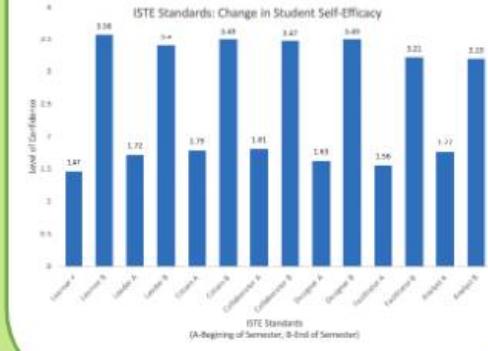
- Students complete ISTE Standards progress tracking template (A-beginning of semester)
- Review level of confidence ratings and goals
- Intentionally address ISTE Standard before each lesson

Phase 3

- Students complete ISTE Standards progress tracking template (mid-term)
- Review level of confidence ratings and goals
- Modify lessons to address ratings and goals

Phase 4

- Students complete ISTE Standards progress tracking template (B-final)
- Review level of confidence ratings and goals





Dr. Jessica Hill Associate
Professor - Psychology

Dr. Hill earned a Ph.D. in Developmental Psychology from Florida State University and an M.A. in Visual Cognition and Human Performance from the University of Illinois at Urbana-Champaign. Her research on perceptions of women in leadership within Utah prompted the creation of the USHE Women's Leadership Exchange (UWLE), which she co-directs with Dr. Nancy Hauck and Dr. Liz Hitch. Other research interests include lifespan development of attention and executive control as measured through eye movements; novice instructor preparation and training; and the scholarship of teaching and learning in psychology. She has published in Developmental Psychology (H-index 182) and has been invited to publish internationally in *Pratiques Psychologiques*. She received the first National Science Foundation Major Research Instrumentation grant at Utah Valley University and has received recognition for her research from UVU's Office of Sponsored Programs, an award for research from the Biennial International Seminar on the Teaching of Psychological Science, and the Dean's Award for Faculty Excellence in Research from the College of Humanities and Social Science.



Dr. Heather Wilson-Ashworth
Professor - Biology

Dr. Wilson-Ashworth earned her Ph.D. in Zoology at Brigham Young University. Her research interests include developing a better understanding the issues influencing UVU student success, retention and motivation with an emphasis on understanding the complexities that underrepresented students including women, minorities and non-traditional students face. Her other research interests include the development and assessment of process skills in active learning classrooms and effective mentoring strategies in undergraduate research. Currently, she is a co-investigator for National Science Foundation Grant: Faculty-Mentored Experiences for Improving Undergraduate Biology Student Outcomes. Her recent awards include a national award, POGIL Early Career Achievement Award (2020), UVU Student Advocate Award (2019.), UVU Design of a UVU Online Course, 3rd place (2019) and UVU Presidential Award of Excellence in Engagement (2018).



Academic Self-Concept in Stem Classes.

We replicated and extended a STEM education study that suggests differences in academic self-concept based on gender. We used identical methods and analyses but expended both the sample size and the types of courses (lower and upper division biology, physics and neuroscience courses) being assessed. Further, we investigated how team-based learning mediates differences in academic self-concept. Results will be discussed in the context of creating equitable learning environments in STEM fields.



Academic Self-Concepts in STEM Classes

Jessica C. Hill¹ | Heather Wilson-Ashworth²

Behavioral Science Department¹; Biology Department²; Utah Valley University

Background

Historically, women major in science, technology, engineering, and mathematics (STEM) fields at a far lower rate than men although this can vary by field (Heilbrunner, 2013). Differences in social identity (e.g., gender, minority status) yield distortions in perception regarding academic ability (i.e., academic self-concept or academic self-efficacy; MacPhee et al., 2013). For example, women taking STEM courses perceive themselves to be "less smart" than their male classmates despite having equivalent educational outcomes (Cooper et al., 2018).

Cooper and colleagues (2018) examined 244 students in a large physiology course who surveyed during the first week of class and again just prior to the first exam in the course. In the first week survey, students were given demographic questions chosen to help explain exam performance independent of their academic self-concept (e.g., first generation status). The second survey was administered immediately prior to the first exam under the premise that students would not have formed their academic self-concepts yet. The survey consisted of two questions: (1) whether the student worked regularly with another person and (2) whether that person was smarter than the student. Results indicated that females consistently under-predicted their academic self-concept relative to their groupmates—only 33% thought they were smarter than the others in their group—whereas 61% of males perceived themselves to be smarter than the other members in their group.

Discrepancies in academic self-efficacy resolves by graduation (MacPhee et al., 2013); however, many female STEM students change their majors out of STEM fields early in their education, which may be due to the disciplinary "cultures" surrounding STEM fields (Astorne-Figari & Speer, 2019). Women are underrepresented in STEM careers and within undergraduate STEM majors (Heilbrunner, 2013). Thus, we conducted a conceptual replication of Cooper and colleagues' (2018) study and extend the investigation to STEM courses beyond human physiology to provide a foundation understanding the gender differences in enrollment in STEM majors.

Hypotheses

H1: Women in STEM courses within the natural sciences will exhibit a similar academic self-concept discrepancy as those in physiology courses.

H2: Women in neuroscience STEM courses within the behavioral sciences will not exhibit the same academic self-concept discrepancies as those in the natural sciences.

Methods

Participants. 297 students enrolled in the STEM courses listed in Table 1 (153 female; 144 male).

Materials. We delivered identical survey questions used in Cooper et al. (2018). Key questions included:

1. What percentage of students are you smarter than if you consider only the students in this course and the course content?
2. After interacting with [peer name] to this point in class, who do you feel is smarter?
3. How did you determine who was smarter, you or [peer name]? Please use 2-3 sentences in explaining your reasoning.

Procedure. We recruited instructors for face-to-face courses in STEM fields if they used regular group interaction in their courses, which ranged from minimal (informal think-pair-share) to more intensive (e.g., team-based learning). One week prior to the first exam in the course, instructors made available the surveys—offering either a small amount of extra credit or low-stakes assignment credit for completion. In addition to providing information within the survey, students gave permission to share their final course grades with us at the end of the spring 2020 semester.

Table 1. Courses in which participants were enrolled

Biology	Chemistry	Physics	Neuroscience
General Biology	Introduction to Chemistry	Elementary Physics	Introduction to Brain and Behavior
Microbiology for Health Professions	Elem. Chem. for the Health Sciences	College Physics I	Psychopharmacology
Cell Biology	Principles of Chemistry I	Intro. to Experimental Physics	Behavioral Neuroscience
General Microbiology	Principles of Chemistry II	Computational Physics	Sensation and Perception
Genetics	Analytical Chemistry	Thermodynamics	
General Ecology	Physical Chemistry I	Optics	
Conservation Biology	Advanced Inorganic Chemistry	Medical Physics	
Molecular Evolution & Bioinformatics	Biological Chemistry	Acoustics	
	Instrumental Analysis		

Figure 1. Boxplot of the percentage of others in the course a student rated themselves as smarter than by gender

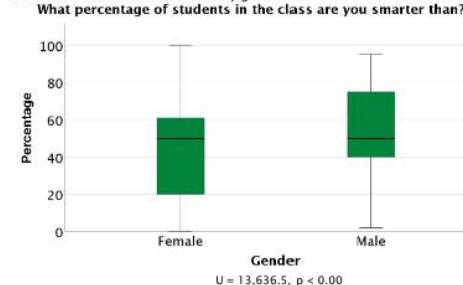


Table 2. Sample comments from respondents explaining rating of team member smartness.

"To be honest, I think we are about the same when it comes to smarts and that's not me trying to be ethical or emphatic. We both have strengths and weaknesses."
"It depends on the unit, but knowing that he has questions and I can help to answer/teach him that makes me feel more confident in my abilities."
"I don't like the idea of it being based on "smarter". I would say I feel as though I know more than him simply because I am older, have more life experience, and more time taking college classes."
"I didn't want to be rude, so I chose [Name] to be smarter than me. Because it is narcissistic to believe I am more intelligent [sic] than [Name]. [Name] is an informed person, and does have valuable information."
"She seems to understand some of the things better. She actually reads all of the material for that class period whereas I only skim things."
"[Name] is able to grasp concepts better than me. She is also able to better retain concepts better than me."

Results

H1 (Partially Supported): A Mann-Whitney U test demonstrated a significant difference ($U = 13,636.5$; $p < 0.00$) with a very large effect size ($d > 1$) between female and male students regarding the percentage of students within their entire class participants felt they were smarter than. There was no significant difference between female and male students regarding whether they thought they were smarter than the peers in their team or not.

H2 (Unsupported): There was no significant difference in women's academic self-concept between STEM fields.

Discussion

These preliminary findings replicate Cooper and colleague's (2018) findings that female students have a lower overall academic self-concept than male students in STEM courses. We were unable to replicate the same such findings with peers with whom the students frequently work.

Future analyses of the complete data set will indicate whether the lack of effect is related to the intensity and frequency of team activities within a course. Should this be the case, it would provide strong evidence for the utility of team-based and engaged learning within STEM fields as an intervention to improve retention for female students.

References

- Astorne-Figari, C., & Speer, J. D. (2019). Are changes of major major changes? The roles of grades, gender, and preferences in college major switching. *Economics of Education Review*, 70, 75–93. <https://doi.org/10.1016/j.econedurev.2019.03.005>
- Cooper, K. M., Krieg, A., & Brownell, S. E. (2018). Who perceives they are smarter? Exploring the influence of student characteristics on student academic self-concept in physiology. *Advances in Physiology Education*, 42(2), 200–208. <https://doi.org/10.1152/advan.00085.2017>.
- Heilbrunner, N. N. (2013). The STEM pathway for women: What has changed? *Gifted Child Quarterly*, 57(1), 39–55. <https://doi.org/10.1177/0016985012460831>
- MacPhee, D., Farro, S., & Canetto, S. S. (2013). Academic self-efficacy and performance of underrepresented STEM majors: Gender, ethnic, and social class patterns: Analyses of Social Issues and Public Policy, 19(1), 347–369. <https://doi.org/10.1111/asap.12033>



Emmalee Walker is a physics education student at UVU and will be graduating Spring 2020. She has a passion for science and helping people find joy in it. One of her life long dreams is to become the next Miss Frizzle. Emmalee has recently completed her student teaching experience and looks forward to working with many students in the future. As a physics education student she has worked hard for excellence and been on the college of science dean's list Spring 2019 and Fall 2019.



Daniel Carroll has a great interest in several areas of science, specifically physics, astronomy and engineering. He received his associates degree in Physics in 2017 from Salt Lake Community College. He is currently studying to be a high school physics teacher at Utah Valley University. Daniel is currently working as a TA for two physics labs. He is also working on his parenting skills as he enjoys spending time with his one year old daughter. Daniel is excited to teach high school physics in Granite School District next year.



Dr. Dustin Shipp has been an assistant professor of physics at UVU since 2018. Dustin's expertise focuses on how light interacts with living things. His lab uses Raman spectroscopy to classify bacterial species and identify different types of cancer. Prior to coming to UVU, Dustin completed a PhD in Optics at the University of Rochester and spent three years at the University of Nottingham using Raman spectroscopy to assist in breast cancer surgeries. Convinced that the best way to learn physics is by doing it, Dustin is interested in how students learn during lab classes.

Making Lab Classes Count Adapting Undergraduate Physics Courses for Student Autonomy

Most undergraduate physics laboratory classes consist of canned experiments. Students show up, take some data, answer some questions, and leave. The physics department at Utah Valley University recently changed its second-year experimental physics course to encourage student autonomy in all facets of research: asking questions, taking measurements, analyzing data, presenting results, etc. This study evaluates how these curriculum changes are progressing towards the goal of creating capable, independent scientists



Making Lab Classes Count

Adapting Undergraduate Physics Courses for Student Autonomy

UVU UTAH VALLEY
UNIVERSITY.

Emmalee Walker, Daniel Carroll, Dustin Shipp
Utah Valley University

Abstract

Most undergraduate physics laboratory classes consist of canned experiments. Students show up, take some data, answer some questions, and leave. The physics department at Utah Valley University recently changed its second-year experimental physics course to encourage student autonomy in all facets of research: asking questions, taking measurements, analyzing data, presenting results, etc. This study evaluates how these curriculum changes are progressing towards the goal of creating capable, independent scientists.



Trusting students to be
more independent
in their research makes them
think and act
more like scientists



Research Skill Development (RSD) Framework

What are students capable of? What do they do?

Colorado Learning Attitudes about Science Survey for Experimental Physics (E-CLASS)

What do students think and feel about science experiments?

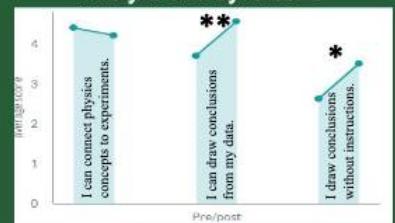
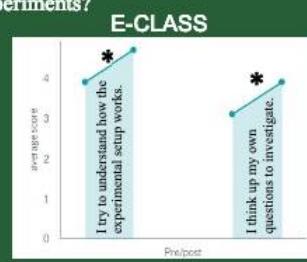


Weeks 1-2:
Learn basic
equipment skills

Weeks 3-6: **Write funding proposals**

Weeks 7-12: Research projects

Weeks 13-15: Disseminate results



* = $p < .05$, ** = $p < .001$



Dr. Elizabeth Fawcett

Elizabeth Fawcett, Ph.D., has been with UVU since 2017 and she currently serves as the program director for the UVU Marriage and Family Therapy Program. While earning her PhD at BYU, Elizabeth discovered a passion for teaching. She has been a university instructor for the past 15 years, twelve of which have involved online or hybrid instruction. Experience designing and teaching online courses motivated Dr. Fawcett to explore best practices for engaging students in online discussions, which is the essential question of this research project.



Shelli Densley

Shelli Hales Densley is a graduate student in Marriage and Family Therapy and adjunct faculty at Utah Valley University. Additionally, she holds a MS in Family and Human Development from Arizona State University and is a Certified Family Life Educator. She loves to teach about families, marriage and relationships. Shelli's favorite relationships are with her husband, children and grandchildren.



Are Online Discussion Real Discussions?

Too often online class discussions are boring for students and tedious for instructors. Graded class discussions in online courses can function more like a publicly posted assignment than a meaningful interaction between students, instructor and content. Guided by research about online learning communities, researchers built a rubric and evaluated student posts to weekly discussion questions in two sections of the same online course. The course was designed with research-based practices to engage student learning, and it was taught to promote interaction. In one section of this course, students engaged in whole-class discussions; the other section engaged in small-group discussions. The results suggest that small-group discussions invite students to participate in more substantive discourse, and that interaction is influenced by discussion assignment structure and content.

Are Online Discussions Real Discussions?

Elizabeth Fawcett, Ph.D., LMFT & Shelli Densley, MS, CFLE



About This Study

Too often online class discussions are boring for students and tedious for instructors. Graded class discussions in online courses can function more like a publicly posted assignment than a meaningful interaction between students, instructor and content. In this study, researchers compared student posts to weekly discussion questions in two sections of the same online course. The course was designed and taught to promote interaction. In one section of this course, students engaged in whole-class discussions; the other section engaged in small-group discussions. The results suggest that small-group discussions invite students to participate in more substantive discourse, and that interaction is influenced by discussion assignment structure and content.

Literature

Learning communities provide students an opportunity to grow through interactions and collaboration that engages learners (Maddix, 2013). One of the challenges of online education is that students may not experience that sense of community. Frequency of dialogue between students and faculty enhances social presence and the experience of connection (Rovai, 2002; Shore, 2007). According to Rovai (2002), the sense of community within an online classroom is generated when students demonstrate caring and are able to challenge one another in supportive ways.

Moore (1989) suggested that facilitation of interactions between learner and content, learner and instructor, and learner with other learners are the foundation of distance learning. Supporting this proposal, a 2009 meta-analysis, which summarized 74 empirical studies comparing different modes of distance education, found a moderate overall positive weighted average effect size for achievement outcomes favoring more interactive treatments over less interactive ones. The results supported the importance of three types of interaction: among students, between instructor and students, and between students and course content (Bernard, Abrami, Borokhovski, Tamim et al., 2009).

Instructors frequently use asynchronous discussion boards to facilitate interaction with and between students in an online course. Notwithstanding the prolific use of discussion board posts within online education, results vary as to their effectiveness. While it has been noted that small group activities, such as a small group discussion, can promote a sense of community and connection between online students (Rovai, 2002), online social interaction may also present as superficial and minimal (McGuire, 2016).

In her interview of instructors about their thoughts of online education, McGuire (2016) noted that the instructors, "primarily discussed the difficulty of facilitating quality interactions among students in asynchronous online discussion forums... Instructors mostly expressed frustration or wariness about facilitating student-student interactions in online discussion forums..." (p. 67). When an online course is designed to promote these interactions between learners, instructor and content, the learners are better able to experience a sense of community, and discussion posts tend to be more meaningful.

Methods

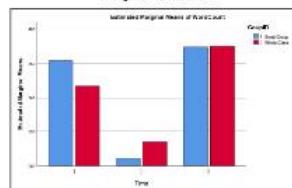
The primary researcher built an online ethics course (FAMS 2705) and taught two sections during the Spring 2018 semester. To invite student interaction with peers and with course content, the researcher developed engaging discussion questions with the support and recommendations from a course designer. When teaching these courses, the primary researcher tracked her own posts to students to connect with each student and to facilitate peer interaction.

After the course was complete, the researcher received IRB approval to review de-identified discussion post content from both course sections. The primary researcher used ANOVA to compare discussion boards posts for the same three weeks (weeks 2, 4, 8) in each class section, evaluating the word count, number of posts, responses to peers, and timing of posts prior to the due date.

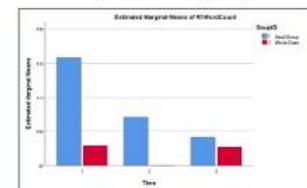
The second researcher, who is a graduate student and instructor of this online course, was invited to evaluate the quality of student discussion posts and posts to peers. Research on learning communities and online interaction was used to develop a rubric to evaluate the level of community (supportive responses including humor, addressing the peer by name, use of emojis or other emotional cues), challenging and substantive feedback (contributes to critical reflection within the learning community), and personal sharing (appropriate self-disclosure, connecting content to personal experience) across student posts.

Results

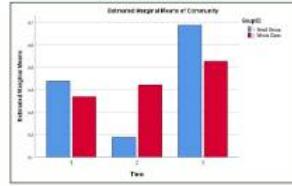
Between Groups: Word Count for Discussion Question No significant difference



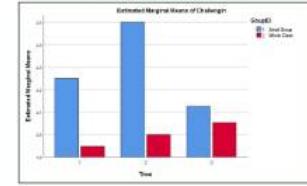
Between Groups: Word Count for 1st Response to Peer Significant difference ($p < .05$)



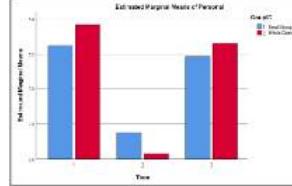
Between Groups: Community No significant difference



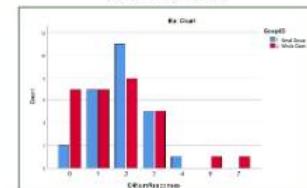
Between Groups: Challenging Significant difference ($p < .05$)



Between Groups: Personal No significant difference



Between Groups: Number of responses to an initial post No significant difference



Discussion

We found no significant difference between the course sections in word count post to the discussion question, which suggests that the public assignment aspect of the discussion is the same for both groups; they address the rubric. However, there was an interesting difference across time. In week 4, responses were significantly less. We believe that is a reflection of the discussion question. In weeks 2 and 8, students are asked to apply the content to their personal experience and share decisions they would make related to the chapter topics. In week 4, students are asked to identify a concept from a video, which doesn't invite elaboration beyond the minimum word count.

We found a significant difference in the word count for peer response, which suggests that more discussion is happening in the small-group class. Although there was not a statistically significant difference between groups on the number of responses to an initial post, however this could be a limitation of sample size and power. It is interesting to note that the small-group section has fewer students that did not receive a response to their post.

On the rubric factors, we found no significant difference between students' supportive responses (community), which may reflect a social desirability bias. We also found no difference in students' personal sharing, which may reflect a confound in the discussion question content because we asked students to connect their responses to meaningful personal experiences. We did find a significant difference between class posts in student contribution to critical reflection within the learning community. The willingness to challenge one another may be the best indicator of a sense of community among the small groups.

Implications/Conclusions

As distance learning continues to grow in popularity, it will be important for faculty members and course designers to build activities that promote student interaction. "Understanding the role of social presence is essential in creating a community of inquiry and in designing, facilitating and directing higher-order learning. Creating a climate for open communication and building group cohesion are essential for productive inquiry" (Garrison & Arbaugh, 2007).

When this climate of open communication includes high-stakes online discussion posts, peer interaction is facilitated by assigning students to small groups, establishing clear expectations for response, and asking meaningful and relevant questions. Group size, purpose and student characteristics should also be considered (Ouyang & Scherber, 2017).

References

- Bernard, R. M., Kavanagh, P. C., Acciavatti, S., Ahearn, C. A., Tarcz, R. M., Burke, M. A., Bellot, E. C. (2009). A meta-analysis of three types of interaction in distance education. *Review of Educational Research*, 79(3), 545-569.
- Garrison, D. R., & Arbaugh, J. B. (2007). Revising the community of inquiry framework: Review, issues, and future directions. *Internet and Higher Education*, 11, 19-27.
- Mabbs, H. A. (2012). Developing online learning communities. *Critical Education Journal*, 10(2), 159-168.
- McGuire, B. F. (2016). Integrating the qualities of asynchronous online interaction: Strategies for improving interaction and knowledge creation. *Journal of Effective Teaching*, 16(2), 60-75.
- Moore, M. G. (1989). Educating the computer literate. *American Journal of Distance Education*, 3(2), 1-7.
- Ouyang, F. & Scherber, C. (2017). The influence of an experienced instructor's discussion design and facilitation on an online learning community development: A social network analysis study. *The Internet and Higher Education*, 35, 28-47.
- Rovai, C. P. (2002). Building sense of community in distance. *The International Review of Research in Distance Learning*, 3(1), 1-16.
- Shore, W. H. (2007). Establishing social presence in online courses: Why and how. *American Journal of Distance Education*, 45(2), 91-101.



S C H O L A R S H I P *of*
T E A C H I N G &
L E A R N I N G



Dr. Hsiu-Chin (Sunny) Chen

Dr. Hsiu-Chin (Sunny) Chen earned a Ph.D. in Nursing from University of Utah and Ed. D. in Educational Administration from University of South Dakota. Her research areas include instrument development, leadership & job satisfaction, student satisfaction, program evaluation, service-learning project and research, cultural competency, NCLEX-RN predictors, fall prevention, compassion fatigue, and burnout, and online teaching and learning. Dr. Chen has published over 20 studies in peer-reviewed nursing journals, has received over 20 internal and external research grants, and presented research results in national and international research conferences. Dr. Chen currently has led a faculty research team to develop an intercultural competence program using visual simulation to facilitate student intercultural competence.

Use of an Intercultural Competence Program to Nurture Nursing Student Cultural Competence and Cultural Humility

In recognition of the projected increase in ethnic and racial diversity in Utah, coupled with an estimated 95% of homogeneity among the Associate in Science in Nursing (ASN) students at Utah Valley University (UVU), nursing faculty proposed it is imperative to nurture nursing student intercultural competence for the foreseeing needs in healthcare services. The purpose of this study is to identify the effectiveness of using the Intercultural Competence (IC) program to engage student learning in developing intercultural competence. All ASN students from the Department of Nursing at a university was invited to participate in this longitudinal quantitative pilot research using a pre- and post-test comparative study design. Although there were no significant differences measuring cultural competence, sexual orientation and intercultural communication skills, students' competence in these three areas did increase from the beginning to the end of the semester. The pilot study results are beneficial to our following formal study as we collected the feedback from students regarding how to improve the IC program for better learning outcomes.



Use of an Intercultural Competence Program to Nurture Nursing Student Cultural Competence and Cultural Humility

Hsiu-Chin Chen, PhD, EdD, RN, FHEA

Department of Nursing, Utah Valley University, Orem, UT, USA

Introduction

In recognition of the projected increase in ethnic and racial diversity in Utah, coupled with an estimated 95% of homogeneity among the Associate in Science in Nursing (ASN) students at Utah Valley University (UVU), nursing faculty proposed it is imperative to nurture nursing student intercultural competence for the foreseeing needs in healthcare services. The purpose of this study is to identify the effectiveness of using the Intercultural Competence (IC) program to engage student learning in developing intercultural competence.

Research hypotheses include:

1. Nursing students who complete the IC program increase their cultural competence by the end of each semester.
2. Nursing students who complete the IC program increase their awareness of own personal values, beliefs, biases, and experiences related to sexuality education by the end of each semester.
3. Nursing students who complete the intercultural competence program increase therapeutic communication skills with diverse patients.

Discussions

In order to identify the level of student intercultural competence changes over time from the beginning to the end of a semester, independent *t*-test was utilized to examine if the change was statistically significant for students in the pilot test. Although there was no significant differences measuring cultural competence, sexual orientation and intercultural communication skills, students' competence in these three areas did increase from the beginning to the end of the semester.

Identifying students' strengths and weaknesses in performing interculturally competent care is an essential step to provide nursing faculty insight into the needs to teach cultural competence within the full range of nursing programs.

This pilot test provided us valuable information regarding how to modify the IC program to challenge the technology issues in learning and teaching.

Methods

All ASN students from the Department of Nursing at a university was invited to participate in this longitudinal quantitative pilot research using a pre- and post-test comparative study design. The pre- and post-test design can help identify the effectiveness of implementing each level of the IC program for developing student intercultural competence over time after the practice of each level. Conducting the formal study using the IC program will start from Fall 2020 to Fall 2021.

The self-administered instruments used to collect data include the intercultural sensitivity scale (ISS) for measuring cultural competence, the students' attitudes toward addressing sexual health (SA-SH) tool for measuring sexual orientation and cultural humility, and the interpersonal communication assessment scale (ICAS) for measuring cultural communication. Permission for using the three scales have been granted by the original authors.

Limitations

Self-reported student intercultural competence from a specific department of nursing and the size of the sample might limit the generalizability of the quantitative results.

The other limitation of this pilot study is the data collected are based solely on students' self-report of their perceptions and experience in learning; their voluntary participation in this study may have an impact on their self-evaluation of intercultural competence.

References

- Chen, H. -C., Jensen, F., Measom, G., & Nichols, N. D. (2018). Evaluating student cultural competence in an Associate in Science in Nursing. *Teaching and Learning in Nursing*, 13(3), 161-167. doi: 10.1016/j.teln.2018.03.005
- Danso, R. (2018). Cultural competence and cultural humility: A critical reflection on key cultural diversity concepts. *Journal of Social Work*, 18(4), 410-430.

Results

All the first semester ASN students from the Department of Nursing were invited to participate in this pilot study. The majority of the participants were females, White, non-Hispanic, and currently had a clinical or non-clinical job.

The item mean of cultural competence among the participants measured by the ISS was 3.13 (*SD* = .21), the item mean of the students' attitudes toward addressing sexual health was 3.22, *SD* = .35, the item mean of the interpersonal communication assessment scale was 3.29, *SD* = .52 for the pre-test.

The item mean of cultural competence among the participants measured by the ISS was 3.14 (*SD* = .21), the item mean of the students' attitudes toward addressing sexual health (SA-SH) was 3.32, *SD* = .32, the item mean of the interpersonal communication assessment scale (ICAS) was 3.42, *SD* = .40 for the post-test. Comparing the pre and post-test after taking the level one of IC program, there is no statistically significant difference in three scales.

Recommendations and Implications

It is suggested that educational interventions to facilitate the development of student intercultural competence should engage students in caring for patients from diverse cultures and immerse students in lived experiences to increase cultural knowledge and skills.

The pilot study results are beneficial to our following formal study as we collected the feedback from students regarding how to improve the IC program for better learning outcomes.

Given the need of augmenting culturally competent care in clinical practice, collaboration among nursing faculty to share resources might be an effective way to advance students' abilities to work effectively within the cultural context of the patient.



Dr. Nicole Gearing
Assistant Professor — Elementary
Educations

Nicole Gearing is an Assistant Professor of Elementary Education at Utah Valley University. She teaches elementary mathematics methods courses to preservice elementary teachers. Before coming to UVU in 2018, she was an elementary school teacher for 11 years. Nicole enjoys learning more about how young children talk and write about their mathematical thinking. She also enjoys exploring strategies for supporting her university students as they learn to analyze student work.

Supporting Elementary Pre-Service Teachers' Analysis of Student Work to Reflect on Teaching Effectiveness Cultural Competence and Cultural Humility

In preparation for the Elementary edTPA Math Task #4, part of a teacher candidate performance assessment, preservice teachers participate in a formative experience during their second math methods course. During this experience preservice teachers plan a learning segment with their cooperating teacher, teach (or observe) the learning segment, assess the class, evaluate the assessment, analyze the patterns of learning they notice, and identify three students with a common misconception. Participants in this study were enrolled in Math Methods II during the Spring 2019, Summer 2019, or Fall 2019 semester and participated in the edTPA assessment during their student teaching or internship. At the completion of the edTPA (Fall 19 or Spring 2020), participants ($n=53$) were asked to complete a survey about their preparation for the edTPA and for being an elementary math teacher. Results indicate that they feel the formative experience helped prepare them for teaching math and that it did prepare them for the edTPA Math Task 4, but that they also wish there were more opportunities for these types of experiences prior to completing the assessment.

Supporting Elementary Pre-Service Teachers' Analysis of Student Work to Reflect on Teaching Effectiveness

Nicole Gearing

Utah Valley University: School of Education

Introduction

The National Council for Teachers of Mathematics (2014) recommends eight effective mathematics teaching practices. Throughout the elementary education program, the eight practices are introduced to students and they have many opportunities to observe the practices in action. While in field placements students have opportunity to implement these effective teaching practice as they prepare to complete their student teaching semester or internship senior year. As part of their program, they also complete the edTPA, a performance assessment that assesses a teacher candidates readiness for the classroom (edTPA Chapters). As part of this assessment, students plan a learning segment, teach a learning segment, administer an assessment, evaluate student work, identify patterns of learning for the whole class, identify three students who present a similar pattern of learning, plan for and re-engage those students, and reflect on the effectiveness of their re-engagement. This assessment encompasses all of the teaching practices, but focuses specifically on two, *building procedural fluency from conceptual understanding* and for teachers to *evident and use evidence of student thinking*, which requires teachers to consider more than if a student got a correct solution. However, many elementary education students often think of assessment as right and wrong answers as evidenced in coursework in Mathematics Methods I and II. While this shows overall mastery, it doesn't help the teacher understand what a student knows or does not know. If we look more closely at these students' work, we can identify what students understand and where to go to support their understanding. Considering a student's conceptual understanding, procedural fluency, and mathematical reasoning on an assessment better informs teachers about what students understand or do not understand and how to best support their learning.

As part of elementary math methods course work, students engage in a formative experience in preparation for this assessment and inline with best teaching practice as identified by the National Council for Teachers of Mathematics. However, preparing for this assignment takes up a significant portion of the course. While it is a crucial aspect of teaching, it does not encompass all aspects of teaching. Because it takes so much time, other important aspects of teaching are given less time or left out. This leaves me wondering if these formative experiences are helping students feel prepared not only for the edTPA, but also to be teachers of elementary mathematics.

Research Questions

Are formative experiences helping elementary education students feel prepared for the edTPA
Math Task 4?
Are edTPA formative experiences helping elementary education students feel prepared to be
teachers of elementary mathematics?

Methods

The participants in this study were enrolled in Math Methods II during the 2018-2019 and 2019-2020 academic school year. During Math Methods II, students participate in a formative experience to help prepare them for the edTPA assessment that occurs during their senior field experience. The experience requires them to plan a learning segment with their cooperating teacher, teach (or observe) the learning segment, assess the class, evaluate the assessment, analyze the patterns of learning they notice, and identify three students with a common misconception. At the completion of the edTPA Math Task 4 the following semester (fall 2019 or spring 2020), students were asked to complete a survey regarding how prepared they felt to take the edTPA and which experiences in math methods most prepared them for the assessment, for being an elementary teacher of mathematics, and if they had suggestions for future assignments. Fifty-three students completed the survey. The results of the survey were analyzed to find common patterns among the responses to determine which assignments students feel are preparing them to be teachers of math, which assignments they feel are preparing them for the edTPA, and assignments or concepts they feel would have been beneficial now that they are in classrooms.

Contact

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Results

The first question on the survey used a Likert scale to ask students how prepared they felt for the edTPA assessment. As shown in the results below, of the 53 respondents, 14 of students felt very prepared, 20 of students felt prepared, 9 were neutral, 8 felt unprepared and 3 felt very unprepared. The students were then asked open-ended questions about the assignments they felt best prepared them for teaching math. Of the 53 students, 13 said the edTPA formative experience most prepared them for teaching math. Other common assignments and experiences can be found in Table 1. When asked about which assignments and experiences most prepared them for the edTPA, 33 students talked about the formative experience in some way. Some mentioned the learning segment portion, some the work analysis, and others mentioned the whole assignment. A breakdown of these responses can be seen in Table 2. The final question asked for ideas for future assignments to help prepare teachers. Eighteen of the students mentioned a desire for more explicit explanations of edTPA and formative experience. Other suggestions can be seen in Table 3.

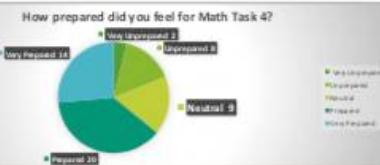


Table 1: What assignments and experiences best prepared you for teaching mathematics?

Assignment	Responses
Taking Math Methods (noted the whole class being helpful)	9
edTPA Formative Experience	13
Teaching in Field	4
Teaching Lessons in Class	6
Observing Cooperating Teacher	3
Additional experience implemented Fall 19	3
Nothing Prepared Me	4
Other	4

Table 2: What assignments and experiences from your coursework in Math Methods I and/or Math Methods II best prepared you to complete Task #4?

Assignment	Responses
Formative Experience	32
Class Discussions about Student Work	5
Nothing	3
Other	3

Table 3: Do you have any suggestions for future assignments that might help prepare elementary teachers of mathematics?

Idea	Responses
More explicit explanations and practice edTPA assignments	18
Ideas for teaching a wide range of ability	2
Using teacher editions	2
Practice with Mathematical Thinking (procedural fluency, conceptual understanding, mathematical reasoning, problem solving)	3
No Suggestion	14

Discussion

The results from this survey indicate that 64% of the students who took the survey felt prepared or very prepared for the edTPA. Twenty-five percent of students felt that the formative experience was something that also best prepared them for teaching math. Other assignments and experiences mentioned included the whole course in general (which would include the formative experience), teaching lessons to peers, observing a cooperating teacher in field, and an additional formative experience that students in Fall 2019 participated in. Students appear to find the formative experiences beneficial in preparing them for the edTPA, as 60% of students indicate. Some other activities and assignments mentioned included class discussions about student work which was done to prepare for the formative experience. Three students aid no assignments prepared them, however one student said they couldn't remember because of the summer break. Thirty-four percent of students wish they had more formative experiences and explicit explanations throughout the program to prepare. Some other suggestions included more focus on teaching to a range of abilities or how to use the teacher's edition. Three students suggested needing more practice with mathematical thinking.

Conclusions

The results of the student survey indicate that students feel like the formative experience is worthwhile and is preparing them for the edTPA. Students would like more formative experiences and more explicit information regarding the edTPA prior to their student teaching/internship semester. However, they also suggest that other activities were beneficial in supporting their ability to teach math. If more formative experiences are implemented throughout the elementary mathematics courses, it would need to be in conjunction with these other assignments and experiences to ensure these other important aspects of teaching are not excluded from the course experience. Results from the student also demonstrate that students wish to have a more explicit explanation of the expectations of edTPA. While they engaged in the formative experience, it was not made clear that the formative experience was in preparation for the edTPA on purpose. As the instructor, I wanted students to see the benefit in doing this work regardless of the assessment they would be taking. In the future, I will make this clearer to students at the completion of the formative experience assignment.

References

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2. Utah State Office of Education, Assessment and Accountability Unit. (2019). edTPA. Retrieved from <http://www.uen.org/utahcurriculum/edtpa>



S C H O L A R S H I P *of*
T E A C H I N G &
L E A R N I N G

Connecting Abstract Algebra with Secondary Math

The Mathematics Association of America along with other professional mathematics societies advocate for advanced courses such as Abstract/Modern Algebra to be taken by future secondary mathematics teachers. Despite this requirement, there continues to be a need for research on how secondary teachers view the relevance of their post-secondary courses to teaching (Zazkis & Leikin, 2010). This question was addressed in Math 6300 (Modern Algebra) course for in-service math teachers. Pre- and post-survey responses were collected and compared. The survey responses were aimed to provide feedback on the effect of various connections between the material covered and the secondary math content on students' opinion on the relevance of this material. The survey results show significant increase on teachers' opinions, and deeper understanding of some seemingly easy results used as granted in high school curriculum.



**Dr. Violeta Vasilevska,
Professor, Mathematics**

Dr. Vasilevska received her doctorate degree from the University of Tennessee, Knoxville and joined the Department of Mathematics at Utah Valley University in 2010.

She is passionate about teaching; and in her classes, she implements various active learning, student-centered approaches and cultivates an inclusive, interactive, and engaged environment. Her research interests are diverse, ranging from topics in pure mathematics (e.g., power domination — graph theory) to topics in math education (e.g., how various teaching approaches affect student's learning). She enjoys mentoring students through undergraduate research. Since 2007, she has been leading and participating in various outreach programs that popularize mathematics, especially ones that encourage and support women in mathematics. Among her hobbies are her love for Origami, reading, and traveling to learn about different cultures.

Connecting Abstract Algebra with Secondary Math

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Department of
MATHEMATICS

Motivation / Literature Review

- Every five years the College Board of the Mathematical Sciences(CBMS) executes a national survey of undergraduate mathematical and statistical sciences in two- and four-year colleges and universities.
- The 2010 report states that among four-year institutions with secondary pre-service teaching certification programs, 89% of mathematics departments require students to take abstract or modern algebra (Blair, Kirkman, & Maxwell, 2013).
 - Blair, R., Kirkman, E. E., & Maxwell, J. W. (2013). *Statistical abstract of undergraduate programs in the mathematical sciences in the United States: Fall 2010 CBMS survey*. American Mathematical Society.
- The Mathematics Association of America along with other professional mathematics societies also advocate for advanced courses such as these to be taken by future secondary mathematics teachers.
- Despite this requirement and advocacy, there continues to be a need for research on how knowledge of mathematical content is employed in teaching practice, as well as how secondary teachers view the relevance of their post-secondary courses to teaching (Zazkis & Leikin, 2010).
 - Zazkis, R., & Leikin, R. (2010). *Advanced mathematical knowledge in teaching practice: Perceptions of secondary mathematics teachers*. Mathematical Thinking and Learning, 12(4), 263–281.

Connecting Advanced and Secondary Mathematics (CASM) Conference (<http://casmconference.org/>)

Held in Minneapolis, MN, May 20-22, 2019
NSF Funded (53 participants)

- "The conference will bring together researchers, mathematicians, and teacher educators interested in exploring connections between advanced and secondary mathematics. The CASM Conference has three main objectives:
 - To develop plans for research and/or professional development to expand current knowledge on connections between advanced and school mathematics, so that attendees can take concrete steps to move projects forward.
 - To provide a space for mathematicians, mathematics educators, and other stakeholders to discuss their work and develop a common vision for future directions.
 - To share current research on mathematical connections between advanced and secondary mathematics, focusing specifically on abstract algebra."
- Murray, Eileen; Badling, Erin; Wasserman, Nicholas; Broderick, Shawn; White, Diana. *Connecting Advanced and Secondary Mathematics: Issues in the Undergraduate Mathematics Preparation of School Teachers*, v1 Aug 2017 (<https://files.eric.ed.gov/fulltext/EJ1151024.pdf>)

CASM Conference

- Five theme groups formed
 - Curriculum
 - Educator Knowledge
 - Item Development
 - Professional Development for Teachers (I was part of this group)
 - Project Design

Implementation

- Fall 2019:
 - Class: Modern Algebra (Ring and Field Theory)
 - Program: Graduate Certificate in Mathematics
 - 10 Students: Secondary-level math in-service teachers
- Proof-based class - hence very demanding and hard for students To address:
 - Why taking this class?
 - How to make the class relevant for students?
 - What is the connection to the material they teach at the high schools?

Research Project

- Collecting data from the in-service teachers (pre- and post-surveys) about the material/topics covered:
 - What is the relevance of this material with respect to the secondary math content they teach?
 - How to better equip them in teaching secondary math topics?
 - Which topics will prepare math education students better for understanding secondary mathematics?
 - What are in-service teachers' opinions and suggestions on the topics?

Survey Questions IRB Protocol # 346; 360 # of surveys	Pre Survey	Post Survey
The Abstract Algebra material is relevant to secondary math content.	2.6	3.9
The Abstract Algebra provide connections to secondary math content.	2.5	4.3
The Abstract Algebra material equips the pre-service teachers to better teach secondary math content.	2.9	3.4
I have used Abstract Algebra material/concepts when teaching my secondary math classes.	2.3	3.9
I believe that Abstract Algebra material/concepts should be taught to pre-service teachers.	3.1	3.6

5 – strongly agree 4- agree 3 – neither agree nor disagree
2 – disagree 1 – strongly disagree

Student Feedback – Reflections

- I. Exam question – reflection:**
Describe your favorite part (or topic) of Modern Algebra class this semester. Explain why that part (or topic) was your favorite.
- II. Project question – Reflections on the course material**
 - address the topics covered;
 - which topics/concepts were most meaningful and useful for you;
 - which topic(s)/concept(s) was/were the most exciting and new to you;
 - which connections you see with this material and the high school curriculum;
 - what would you change or leave the same in terms of the course content; etc.
- Almost all the topics chosen by students as their favorites/most meaningful/useful, were the ones that
 - were most applicable in their high school classroom settings;
 - provided connections to the secondary math content
 - were familiar to the students
- In their comments, teachers expressed confidence that the class material and connections made helped:
 - they understand the majority of topics that were covered in the course and were familiar to them on a deeper level;
 - they can apply and explain many seemingly true statements (taken for granted) they use in their classes;
 - then communicate mathematics to their students by connecting concepts;
 - their students see relevance in mathematics.

Conclusion

- The feedback above confirms that the Abstract Algebra material
 - can be meaningful to teachers by connecting it with the secondary mathematics;
 - can support teachers to re-conceptualize, re-structure, and re-understand their knowledge of secondary mathematics.
- (Wasserman, N. (2018). Abstract algebra for algebra teaching: Influencing school mathematics instruction. Canadian Journal of Science Mathematics and Technology Education, 18(1), 28-47).
- The pre- and post-survey results show that students' opinions changed significantly about
 - the relevance of the Abstract Algebra to the secondary math content;
 - connections of the Abstract Algebra to the secondary math content;
 - recognizing these connections in their own classes.
- Why the small increase in change of the opinion of the students about the last question on the survey? Few conjectures:
 - the proof-based classes are difficult, demanding, and time consuming;
 - most of the in-service teachers have taken the needed prerequisite (Abstract Algebra course (Graph Theory)) long time ago;
 - lacking of good proof writing skills.
- Further research questions:**
 - What connections of Abstract Algebra can impact teacher instructions?
 - How can Variation Theory be implemented in Abstract Algebra classes with goal to impact teacher instructions?



SCHOLARSHIP *of*
TEACHING *&*
LEARNING



Dr. Duttagupta holds a Ph.D degree in Rhetoric and Composition from Arizona State University, along with a master's degree in Teaching English as a Second Language from the same institution. Her primary teaching interests lie in instruction of first-year/first-generation college students, and as Associate Professor in the Department of Literacies and Composition, she teaches both ENGH 890 and ENGH 1005. She is the co-author of a writing textbook called Everyday Writing. Her current research interests lie in applied pedagogical research based in the classroom, as well as in matters of inclusion and diversity as they apply to students.

Dr. Chitralekha Duttagupta
Associate Professor - Literacies and Composition

Collaborating with a “Study Buddy” To Understand Assignment Criteria: Results From One ENGH 890 Writing Class at Utah Valley University

This research arose from my personal observation through teaching writing classes at Utah Valley University that despite being provided with an assignment rubric and repeated explanations of that rubric, students often fail to meet assignment criteria. While some of this could be the result of lack of motivation among students, it led me to wonder (1) if it could also be the result of students misunderstanding assignment criteria and (2) if better results could be achieved (in terms of higher grades on their papers) if they worked in small groups to clarify assignment requirements. The purpose of this research, therefore, was to investigate whether working in small groups to clarify assignment requirements enables students to score better than students who do not collaborate with their peers **before** attempting the assignment. Other researchers have found that when students work in small co-operative groups, taking turns posing their questions to one another and answering each other’s questions, it promoted beneficial verbal interaction through elaborated explanations leading to improved student learning.

COLLABORATING WITH A ‘STUDY BUDDY’ TO UNDERSTAND ASSIGNMENT CRITERIA

Chitra Duttagupta, Utah Valley University

Introduction

The purpose of the study was to investigate if working in small groups to clarify assignment requirements enables students to score better than students who do not collaborate with their peers before attempting the assignment. I hypothesized that collaboration with peers before attempting the assignment will result in improved grades for students.

Methodology

- Two ENGH 890 classes during Fall 2019.
- Intervention class: 12 students worked in small groups of 2-3 to clarify an assignment.
- Control class: 13 students did their assignments individually.

Examples of Study Body Questions.

What are the two writing genres on which this assignment focuses?
As you start drafting the assignment, what are the most important things to remember about the characteristics of these two genres?
What may be some of the best ways to start each part of the assignment? Why? What are some of the best ways to organize both parts of the assignment?
What are some the ways to conclude each part of the assignment?
What questions do you still have about the assignment that your peer can help you with?

Results

Intervention group	Control group
A—3 students	A—3 students
B—6 students	B—8 students
C—2 students	C—2 students
D—1 student	

Conclusion

The hypothesis was not borne out by Fall 2019 results.

There seemed to be no significant difference between students who collaborated before attempting the assignment and those who didn't.

One reason the results did not support the hypothesis could be a small sample size. The study was supposed to include students from the spring semester but was interrupted by the Coronavirus pandemic 2020.

The data collection will continue next year.

Resources

- Butler-Paisley, William and Bruce Clemetsen. "The Value of Peer Interaction in the First-Term Community College Classroom: A Faculty Perspective." *Community College Journal of Research and Practice*, vol. 43, no. 5, 2019, pp. 327-340.
Hanju, Anne and Annika Akerblom. "Colliding Collaboration in Student-Centered Learning in Higher Education." *Studies in Higher Education*, vol. 42, no. 8, 2017, pp. 1532-1544
Wang, Yi-Hsuan. "Interactive Response System (IRS) for College Students: Individual Versus Cooperative Learning." *Interactive Learning Environments*, vol. 26, no. 7, 2018, pp. 943- 957.



Dr. Ron Hammond, Sandra Benton, Melissa Sherman

Dr. Ron J. Hammond has taught at 4 universities since 1989. His Ph.D. in Family Studies/ Sociology (BYU, 1991) and his postdoctoral research fellowship in Health and Social Aspects of Aging (CWRU, 1991-1992) Ron's entire career since 1992 has included many students in many projects and presentations of research findings that have strengthened both their employment and qualifications for graduate school programs. Ron now serves as Co-Chair of UVU's Grassroots SCULPT organization that trains, mentors, and provides support for faculty-mentored research, scholarship, writing, creative performance, and related activities. Ron regularly publishes his works in UVU's Berkeley Open Scholar Library.

Does a Simple Student Feedback Survey on Course Design and Structure Measurably Change: Retention, SRIIs, and Subjective Satisfaction over Time?

This UVU IRB Approved study (UVU Control #301) is based on the results of a 1-year pilot study using student feedback on Course Design and Structure as a tool for making informed changes and improvements to courses delivered in Canvas LMS. Based on a few available studies which assessed Canvas course design and structure, an original "Canvas Setup Survey" was developed and included in both a freshman and senior online section of the PI's own courses. The study began Fall, 2019 and will ultimately include a total of 4 academic semesters collected data which will be compared to existing: Retention, SRIIs, and Satisfaction measures. Preliminary findings from the pilot study and first semester data analysis will be presented. Ultimately the 2-year study will provide measurable indicators on how closely the PI's intended course design and structure harmonize with students' feedback of how that course design and structure could best work for them.

“Does a Simple Student Feedback Survey on Course Design and Structure Measurably Change: Retention, SRIs, and Subjective Satisfaction over Time?”

By Ron J. Hammond, Ph.D., Sandra Benton & Melissa Sherman (UVU)



Background & Context

This UVU Approved study (UVU Control #301) is based on the results of a 1st pilot study using student feedback on Course Design and Structure as a tool for making informed changes and improvements to courses delivered in Canvas LMS. Based on a few available studies which assessed Canvas course design and structure, an original “Canvas Setup Survey” was developed and included in both a freshman and senior online section of the PI’s own courses. The study began Fall, 2019 and will ultimately include a total of 4 academic semesters collected data which will be compared to existing: Retention, SRIs, and Satisfaction measures. Preliminary findings from the pilot study and first semester data analysis will be presented.

Central Research Question and Hypotheses

Null Hypotheses: H_0 there are no significant differences* in statistical comparisons when comparing average 4-semester Retention & UVU SRI items to Data Collected Fall, 2019

*This research is preliminary and can only be analyzed for Fall, 2019 collected data at this point.

*Significance level $\leq .05$

Demographics of Overall Samples

Categories	SOC 1020	SOC 4020	Total
Age (Mean/Med)	(27.3/25.0)	(27.1/25.0)	(27.6/25.6) years

Prior Modality Expt^a

Online & Hybrid	85%	88%	65%
Online & In-person	75%	88%	81%
Online, Hybrid, & LI+	49%	55%	51%

Sum of All Courses Prior Credits

(Mean/Med/Rng) (21.6/24.0/36) (19.9/21.0/72) credits

Class Standing Percentages^b

Freshman	0%	7%	4%
Sophomore	2%	20%	12%
Junior	29%	48%	40%
Senior	69%	23%	44%

Canvas Setup Scores^c

(Mean/Med) (19.9/21.0) (17.9/17.8) (18.4/18.3)

“Convenience” (19.0/20.0) (17.1/15.3) (18.0/19.3)

“Clarity of Expect.” (20.0/20.0) (17.1/16.0) (20.2/23.5)

“Sum of All 3 Scores” (58.5/60.5) (51.4/48.0) (54.1/55.5) scores

NOTE: *Data based on Fall 2019. Percentage who took >3 Courses. Percentage who took 1-2 Courses. Percentage who took 3 Courses. **Sum of all 3 scales. ***Sum of Canvas Setup Survey 3rd items in each scale

Demographics of 142 & Low and High Age Quartiles

Categories% Low (N=47) High (N=49)

Fr. 95% 0% (Mean/Med)

So. 13% 4% SOC 1020

Jr. 43% 8% Hybrid

Sr. 36% 57% Hybrid Scale

1020 47% 49% Convenience Scale

4020 53% 51% Clarity Scale

All Scores (55.2/59.0) (53.7/68.0)

SOC 4020 88% 100% Prior All Mod.

Hybrid 65% 65% Prior All Mod.

In-Person 8% 8% Hospital Scale

Online-LI+ 53% 51% Convenience Scale

Online/Hyb. 68% 65% Clarity Scale

Online/Live-I. 53% 51% All Scores (48.9/49.0) (53.2/47.5)

Age Quartiles: Low (N=47) and High (N=49): Independent T-Tests

Preliminary results indicated a need to compare Low (Mean Age 21.75, Med. 22.00, Range 19-22) and High Quartiles (Mean Age 35.78, Med. 29.00, Range 29-60). All 44 Variables were compared using Ind. T-Tests on 44 variables. Results showed an intriguing pattern. First, the Low Quartile Group scored lower on a total of 37/44 variables. The Low Quartile scored slightly higher on only 7/44 (not sig.) variables. They also scored significantly lower ($\leq .05$) on 6 variables.

Precise demographic comparisons (see below left column) showed that the Low Quartile group had a slightly higher percentage of Freshmen, Sophomores, and Juniors; in the SOC 1020 online course; lower percentages in the Prior Online (ever taken at least 1 online) and Total Sum of Modalities scores (not sig. $\leq .05$). The High Quartile Group had higher: Seniors; 1020 students; Prior online & Total All modality scores Higher mean scores on all 3 scales (Helpfulness, Convenience, and Clarity of Expectations scales) and Sum Total of 3 scales (not sig. $\leq .05$). The high Quartile Group scored lower on Prior: Hybrid, In-person, Live-Interactive, Online & Hybrid, Online & Live-int, modalities; and percent in 4020. None of these are Sig. at $\leq .05$ level. Therefore lacking any significant difference the Low and High Quartile Groups were found to be very similar in many ways. It should be mentioned that the Low Quartile Group scored significantly (sig. $\leq .05$) lower on mean prior online credits earned (Low= 4.77 credits) prior to taking this course (the High Group earned 7.82 credits).

Figure 1 shows T-Test Comparisons between Low and High Quartile Age Groups on 9 Variables (3 each from the “Helpfulness,” “Convenience,” and “Clarity of Expectations” Scales Questions). The Low Quartile Group scored lower on all 9 variables compared and significantly lower on 6/9 variables. Of the combined 30 question in the 3 scales, the Low Quartile Group scored Lower on a total of 28/30 (9/10 for Helpfulness; 9/10 for Convenience; & 10/10 for Clarity of Expectations). This indicates an overwhelming clear pattern of the Low Quartile Group giving consistently lower ratings of their online course.

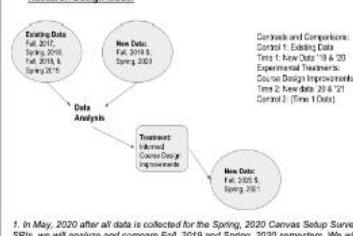
Figure 1. Independent T-Test Results on 3 Scale Questions compared From 3 Scales (Helpfulness, Convenience, & Clarity of Expectations) between Low Quartile (N=47) and High Quartile (N=49) Groups

Legend: Low Quartile = High Quartile



2-Year Research Design-Model

Research Design Model



1. In May, 2020 after all data is collected for the Spring, 2020 Canvas Setup Survey and SRIs, we will analyze and compare Fall, 2019 and Spring, 2020 semesters. We will also combine both semesters and analyze.

2. We will modify course design and structure as indicated by the data results.

3. For AY 2020-2021 we will then collect more data in the next academic year and repeat the process.

Results from Like Most, Like Least, & Any other Suggestions about Canvas Course Setup

	Low Quartile N=47	High Quartile N=49 Listed Most to Least Freq.
Liked the Most Assignments	35/47	39/49
Liked the Most Course Design	32/47	28/49
Liked The Least Discussion Boards	6/47	4/49
Liked The Least Unclear Instructions	7/47	7/49
Liked The Least Sunday Due Dates	19/47	0/49
Liked the Least Use of Modules	0/47	17/49

Literature & Preliminary Conclusions

Recent Studies: Online course quality (design, structure, and collection of student feedback) can have an impact on desirable outcomes in a course.

• Glaser (2016) reported that students retain more knowledge when they are more engaged in the online experience. They also reported that course design patterns of students in active learning environments influenced retention rates.

• Cole, Shelly, & Swartz (2014) reported that a number of studies identified how online course design and structural elements have been found to be statistically related to satisfaction and/or retention, including quality of student-faculty and student to student interactions, clarity of course and assignment expectations, availability of resources and instructor, and the quality of student engagement with the course and its instructor.

• Richardson, Maeda, & Caskurlu (2012) meta-analysis results (25 articles) also indicated the importance of course design and delivery with a strong faculty online social presence influencing retention and student satisfaction with the course and student perception of having learned from the teacher. They also found that student satisfaction and student perception as measurable outcomes.

• Kanaff (2016) meta-analytic results (402 articles) measured academic achievement, student attributes, and retention as dependent variables and student learning modalities as independent variables.

Online Learning Theory: Engagement Theory

The online teaching theory used for this analysis was Engagement Theory as proposed by O’Brien and Toms (2008) theoretical approach focusing on the importance of student self-direction and meaningful involvement in their learning.

Next Steps in the Study

Submitted Amendment to UVU IRB Board to modify Survey:

1. The unexpected influence of high and low age quartiles, lead to a slight modification which was made to the survey responses option “Age” Question. “Age” now asks the respondents to type in their actual current age in years (rather than select from range of ages, previously Provided).

2. Also, we added a new Question “Have you ever taken UVU’s Canvas Tour® module? If yes when?

Bawa (2016) analyzed the relatively lower retention rates among online compared to on-campus college students and discussed the need for online orientation training for both students and faculty. It is highly recommended as a predictor of retention.

References

- UVU IRB UVU Committee Positions in 2018-2019. Table found at <http://www.utahvalley.edu/irb/documents/IRB%20Position%202018-2019.pdf>
- UVU (2019), Statewide Faculty Summary, UVU Data Learning Tab (Total Faculty). Retrieved 7 November, 2019 from <http://www.utahvalley.edu/irb/documents/1023242020-0923242020-0923242020.pdf>
- USHE (2015) in that, in 2015 USHE required that USHE institutions set goals to increase college completion rates at the state higher education institutions in order to increase college completion rates.
- UVU Faculty Senate, 2017 & 2019a/b. Agenda Item II: “Online learning certificates – UVUCCU is now a admin imperative (class 3 or present & 12 min video). Prior doc: UVUCCU policy – UVUCCU guidelines (containing administrative procedures for the issuance of online learning certificates) – Admin 492010. Minutes found at <http://www.utahvalley.edu/irb/documents/1023242020-0923242020-0923242020.pdf>
- UVU OTL Non-credit Self-paced course “OTPA-1” <https://www.utahvalley.edu/otl/>
- Glasier, R. A. (2016). Building Reports to Improve Retention and Success in Online Classes. *Journal of Political Science Education*, 12(1), 1–17. doi:10.1007/s10985-015-9240-6
- Cole, M.T., Shelly, D.J., & Swartz, T.B. (2014). Online Instruction, E-Learning, and Student Satisfaction: A Three Year Study. *International Review of Research in Open & Distance Learning*, 15(3), 111–131. http://www.atl.org/irrodl/index.php?journal_id=1&volume=15&issue=3&page=111
- Rosenzweig, J. C., Im, J., Y. Li, & A. Casner-Soltész, S. (2017). Social presence in relation to student satisfaction and learning in the online environment: A meta-analysis. *Computers in Human Behavior*, 71, 452–457. <https://doi.org/10.1016/j.chab.2017.02.001>
- Akbari, S. (2014). A Meta-analysis of the Effects of Instructional Design Based on the Learning Styles Model on Academic Achievement: A Systematic Review. *Scholarly Teaching and Practice*, 9(3), 205–208. Retrieved from <http://search.proquest.com/docview/1494713290/se-2/1>
- Goss, P. (2015). Retention in Online Courses: Exploring Issues and Solutions—A Literature Review. 1–11. January–March. SAGE Open DOI: 10.1177/2184957214521777
- O'Brien, H. L. and Toms, G. (2008). What is user engagement? A conceptual framework for defining user engagement with technology. *Journal of the American Society for Information Science and Technology*, 59, 6, 694–695. <http://doi.org/10.1002/asi.20691>

Decline in Youth Volunteerism: Why is it Occurring and How Can it Be Helped?

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Introduction

Upon conducting a literature review, a downward generational trend in community service activity among youth ages 18-24 years old was identified. We hope to determine the reasons for this age-related decrease through a survey that establishes the barriers, motivations, experiences, and perceptions of volunteerism. Our goal is to use this data to eliminate barriers and increase volunteerism amongst this age group. Because we know that service learning has been identified by the Association of American College and University (AAC&U) as a high-impact educational practice, we would like to find ways to promote this practice on campus to increase retention.

Objectives

To identify the following from UVU students:

- ❖ Perception and history of volunteering.
- ❖ Motivation to perform service.
- ❖ Ways to increase service participation.
- ❖ Favored organizations that provide service opportunities
- ❖ Barriers to performing service.

Methodology

We created a survey with questions directed toward volunteering. The surveys were administered by Phi Theta Kappa chapter officers to UVU students. The survey was also submitted to the behavioral science participant pool. The student populations surveyed included fellow class members, friends, PSY1010 students, and others found around campus including in the hallways of various buildings. Our aim was to survey a variety of students that would best represent the student population.

Our research methods included both quantitative and qualitative measures with a few open-ended questions, yet one that requested a numeric response.

The open-ended questions allowed us to discover students' perceptions to perform service and opportunities to increase participation in service. Additionally, we had students identify barriers to performing service.

Results and Discussion

Word Cloud: What Would Help You Volunteer More?



Figure 1.
When Did You Last Volunteer?

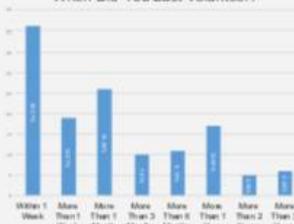


Figure 2.
How Often Do You Search For Service Opportunities?

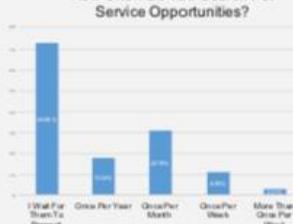
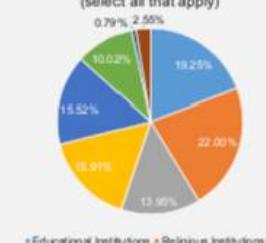
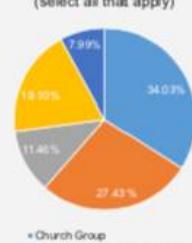


Figure 3.
Where Have You Identified Service Options?
(select all that apply)



- ❖ Educational Institutions
- ❖ Religious Institutions
- ❖ Family
- ❖ Social Media
- ❖ Friends
- ❖ Church Group
- ❖ Clubs
- ❖ Phone App

Figure 4.
Who Organized the Service Projects
(select all that apply)



- ❖ Church Group
- ❖ Organization Through School
- ❖ Organization Outside of School
- ❖ Family Activity
- ❖ Other

Conclusions

Out of the 136 students who have taken our survey, 54% stated that they do not search for service opportunities, but rather wait for them to present themselves. This sentiment is further substantiated in the responses to the question, "Where have you identified service opportunities?". While only 1 out of the 136 found organizations to serve, the remaining respondents were directed to volunteer by other organizations or groups. Congruent to our literature review, educational and religious institutions provided the most service opportunities. Also predicted, the number one barrier to performing service, as identified by 97 UVU students, is not having enough time. Surprisingly, almost as many respondents, 68, selected not knowing where to find opportunities. While "more time" was predominantly listed to answer, "What would help you volunteer more often?", another response given quite frequently was "opportunities". Although we are analyzing preliminary data, so far our research indicates that helping promote and provide service learning activities would enable more students to participate.

Future research

- ❖ Discover resources or organizations on campus that could help develop a phone application where service projects from local organizations could be collected and easily accessible to students at Utah Valley University.
- ❖ Collaborate with Center for Social Impact on creating a service awareness program on campus to educate students on opportunities available.
- ❖ Host time management seminars on campus during certain awareness weeks and specifically focusing on how to fit time into an individual's schedule to volunteer.
- ❖ Perform post survey to assess if methods were effective in increasing service or retention

Literature cited

Battag, Amorette C., "An Examination of Volunteer Motivations and Characteristics Between Required Volunteer Service and Non-Required Volunteer Service in College Students: An Exploratory Study" (2010). University Honors Program Theses. 16. http://digitalcommons.usu.edu/uhp_theses/16

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

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<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

<http://dx.doi.org/10.1007/s10902-007-9103-0>

Brinkmann, S., & Vaartstra, A. (2008). Volunteering and well-being: A meta-analysis. *Journal of Happiness Studies*, 9(2), 125-142.

[http://dx.doi.org/10.1007/s10](http://dx.doi.org/10.1007/s10902-007-9103-0)