



# The First Phase of Development of Health Learning Package by Applying Technology-Based with Autonomous Learning Approach to Enhance Covid-19 Literacy and Health Behaviors as Lifelong Learning Skills

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## Abstract

This paper demonstrated the first phase of Development of Health Learning Package by Applying Technology-Based with Autonomous Learning Approach to Enhance Covid-19 Literacy and Health Behaviors as Lifelong Learning Skills. Qualitative method was organized. Guideline questions for semi-structured interview as a research instrument were developed using content validate to constructed component of the Health Learning Package (HeL-pack). This paper presented the finding in part of the component including (1) the stated concept of Covid-19 literacy, (2) the manual for HeL-Pack including guidelines to practice autonomous learning, application of using technology, (3) pre-test for Health literacy (HL) and Health behavior (HB), (4) learning activities, (5) learning materials and (6) post- test for HL and HB.

Keywords: Health Learning Package; Health literacy; Health behavior; technological and autonomous learning approaches

## Purpose and the Background

A huge number of COVID-19 cases have been increasingly surging due to the lack of efficient preventable or curable means. The lancet (2020) states that “there is numerous information toward covid-19, but there is also complex, contradictory, and false information.” To contain this deadly disease, health literacy (HL) and health behavior (HB) toward covid-19 must be seriously educated to people. Consequently, effective educational approaches are needed to counteract the damaging effects of the infodemic, a massive amount of widely and rapidly circulating information about during COVID-19 crisis. This is as well as to increase empathy towards population groups at risk of stigmatization. To solve the problems, not only should public health or the social measures have responsibilities to slow or stop the spread of COVID-19 but health educators must also attentively cooperate on this globally catastrophic challenge. Producing learning pathway to educated young people is one of the best ways to prevent Coronavirus disease (COVID-19), a communicable disease caused by the SARS-CoV-2 virus.

According to World Health Organization (2022) namely WHO states that the best way to prevent and slow down transmission is to be well informed about the disease and how the virus spreads. Protect yourself and others from infection should be concerned. Consider from the WHO weekly report during the end of March 2022, the number of new cases dropped again with a 14% decrease as compared to the middle of March. Many countries expect to declare the disease

endemic, like many European countries, to promote tourism and economic recovery. However, the number of new weekly deaths has grown by 43%, this COVID-19 still called “Deadly Disease”. That means the individual prevention should be educated and introduce for people to live with COVID-19 in our “Sustaining the Next Normal Living”.

The purpose of this paper aimed to demonstrate the first phase of the development of Health Learning Package using Technology-based with Autonomous Learning Approach to enhance Covid-19 Literacy and health behaviors (HB) as lifelong learning skills (LLS) for year three undergraduate students studying in Health and Physical Education. The four-year preservice teacher education program in Thailand is required student to internship as a teacher training in a primary, secondary, or a high school for a semester (about 20 weeks or five month) by the Teachers Council. This Health Learning Package (HeL-pack) could benefit the Health Education Preservice Teachers to develop Covid-19 Literacy and HB as well as LLS. It is very important for Health education teacher to have those skills especially, the preservice teachers who would teach their students at school during their internship.

This HeL-pack is an innovative health education learning package that developing by applying technological and autonomous learning approaches. Technological learning is one of our new 21st century skills. Learners should be trained to use multimedia and digital tools (Scott & Cynthia, 2015; Facer, 2011; Facer & Sandford, 2010; Stehle and Peters-Burton, 2019). Moreover, the autonomous learning approach is the concept for lifelong learning and is not only using online skills but also onsite skills that could be practical. The main characteristics of autonomous learning are self-reports, diaries, evaluation sheets and persuasive communications as a means of altering learners’ beliefs and attitudes (Benson ,2013). Those characteristics are needed to be practiced and trained before and during the process of learning with the teacher as a facilitator. This way students will not be isolated and must learn by themselves. The two approaches will be integrated to become new learning and teaching methods for the future educational system. These characteristics will promote learners as producers instead of transformers. According to Scott, Cynthia (2015), the new generation of digital tools is allowing students to become generators of content instead of passive consumers of knowledge, indicating a preference for active approaches to learning. The treatment will be developed as a smart learning package using research-based information. This HeL-pack also provides students to develop HL and LLS. According to Health People (2020); Chanuantong (2021). Hanemann & Robinson (2022) LLS extend the foundation for learning and working as the skills support students thinking, self-management, and social interaction, empowering the pursuit of education and vocation goals. Lifelong learning needs not only literacy but also health literacy (HL) because people’s wellbeing depending on being healthy and being healthy needs HL to access qualified health care information. The benefit of HeL-pack is a tool of learning that responsible consumption, and production (SDG 12 target 12.8) as all students and people can access health care information from at anytime and anywhere. It is also can promote lifelong learning prospects for all in the sustainable development goal 4 (SDG4). HeL-pack also helps them develop their awareness into health behaviors as well as students could apply HL for updating new information all the time of the ages. Therefore, this study can be considered as a Lifelong learning, sustainable development, and lifestyles in harmony with nature living.

## Approach

Health education learning package (HeL-pack) is an innovative tool that integrates between technological and autonomous learning approaches. The two approaches can be applied as a new learning and teaching methods for the future educational system. These characteristics can promote lifelong learners as producers instead of transformers. According to Frey (2007); and Scott, Cynthia (2015), the new generation of digital tools is allowing learners to become generators of content instead of passive consumers of knowledge, indicating a preference for active approaches to learning. The treatment will be developed as a smart learning package using Technology and Autonomous learning approaches. The study aims to develop a learning package called HeL-Pack to enhance HL based on Covid-19 and HB.

## Learning Package

Quebec Ministry of Education (2022) states that preschool, elementary and secondary education, teaching and learning must correspond to basic materials, which include teaching and learning task as well as learning packages. Learning package could be use as teaching material in classrooms or can be adapted as self-learning packages or Home-based learning material, depending on teacher designing and set the purpose of the lesson. The definition of learning package shall be analyzed from as a set of learning and teaching instrument to enhance learning ability which can be the course(s) and study programs and or related materials for learner support, tuition. (Ekapote, Usa, and Vijitra, 2021; Quebec Ministry of Education, 2022) The component of a learning package consists of learning tools, including a printed textbook (content), students and a printed or electronic teacher's guide, and evaluation activities. It may also include other electronic elements as learning and instruction VDO clips. The learning package is designed particularly for teaching and learning, and is considered a support, facilitation, and reference means. It intends to develop students' social perspectives and promote community values. It should promote learning experiences and present suggestions for developing cross-curricular competencies. The textbook and the teacher's guide should cover the complete program including learning outcome, content, learning activities, and assessment for a subject, or several subjects in the case of cross-curricular learning (Cassarino, 2003; Quebec Ministry of Education, 2022). The development of learning packages considers learners' needs and wants to design learning tasks, activities, and assessment that relate to the learning objectives as well as consider the cognitive processing of information among others (Cassarino, 2003). Additionally, to support learning, the development of the packages require that must be a shift from content-transfer to allows learners to reflect on their learning as well as to allows them to cooperate with each other (Singh et al, 2009; UNESCO, 2020). The recruiting criteria a learning package should be considered to ensuring the effectiveness for learners. Ministry of Education Quebec, 2022 suggests that the effective learning packages should; 1) be able to solve the learner's problem, 2) be directed to the solution of a health problem of major importance for the people, 3) make good a deficiency in the existing teaching system or in existing educational tools 4) not needlessly be superimposed on another package dealing with the same problem, 5) allow for the possibility of prompt updating when required, and 6) be more effective and economical than any other

educational tool serving the same purpose. Moreover, the evaluation criteria of the leaning package concerns with pedagogical aspects. The teaching and learning materials should be coherent with the requirements of the objective of the learning outcomes, learning process, and evaluation. Consequently, a learning package should include guidelines, application or media device, pre-test, learning process, learning materials and post- test

Technology-Learning approach can be used for managing learning process anywhere and at any time. This approach is very suitable in this Covid-19 spreading as can manage the leaning online from home. In addition, and mainly due to the learning curves introduced by technological skills development as sustainable learning tools. This can be considered as the advantages for teachers to promote learning to learn and learning how to use as well as practicing how to apply technology as the means of learning to learners to skillful for future skills. The Technology-Learning approach is included online learning, blended learning, flipped learning, hybrid learning, flexible learning, open learning, and distance education. These terms are often applied correspondently, but there may considerably differences in sense or key term of concept. For this study, the term "Technology-Learning approach" is defined as flexible learning as the Health Learning Package (HeL-Pack) developing for teacher to use as media while teaching in both onsite and online class as well as this HeL-pack can be used for flipped class or learner self-learning package. Additionally, these styles of learning media, can be considered to some extent and increasingly getting on superior impact and in some situations develop into mainstream themselves. As teachers grow into more familiar, frequently use with more confident as well as have better skills for online teaching and learning new technologies, these will bring more innovative instructional methods developing far and wild all the time. Surrounded by the educational field, teachers are adopting, learning, and integrating new technological tools and utilizing them within their teaching practice to promote their learners to meet learning goals. Technology Learning approach focused on creating curricula and materials more extensively available using technology, as posting class materials online via many pathways such as YouTube, Line, Zoom, Google classroom, Blackboard, and more. However, learner must be trained, prepared with orientation to be able to use technology as tools of learning.

Autonomous learning has been a widespread concept in education field primary used in language learning the past decades, and it has been considered in relation to lifelong learning skills (Mun Shin Cheong, 2022). It has transformed old practices into new style of learning and applied to use for many contents subject learning approach. Learners currently need to use three main types of autonomous learning skills: 1) general learning or study skills, such as researching, making choices and decisions about one's learning; 2) language learning skills or abilities for different focuses, such as independent writing and revision skills, extensive reading; and 3) technology user skills , such as computer literacy skills, database management skills, website development skills, digital literacy skills, project management skills, and media literacy skills. Holec (1981) suggested autonomous learning means that the ability to be responsible for their own learning, by determining learning objectives and learning content, selecting learning methods, self-observing and self-assessing learning outcomes. In addition, Education Endowment Foundation, (2018) encourages teachers to develop their pupils' understanding of themselves as learners through awareness of their strengths and areas for development. As mentioned previously

reflective practice supports the learners in identifying their future learning goals. Research perspective also constructed the learning strategies as Roque, et al., (2020) examined the learning of future health professionals is fundamental to the training of competent professionals. In this study, it was aimed to clarify the correlation between academic objectives and learning strategies in learners registered from the first to the sixth semester in seven areas of the Faculty of Health Sciences of the National University of Chimborazo. A correlational design was used to investigate via questionnaires for evaluation of academic outcome and strategies for autonomous learning strategies were employed. The findings indicated that the types of academic objectives and autonomous learning strategies had a homogeneous form in most of the seven specialties studied. The correlation between autonomous work strategies and the types of academic outcome of the learners in the sample was largely low or non-existent and direct. This study demonstrated that autonomous learning can be applied in health education or health science and in any other field, and the finding also suggested that to promote autonomous learning instructors or teachers need to be concerned with preparing student to learn how to learn when becoming an autonomous learning. This learning approach is very important for future skills of learning as a lifelong learner (McLoughlin and Lee, 2010). Especially in this Covid-19 situation, the online learning make learner to be self-directed person. To improve learners to assume superior self-control over their own learning it is critical to support them to become aware of and recognize the approaches that they already employ or could potentially use (James and Garrett, 1991). At any rate, particular learners differ in their learning patterns, interests, requirements, and motivation, and develop changing levels of autonomy through their lives (Richard, 2022; McLoughlin and Lee, 2010). Principles of Autonomous Learning include readiness, exercise, effect, primacy, recency, intensity, and freedom. Readiness implies a degree of willingness and eagerness of an individual to learn something new. Exercise states that those things most often repeated are best remembered (Omaggio, 1978). The Autonomous Learning Principles and Process should be concerned with be the insights into the learners' learning styles and strategies; take an active approach to the learning task for practice; willing to take risks, i.e., to communicate in the target language at all costs; be good guessers; attend to pattern and also to content; develop the target learning target into a separate reference system and are willing to revise and reject hypotheses and rules that do not apply; and have a tolerant and outgoing approach to the learning objectives. Moreover, Richards (2022) suggested five principles for achieving autonomous learning: 1) active involvement in student learning; 2) providing options and resources; 3) offering choices and decision-making opportunities; 4) supporting learners; and 5) encouraging reflection.

Candy (1991) states that autonomous learners can be describes that “autonomous learner should be trained to be methodical/disciplined, logical/analytical, reflective/self-aware, motivated/curious, flexible, interdependent/inter-personally competent, responsible/persistent, venturesome /creative, creative/have positive self- concept, independent/self-sufficient, skilled in seeking/ retrieving information, knowledgeable about/ skilled in learning, able to develop/ use evaluation criteria, Technology can play a big role in increasing the effectiveness of autonomous learning, especially in connecting, collaborating, and constructing learning”

Covid-19 Literacy and Health Behaviors, this study focused on Health literacy and Health Behavior toward Covid-19.

Covid-19 disease has increased the quantity of health information existing on online social network which created online information more complicated than they should be. The accurate information is very important for people to access and apply to understand the disease to prevent themselves and their community. Therefore, health literacy needs to be promoted.

Covid-HL Network (2021) state that “Health literacy is the ability to find, understand, appraise, and apply health information, is therefore more important than ever for people in order to navigate these information environments and use health information to inform their behavior”

Healthy People (2020) provides the new Health literacy that the ability to use health information rather than only understand it, ability to make “well-informed” decisions rather than “appropriate” ones, the ability to have responsibility to address health literacy and it should be incorporate a public health perspective. The primary well-known research, Nutbeam, (2000) and Schulz and Nakamoto (2005) suggested three component of health literacy; 1) functional health literacy described as basic reading and writing skills to understand and use health information, 2) interactive health literacy as advanced cognitive thinking skills to recruited with health-care service and to interpret; and 3) apply information to changing circumstances and as critical health literacy as advanced cognitive skills to analyze information to apply in daily life living. Interestingly, Chanuantong (2021) has synthesized by saying that:

“health literacy is still unclear. The conceptualized knowledge as the core of health literacy by describing health literacy as a “knowledge-based competency for health promoting behaviors. However, if we consider the Ottawa Charter, there is no knowledge component but there is a personal skill component, therefore it is possible to translate ‘knowledge’ into ‘information’ in the Health Literacy Approach. This argument needs more research support. What is most acceptable and agreed upon among professionals who conduct health literacy and public health literacy is the multicomponent or contextual component and the health outcome component. Therefore, in measuring the success of the program or policy, we need to measure the number of health literate people on the positive change of their health status rather than the level of knowledge change”

Consequently, Health information is key for people to be able to develop their understanding of health literacy toward covid-19 applying from the recommendations from international organization and many researchers related to health care to do to protect themselves and others. It is of extreme value that information creators and providers deliver information in the aspect of easy-to-find, easy-to-access, easy-to-understand, and easy-to-use health information. As well as health literacy should be concerned what the health status of the people rather than knowing information toward health care and prevention for wellness life.

### **Health Behavior Toward Covid-19**

Health behavior is connected to health knowledge, attitudes, and practices that simultaneously contribute to influence the actions toward health. Health behavior is very important issue as it can



directly affecting humans' life living with wellbeing or not. To maintain, accomplish, or improve better life as well as avoid disease. Health behavior reflects the health-related attitudes of an individual (Hildt-Ciupińska, Pawłowska-Cyprysiak K., 2020). Health behavior can be promoted through health education as education aim to change learners' behavior, knowledge, attitude, and practice. This study developed the content related to Covid-19 for the HeL-pack by applying the Classification of Health Care Functions which include cause and effect, symptom, prevention, curative care, and rehabilitation suggested by OECD/Eurostat/World Health Organization (2017). The learning activities in HeL-pack were also follow the suggesting designed by UNICEF Thailand (2020). In which teachers can apply or integrate the learning goals related to Covid-19 or can be able adapt the teachings and learnings about other transmittable diseases such as the hand, foot, mouth disease or influenza viruses.

## Methodology

This qualitative research was conducted using semi-structured in-depth interview from 15 purposive samplings of 3 groups of 5 each, health educators, learners, and public health experts. This is a part of a research and development (R&D) study in Thailand context. This paper demonstrates the first part that consists of 2 steps. First, a needs analysis using Structural Equation Modeling (SEM) were conducted to determine what the learning package should include as the components. Second, the completed HeL-pack was analyzed using content analysis and qualified by 5 experts who have at least 10 years' experience in teaching both theories and practices, examined the HeL-pack including content validity and determine index of item objective congruence ( $IOC \geq 0.5$ )

## Results

The outcome of the study includes HeL-pack Kits, modules, soft/hard copies, AV materials, Test Protocols. The package's components are as following.

- 1) The stated concept of Covid-19 literacy includes cause and effect, symptom, prevention, curative care, and rehabilitation and the content must be concerned with learners age, level of learning, or learners' background knowledge or health status.
- 2) the manual for HeL-Pack including guidelines to practice autonomous learning, application of using technology. Teachers or instructors must introduce how to practice autonomous learning by teach learner how to process and applying Autonomous Learning.
  - a. Setting goals: Learners achieve by producing a list of goals to know where to start the learning procedure.
  - b. Recognizing learning styles: students learn in different way, and, with autonomous learning, students can determine which learning style suits them best.

- c. Setting focus on improvement: Instead of focusing on grades, students underline learning objectives to establish success targets.
  - d. Support: Whether in a distance learning classroom or blended learning — with a mix of online and onsite instruction — learners need assistance to continue attentive and develop their cognitive skills.
- 3) Pre-test for HL and HB

- a. The HL test consists of four mail elements; what are the finding related to Covid-19 information? how to access the Covid-19 information, the accuracy of understand toward Covid-19, and where, when, and how to use health information toward Covid-19
- b. The HB test consists of three mail elements, which are knowledge, attitude, and practice.

4) Learning activities suggests to included online learning, blended learning, flipped learning, which is flexible learning. Learning materials can be posted online via many ways such as YouTube, Line, Zoom, Google classroom, Blackboard, but learner must be trained, prepared with orientation to be able to use technology as tools of learning at the beginning of process.

5) Learning materials must encourage interactions between learners and teachers, grow interchange and cooperation, and inspire active learning, provide feedback, emphasize time on task, communicate high expectation and should respect diversity of talent and learning in learners. The teaching and learning resources can be visuals aids, vdo clips, posters, flashcards, presentations, printed hard copy, textbooks, infographics, and application for learning via game, and or simulation.

6) Post- test for HL and HB can be used the same as post-test or using parallel tests if the learning process take less than 6 weeks as the learners may still remember the preset.

The result from experts shows that HeL-packwas qualified with IOC= 0.9 (Index of Consistency) and with suggestion to implement in different context of learners for further studies.

### **Originality/Value of the Paper**

Through the developed HeL-pack, this program could:

- 1) Enhance the health literacy of participants on the different aspects of COVID19.
- 2) Improve participants' levels of health behavior- knowledge, attitudes, and practices- towards the control and prevention of COVID-19.



- 3) Promote lifelong skills in autonomous and technology-based learning approaches.
- 4) Strengthen capabilities of health and physical educators as program planners and implementors.
- 5) Develop sustainability among collaborators in implementing medium and long-term activities in the control and prevention of COVID10.
- 6) Promote cultural awareness in developing and implementing technology-based health-related initiatives among nations.

## Conclusion

This Health Learning Package (HeL-pack) has synthesized based on Technology-Based with autonomous learning concept which aimed to enhancing health literacy (HL) and health behaviors (HB) for learners and people who can access to internet. The HeL-pack provides materials and guidelines for instructors and autonomous learners which qualified by experts in education. The beneficials of this pack are not only promoting HL and HB, but also lifelong learning skills. Moreover, lifelong learning has been identified as key to the success of sustainable development goal 4 (SDG4) and SDG 12 target 12.8, and quality education in the 2030 Agenda agreed by the United Nations member states since 2015.

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