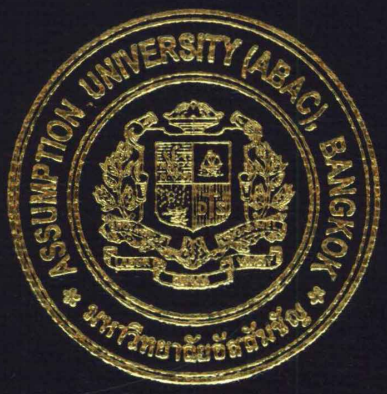

ASSUMPTION UNIVERSITY OF THAILAND

GRADUATE SCHOOL OF ADVANCED TECHNOLOGY MANAGEMENT

By

KHANAWATH TERANITIWATH

A Dissertation

Submitted in Partial Fulfilment of the Requirements for

the Degree of Doctor of Philosophy

in eLearning Methodology

August 2020

Assumption University of Thailand

Graduate School of Advanced Technology Management

DEVELOPMENT OF A HOLISTIC HEALTH INTEGRATED LEARNING SYSTEM FOR HEALTH-CONSCIOUS EXECUTIVES IN THAILAND

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DEVELOPMENT OF HOLISTIC HEALTH INTEGRATED LEARNING SYSTEM FOR HEALTH-CONSCIOUS EXECUTIVES IN THAILAND. **Researcher**: Khanawath Teranitiwath; **Advisor**: Asst. Prof. Poonsri Vate-U-Lan, Ed.D. **Degree**: Doctor of Philosophy in eLearning Methodology; Graduate School of Advanced Technology Management, Assumption University of Thailand, 2020.

ABSTRACT

The objectives of this study were (1) to create Holistic Health Integrated Learning System (H-ILS), (2) to compare a score of self-holistic health comprehension appraisal between health-conscious executives who learned under the H-ILS and under traditional eLearning class, and (3) to compare a pre-test and post-test score of self-holistic health comprehension appraisal of health-conscious executives who learned under H-ILS.

This research was a mixed methods research. The population of the study was 479 health-conscious executives of IFARM's members who resided in various parts of Thailand. IFARM was an academy which aimed to educate people, mostly young executives, about health and agriculture. Initially, purposive sampling was employed to screen the sampling. Subsequently, convenient sampling was administered to assign them into two groups. Based on their ability to attend a face-to-face class in Bangkok, they were assigned into two groups. Twenty-eight people were assigned to the experiment group (H-ILS) because they could participate in the study in Bangkok, whereas 26 people who were not convenient to travel were assigned to the control group (Traditional eLearning group). Therefore, the sampling size in this study was 54 people. The research was comprised of two significant steps. The first was the development of the H-ILS, which was based on qualitative exploratory research. Then, an in-depth expert interview, in accompany with literature review and the researcher's own experience as a pharmacist, was exploited to develop the H-ILS, and then fine-tuned by learners and experts in a tryout process. The research instruments were interview form and tryout assessment form. The second step was the experiment, which was quantitative research, quasi-experimental design was employed. The research instrument was a 25-item self-holistic health comprehension appraisal form with IOC validity and Pearson correlation at .85. In reply to the 2nd research question, the data were, in terms of the Independent Samples T-test, analysed using means and t-test. In answer to the 3rd research question, the data were analysed using the T-test in terms of the Paired Samples T-test.

The findings were as follows: (1) On the development of the H-ILS, it found that six critical components of the H-ILS were comprised of (i) traditional classroom; (ii) Dhatu check and health check; (iii) health expert; (iv) traditional eLearning; (v) online social learning; and (vi) learning content. 2) After the experiment, the post-test score of the H-ILS group's self-holistic health appraisal (68.68, SD=6.673) was higher than the traditional eLearning group (57.58, SD=8.110). The result of the Independent Samples T-test was statistically significant ($P \leq 0.01$). 3) The H-ILS group's means score was 47.07 (SD=12.640) in the pre-test and 68.68 (SD=6.673) in the post-test. The result of the Paired Samples T-test was statistically significant ($P \leq 0.01$). In other words, learners in the H-ILS group has improvement in holistic health comprehension significantly.

Keywords: Holistic Health Integrated Learning System (H-ILS), Blended learning, Traditional eLearning, Traditional classroom, Online Social Learning, and Holistic health

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Finally, I dedicate this dissertation to my beloved mother and wife for their unconditional support, encouragement, and always there for me and helped me get through a tough time completing this research study.

Khanawath Teranitiwath

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CHAPTER I

INTRODUCTION

1.1 Background of Study

In a speedy digital economy, the competition in Thailand, both on a business level and an individual level was highly intensified. This situation caused a large number of Thai people to prioritize most of their time to fight for daily economic survival. People had less recognition of the importance of quality of health and quality of life. With dramatic changes of socio-cultural environment, it had substantially shifted Thailand into modern and more complicated era; the lifestyle of Thai people had even more changed in negative ways. People lived and worked in a stressfully intensified environment, had bad eating habits, consumed foods with pesticide residue, and had no sufficient and proper exercises. These factors were highly associated with increased risk of Thai people on non-communicable diseases or NCDs such as obesity, stress-related illness, high blood pressure, diabetes, cancer, respiratory system-related disease, cerebrovascular disease, and coronary heart disease. Non-communicable diseases or NCDs were perceived as the world's predominant killers. According to the World Health Organization, (2018), non-communicable diseases globally caused 41 million to death or about 71 per cent of the 57 million death worldwide. More critically, 15 million of the mortality were premature (those aged 30 to 69 years).

Moreover, suicide caused almost 800,000 deaths worldwide in the year of 2016. This happening was the second critical cause of death among young adults. This implied that mental health is another significant non-communicable sickness of the world, including Thailand.

Only in Thailand it led to approximate 320,000 deaths or relatively 75 per cent of all deaths each year. And, more seriously, about 54 per cent of the NCD deaths in the year 2000 was considered as premature mortality (Ministry of Public Health, 2017). It indicated that NCDs were not exclusively a problem for senior citizen.

The World Health Organization (2018) further reported that the global prevalence of NCDs and the mortality rate were expected to tremendously increase in the future, particularly in low- and middle-income countries. This happening was mainly due to population growth and ageing, economic transition, and changes in behavioural, occupational and environmental risk factors. The burden was statistically most tremendous within low- and middle- income countries as almost 80 per cent of all NCD deaths and 85 per cent of premature death took place in these countries.

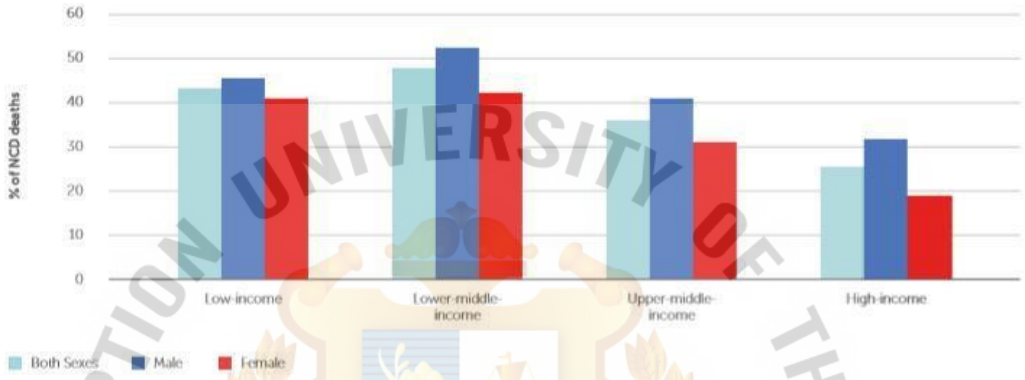


Figure 1.1: Proportion of NCD Deaths (Those aged 30-69 years), by income group, 2016

Source: World Health Organization – Noncommunicable Diseases Country Profile (2018)

Figure 1.1 showed that the proportion of the premature death from non-communicable diseases in high-income countries was only almost half (25%) of that of low-income and lower-middle-income countries (43% and 47% respectively). As a developing country, Thailand also encountered a similar health situation. Economically, Thailand NCD burden is also very high. According to the Strategy and Planning Division, Ministry of Public Health (2017), it revealed that Thailand had spent massive expenditure on healthcare problem.

In 2014, Thailand's total healthcare expenditure almost reached 520,000 million Baht or relatively 4 per cent of Gross Domestic Products (GDP) in 2014 (Appendix 1). It was considerably increased from about 390,000 million Baht in 2010.

Furthermore, it was found that 77 per cent of Thailand's total healthcare expenditure in 2013 and 2014 were mainly derived from the government sector (Appendix 2).

Table 1.1: Statistic of death by leading cause group (2012-2016)

Causes	2012	2013	2014	2015	2016
Neoplasm (all forms)	98.1	104.0	107.0	112.8	117.7
Cerebrovascular disease	31.7	35.9	38.7	43.3	48.7
Ischemic heart disease	23.4	26.9	27.8	29.9	32.8
Land transport accident	21.9	22.9	23.2	22.3	23.8
Pneumonia	23.7	31.1	37.4	42.1	43.8
Diseases of Liver	12.9	14.8	15.1	16.0	18.1
Chronic lower respiratory diseases	10.3	11.3	12.1	13.5	15.3
Tuberculosis (all forms)	8.3	8.5	9.1	9.4	9.4
Diabetes mellitus	12.1	15.0	17.5	19.4	22.3
HIV	6.3	8.8	8.8	8.4	7.6
Others	397.3	411.1	373.6	368.9	382.5

Source: Strategy and Planning Division, The Ministry of Public Health (2017)

Table 1.1 statistically showed Thailand's mortality per 100,000 population, according to the cause category, during the year of 2012-2016. This statistical report needed to be seriously addressed. Apparently, non-communicable diseases account for a considerable proportion. Five leading causes of death from NCDs are cancer or neoplasm (all forms), cerebrovascular disease, ischemic heart disease, land transport accidents, and pneumonia.

Overall, in the year of 2016, the largest proportion of NCDs death per 100,000 population was cancer (about 118 people).

More seriously, its death rate was remarkably increased from almost 99 people in 2012 to nearly 118 people in 2016. It was a 20 per cent increase. Cerebrovascular

disease group ranked second. Its mortality rate substantially rose from almost 32 people in 2012 to nearly 49 people in 2016. A dramatic rise was recorded – about 54 per cent increase. Ischemic heart diseases group ranked third. The death rate was sharply increased from 23 people in 2012 to almost 33 people in 2016, which was approximately a 40 per cent increase. Pneumonia group ranked fourth. While it was lower than ischemic heart diseases group by a narrow margin (about five people), but it showed a significant steep change (about 84% increase), increasing from 24 people in 2012 to 44 people in 2016. The least among the five was a group of Diabetes mellitus (a little more than 22 people). In term of the number of people, the figures for Diabetes mellitus were not seemingly high in comparison with the NCDs mentioned above. But Diabetes mellitus was regarded as a Thailand's critical NCD as its death rate was substantially risen by 83 per cent, from 12 people in 2012 to 22 people in 2016.

Table 1.2.: Health Affecting Factors and Their Contribution to Premature Death

No	Affecting Factors	Percentage
1	Environmental Exposure	5
2	Health Care	10
3	Social Circumstance	15
4	Genetics	30
5	Behaviour Patterns	40

Source: Schroeder (2007)

From the Table 1.2, Schroeder (2007) mentioned in the New England Journal of Medicine that health is influenced by five significant factors – environmental exposure, health care, social circumstance, genetics and behaviour patterns. It is clearly shown that everyday choices that people made are the most critical determinant affecting their state of wellness. Medical treatment has a minor role. Many reports and researches show that there is a close connection between non-communicable diseases and lifestyle choices such as dietary behaviour, consumption of drugs, alcohol, nicotine, sugar, caffeine and unprotected sexual activity. Combined with deficiencies in exercise, nutritious foods, and self-esteem, these gradually accumulate harmful health effects.

Also, changes in social factors like urbanization, marketing campaign, and advanced communication technology negatively provide tremendous impacts on the lifestyle of people. Then, people have higher exposure to sickness from non-communicable diseases.

Furthermore, according to the 12th National Health Development Plan (2017), it clearly stated that Thai people lack sufficient health literacy to protect themselves from health risk factors. From a survey of health literacy on 3 อ 2 ส (อ1 = อาหาร or Food อ2 = อารมณ์ or Emotion อ3 = ออกกำลังกาย or exercise and ส1 = ไม่สูบบุหรี่ or Stop smoking ส2 = ไม่ดื่มสุรา or Stop drinking alcohol) campaign against non-communicable diseases by Ministry of Public Health, it was found that nearly 60 per cent of the total population has no sufficient basic self-medicated knowledge.

As a consequent, Thailand has to spend higher and higher expenditures on public healthcare problems. In the IMD World Competitive Yearbook (2017) by the International Institute of Management Development (IMD), Thailand's expenditures on healthcare problems were about 4.6 per cent of Gross Domestic Product (GDP) in 2016.

Therefore, in encouraging people to achieve their optimal wellness, efforts must be focused on improving their behaviour patterns or lifestyle. In doing so, self-medicated health knowledge must be accurately and sufficiently educated to people. This so-called preventive healthcare approach was more suitable than other curative methods as it aims to alleviate the problem at the root cause.

In Thailand, conventional medicine is the mainstream of public health care service. Though traditional medicine is widely accepted, it has certain perceived limitations. Conventional medicine assumes that complicated ailment can be explained in term of reductionism (Louridas & Lourida, 2017). Under reductionism, the conceptual foundation of analysis and explanation of complex diseases was rooted in the assumption that the process of reduction of complex structures into smaller components. While conventional medicine has received tremendous success in modern medicine, reductionism-based medical therapy conveys many perceived limitations (Ahn et al., 2006). This conceptual foundation results in an unrelenting analysis of the

elements of systems without deep consideration of how interaction with each other in larger systems.

More importantly, conventional medicine has no metric for mind and soul qualities such as the inner hurt, despair, hope, grief, and moral pain (Roberts, 2000). It works on the medical ground that if a part of the body goes experiences dysfunction, it should be fixed or replaced, the same approach that an engineering machine would be repaired. An example is when a business owner is anxious about his company sales performance, his nervousness may physically result in an adverse reaction such as a headache or a stomach-ache. Another example is when a person suppresses anger at his or her boss over a long period, he or she might develop serious ailments such as a migraine headache. When these people go to a clinical place of conventional medicine, a doctor often gives them aspirin medicine to fix the symptom without deep consideration of the root of the problem.

The World Health Organization defined health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 1948). By this clear definition, mental and social environmental factors should be integrated into disease diagnosis, and preventive approach should be emphasized rather than a curative approach. And it is widely recognized that conventional medicine is not particularly useful in treating an array of chronic ailments (Baer, 2008). The curative therapy may help alleviate painful symptom or illness for a time, but it ignores critical factors that contribute to the perseverance of disease. For some conditions, medical cures have proven more harmful than the disease (Allision, 1999).

Due to limitations of conventional medicine, nowadays holistic health is alternative healthcare that is more increasingly mentioned, mainly when people prioritize on preventive healing and when they seek proper treatment for a chronic ailment. According to Allison (1999), holistic health is a healthcare approach that bases on the law of nature - a whole is made up of interdependent parts. For example, the earth is made up of systems, such as air, land, water, plants, and animals. It is believed that if life is to be sustained, each system cannot be separately regarded. In a holistic view, what is happening to one is also felt by all of the other systems.

In the same way, an individual is a whole significantly made up interdependent components, which are physical, mental, emotional, and spiritual systems. When one part is not correctly functioning at its best, it impacts all of the other components of that person. Allison (1999) further stated that holistic healthcare focuses on the integral role of body, mind and spirit and social environment toward health. The ultimate goal of holistic healthcare is more than just not being sick but being able to maximize the level of physical wellness and spiritual wellness. Therefore, being in good health according to the definition of holistic health is the same as the one stated by the World Health Organization.

In conclusion, holistic healthcare, which is highly regarded as a preventive health approach, should be educated to people to prevent them from NCDs-related sickness. The more the people holistically have self-medicated knowledge, the more the chance they have lesser health problems. The more people have a better understanding, the lesser the social and economic burden is.

1.2 Statement of the Problem

Living in a decade where rapidly advanced technology is enabling people to gain knowledge at speed formerly inaccessible. Information and communication technology (ICT) in particular, has strategically become a vital component in the learning process. People were overwhelmed by tons of knowledge from the online network.

Even online learning or eLearning is an evolving and variously defined term; nowadays, it widely becomes a common term. Both academic institutes and corporates or individual persons have tremendously invested and integrated eLearning into their strategic plan. eLearning has several valuable points; thus, it has been intensively adopted in many aspects of education, including healthcare. It is expected to be a significant enabler to improve the health of people, both directly and through improved workforce capacity and accessibility.

Even though people can nowadays access a piece of vast information on healthcare knowledge, however, the number of ailing populations and premature death from non-communicable diseases is highly anxious. A survey by two social

organizations – Health Feedback and Social Coalition significantly reported that seven or eight news of the most ten shared health articles on social media in 2018 contain misleading or fake information (Teoh, 2019). There is only three news which achieved a high credibility rating. For instance, the most shared article (1,075,000 interactions) titled “Federal Study Finds Marijuana 100X Less Toxic Than Alcohol, Safer Than Tobacco” was highly inaccurate. This article received -13 creditability rating. The survey results further stated that the high level of interest might result from various factors, for example, potential therapeutic benefits of marijuana in different medical conditions, and the fact that marijuana is a popular recreational drug (Teoh, 2019).

According to Yang et al. (2019), the information people create and consume on the internet considerably affects all facets of lives, including political, financial, entertainment, and health decision. They further stated that the growth of social media stimulated efforts to manipulate online conversion and opinions by social bots – automated or semi-automated accounts. It has been reported bot activity noticeably influences our behaviour, beliefs, and choices of life. Stated by Allem & Ferrara (2018), health is a domain which has been significantly affected.

The examples as mentioned above of healthcare problems are synchronized with some existing findings. Clearly stated by James (2015), eLearning or online learning has eight drawbacks. Among them, these are five critical areas: i) lack or lesser self-discipline, ii) lack of face-to-face interaction – no social learning, iii) lack of flexibility – it is not optimal for the learning field with more complex skills and competencies, iv) lack of inputs from an instructor – eLearning is structured. Learning material become outdated quickly and it is quite challenging to respond to what the learners need and now they need to know, and v) lack of transformational power – it is highly effective for imparting certain kinds of knowledge. But for game-changing learning, live connection with a highly-experienced instructor is more suitable. In International Journal of Education and Research, Valentina (2014) also mentioned that eLearning is not optimal for all fields of education. It is more appropriate in social science and humanities rather than medical science and pharmacy, where there is a need to develop practical skills.

Based on NCD-related health situation in Thailand and critical shortcomings of traditional eLearning to optimally deliver and to fully comprehend people about holistic health, more suitable learning approach must be strategically designed and developed.

In this research, the researcher proposed the Holistic Health Integrated Learning System (H-ILS) which was developed to disrupt traditional eLearning on some dimensions of health learning to enhance holistic healthcare comprehension and then people's state of wellness. H-ILS was innovated as a learning approach combining online learning (LMS & Online Social Learning) and traditional classroom with basic health check and Dhatu check. It aimed to foster the incorporation of accurate holistic health practice to the everyday lifestyle choice of the learners. Moreover, as H-ILS strategically aimed to solve the problems at the root cause, it was highly regarded as a preventive healthcare concept.

1.2.1 New Knowledge in eLearning Methodology

A "new knowledge" extracted from this current finding and research development was the Integrated Learning System, which combined eLearning and online social learning and traditional classroom with a standard health check. It enabled people to have a better comprehension of holistic health. This research also revealed that H-ILS allowed people to incorporate holistic health practice into their daily choices properly.

1.2.2 Academic progression in eLearning Methodology

The academic progression proved the expertise of the researcher in the field of eLearning Methodology. It presented that Holistic Health Integrated Learning System (H-ILS) could holistically enhance the learning experience of people and enable them to learn with better learning performance.

1.3 Research Objectives

The general objective of this current research is to develop the Holistic Health Integrated Learning System (H-ILS) for health-conscious executives of IFARM's members in Thailand. The specific objectives were as follows:

(i) To create Holistic Health Integrated Learning System (H-ILS) based on the in-depth interview of health experts, in accompany with intensive literature review and the researcher's own experience as a pharmacist in Thai traditional medicine and trainer, and subsequently, was fine-tuned by feedback from three learners from three different age groups and two experts in the field of traditional Thai medicine and web designing in a tryout process.

(ii) To compare a score of self-holistic health comprehension appraisal between health-conscious executives who learned under H-ILS and who learned in traditional eLearning class.

(iii) To compare a pre-test and post-test score of self-holistic health comprehension appraisal of health-conscious executives who learned under H-ILS.

1.4 Research Questions

The research questions for this study were:

(i) What was the Holistic Health Integrated Learning System (H-ILS) and what were the blending system components of the H-ILS, which could empower the learning of holistic health?

(ii) What was the difference between a self-holistic health comprehension appraisal score of health-conscious executives who learned under H-ILS and who learned in traditional eLearning class?

(iii) What was the difference between a pre-test and a post-test score of a self-holistic health comprehension appraisal of health-conscious executives who learned under H-ILS?

1.5 Significance of the Research

The study of Holistic Health Integrated Learning System (H-ILS) could be a health learning paradigm. It could help enhance the well-being of general people by not only improving their self-medication knowledge but also fostering them to incorporate holistic health practice into their daily life. This development could urge them to achieve maximum well-being and lessen the chance of being sick from the NCDs or non-communicable diseases in people. Besides, H-ILS could be an effective health knowledge providing system for health experts and health trainer as it could disrupt the idea that traditional eLearning was the approach that best suited with all dimension of health learning. Finally, H-ILS indirectly contributed potential benefits to society as a whole because it could lead people to a healthier community.

1.6 Definitions of Terms

This research used the following terms as keywords with the indicated definitions.

Holistic Health: an approach to be healthy, which considers the whole person and emphasizes the connection of mind, body and spirit (Allison, 1999).

Holistic Health Integrated Learning System (H-ILS): a proposed holistic health learning system that combines eLearning/online learning (LMS & Online Social Learning) and face-to-face classroom with standard health check and Dhatu check.

Self-holistic Health Comprehension Appraisal: a self-health appraisal, based on holistic healthcare, which was answered by the learner and marked by the researcher. It comprised 25 items, and the scores of each item could be 0-4 scores. Thus, the full score of this appraisal is 100 scores.

Traditional eLearning: any learning that involves using the Internet or Intranet (Fee, 2005).

IFARM: an academy which was aimed to educate people, mostly Thai young executives, about health and agriculture. It has members throughout Thailand.

Dhatu Check: a method to check body element (earth/water/air/fire) of person and to find out the dominant one, call it the element type, which differs from person to person (Subchaloen, 2009)

1.7 Limitation of the Research

In this study, the Holistic Health Integrated Learning System (H-ILS) was solely tested with health-conscious executives who were IFARM's members. The usage of H-ILS might not apply to other groups of people fully and directly.

1.8 Scope of the Research

(i) Only four holistic health principles - Holistic health & Daily Healthcare, Medicinal Plants in daily life, Dhatu (body elements) for Health and Arm Swing Exercise - were included in this study.

(ii) Holistic health practices include in this study solely focus on preventive but not curative therapy practices.

CHAPTER II

LITERATURE REVIEW

This literature review was conducted to provide brief information on eLearning, blended learning significantly, and online social learning, followed by a review of related research studies involved using of eLearning, blended learning and social learning in different educational purposes. Furthermore, it aimed to investigate the public health status of Thailand and what the root causes were. Holistic health was also reviewed as it was highly regarded as one of the potential health care concepts that could tackle the root causes of health problems. Including in this chapter was an intensive review on advantageous and disadvantageous applications of eLearning, blended learning, and online social learning on holistic health. All information gathered in the process of the literature review was used as fundamental knowledge to find out what the possible best learning system that could maximize the learning outcome of holistic health was in the research steps.

2.1 eLearning

eLearning was an evolving and variously defined term. The term “eLearning” was also written differently by different individual people and institutes. Some of the examples which had been generally seen in the research papers and textbooks include E-learning, Elearning, e-Learning, e-learning, and eLearning. However, Blackburn (2018) investigated the popularity between “e-learning” and “e-Learning” by simply searching on Google. A Google result checked in January 2018 for eLearning showed 55,100,000 results while that of e-Learning returned 55,200,000 results. Within the internet community, the term “e-Learning” was more popular than “eLearning” slightly.

According to Ryan, Kaufman, Greenhouse, She, & Shi (2015), eLearning term was often defined in contrary to the traditional classroom or face-to-to learning. Similarly, eLearning was extensively regarded as the alternative of traditional learning approach, and it was a complementary to it (Kumar Basak, Wotto, &

Bélanger, 2018). Additionally, eLearning was termed as a modern approach for delivering mediated, well-designed, learner-centred and interactive learning environment to anyone, anytime and anyplace by exploiting the internet and digital technologies in concern with instructional design principles (Thang et al., 2016). According to Goyal (2012), eLearning was the science of learning without using paper printed instructional material. Moreover, eLearning was claimed as a disruptive technology which transformed how the learning was approached in an educational perspective (Garrison, 2016).

One of the most magnificent aspects of eLearning approach was the absence of a physical classroom which was replaced by advanced web-based technology (Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014). It was typically operated through two types of learning settings: learning management system (LMS) or virtual learning environments (VLE) (Pellas, 2013). Including the study from Sajja (2016) was electronic learning, supporting learning through all forms of electronically supported devices and tools. ICT infrastructure had been serving as an efficient platform to enable eLearning system.

In a technology context, eLearning was termed as the use of various kinds of electronic media and Information and Communication Technologies (ICT) in education (Cook & Sutton, 2014) while Weiss (2016) correspondingly referred to the use of electronic educational technology in teaching and learning. Recently, Kafyulio (2015) referred to the learning which was fully or partly managed via electronic media and devices such as computers, mobile phones, iPad or others in school or at a distance. In a broader context, (Vontas, Moumtzi, & Urwin, 2015) defined eLearning as the delivery of content via electronic media, such as the internet, video, interactive TV and CD-ROM. eLearning encompassed all learning undertaken, whether formal or informal, through electronic delivery.

2.1.1 Advantages of eLearning

Increasingly, eLearning became popular among academic institutes and non-academic corporations because it provided inherent advantageous points to the learning process. Mentioned by Clover (2017), some predominant benefits of eLearning were as the following:

i) it enabled learners to learn anywhere and at any time.

ii) it provided flexibility and convenience – learners don't have to depend on anyone for anything.

iii) learning resources were available in varying formats, and

iv) learning could be rewound and seen and heard repetitively.

As cited in Saeheng (2017), apart from it enabled learners to learn when and where they wanted at their own pace, eLearning provided learning opportunities for those who worked irregular hours and lived far from a learning area. Furthermore, it allowed those who had commitments which made it harder to attend a regular class to learn.

Although eLearning apparently was composed of numerous advantages, it possessed certain limitations. To prevent the organization from eLearning failure, it was imperative limitations of eLearning were carefully investigated.

2.1.2 Disadvantages of eLearning

Even eLearning was incredibly powerful learning approach, Pande, Wadhai, & Thakare (2016) reported that eLearning contained some certain drawbacks which included, for example, like the following: i) it made learners bear remoteness as it lacked interaction, ii) it could be less effective in term of clarifications, explanations, and interpretations, iii) learners could lack communication skills, and iv) it did not best fit with all fields or disciplines.

In his article of Eight Disadvantages of eLearning, James 2015)) stressed that eLearning lacked transformational power. It was effective for imparting certain kinds of knowledge. But it was difficult or impossible to deliver "game-changing experience" from the experienced practitioner. He further stated that learning together in a group with experts, if it was properly structured, the dynamic of personality, intelligence, vision and creativity all intertwined to create a group that was more than the sum of its parts (James, 2015).

Crucially, in the context of health learning, Arkorful (2014) also mentioned in International Journal of Education and Research, that eLearning was not suitable for all fields of education. It was more appropriate in social science and humanities rather than medical science and pharmacy, where there was a need to develop practical skills.

As eLearning possessed inherent advantages and obvious disadvantages, a better approach to design more efficient learning strategy was to incorporate its strengths and then to avoid the weaknesses. One such approach would be the development of a blended learning strategy (Akkoyunlu & Yilmaz Soylu, 2006).

2.2 Blended Learning

Blended learning (BL) was extensively known as hybrid learning (Ucar, 2019). Similar to eLearning, blended learning had been variously defined in many different perspectives. Cited by Dziuban, Graham, Moskal, Norberg, & Sicilia (2018), blended learning was regarded as the "new traditional model" or "new normal" in the course delivery. Lencastre and Coutinho (2015) referred it to a learning system that usually transmitted content over the internet but also included face-to-face learning approach. Thindwa (2015) defined as a learning approach which used both traditional face-to-face classroom instruction and technologically-mediated online instruction. It was an innovative learning system that integrated the strengths of both traditional learning class and ICT supported learning, including both offline and online approach (Lalima & Dangwal 2017). In the systematic review and meta-analysis of the effectiveness of blended learning in health professions, it was cited that blended learning was a promising alternative learning approach for health education because it synthesized inherent advantages of traditional face-to-face learning and eLearning (Liu et al., 2016).

Recently, Ngigi and Obura (2019) stated that blended learning was an integration of online and face-to-face instruction which was designed to promote learning engagement and to improve learning outcome through optimization of teaching and technology. Cited by Mubayrik (2018), blended learning dominantly served a vital trend in the adult workforce environment. Furthermore, Coyne et al. (2018) stated that blended learning was considered as a crucial learning approach for the education of health students.

Many major advantages of blended learning were reported in a large number of researches. Obviously, it provided learners with the potential opportunity for reinforcement of learning as well as engagement with other learners (Gedik et al., 2012). According to Jeffrey et al. (2014), a key benefit of the blended learning experience was also an opportunity to have a face-to-face meeting between instructors and learners and between learners and learners, which could provide greater impact to

many aspects of learning. Another strength of blended learning which substantially affected learning performance was the vast availability of online tools and resources that an instructor could employ to differentiate the instruction (Graziano & Feher, 2016).

Cited by Dwiyogo (2018), blended learning enabled learners to achieve the purpose of learning and to change from teacher-centred to learner-centred learning pattern. More importantly, it could stimulate learners to achieve learning discipline. According to Rovai and Jordan (2004), the students in the blended learning approach measured as highest in the sense of community as those who learned in a traditional learning approach, but higher than those in fully online approach.

Lalima and Dangwal (2014) mentioned that blended learning offered six advantageous points;

i) Learners could gain constructive strengths of online learning and computer-assisted learning (CAI) without losing social interaction and human touch of traditional learning.

ii) As part of learning was delivered online, it potentially enabled learners and instructors to have more time for creative and cooperative exercises.

iii) Circle of communication was maximized in a blended learning approach which was relatively impossible in the traditional learning approach.

It could provide learners potential opportunity to develop personal qualities like self-motivation, self-responsibility and discipline.

2.3 Online Social Learning

The social network was rapidly changing our relationship to knowledge (Mccarroll & Curran, 2015). According to Altman (2018), social learning was one of the biggest business trends in the year of 2018. As technological advancement, had potentially enabled employees to learn online, it remotely distanced employees from each other, leading corporations to an unfriendly working environment. Thus, the corporations that accomplished this transitional age were the ones that undertake technology to facilitate social connections meaningfully (Altman, 2018).

In the learning perspective, in recent years, online social learning had tremendously gained popularity as it initiated interaction and collaboration. Interaction in online learning was very much significant for effective learning because it was not only student-student interaction that matters (Raspopovic, Cvetanovic, Medan, & Ljubojevic, 2017). Froment, Javier, and Bohorquez (2017) stated that even though social networks were not initially invented for academic applications, they were gradually being used as a means of communication between instructors and students. It became a vital teaching-learning component by providing new possibilities for communication and interaction and creating new learning spaces.

Faiza et al. (2013) stated that social media platforms could improve communication among learners and between instructors and learners. Moreover, social media applications could be used to promote learning engagement of the learners proactively. They fostered collaborative interactions as they enabled learners to work together to achieve common goals. Raspopovic et al. (2017) also mentioned that merely using the Learning Management System or LMS without external tools, the learning space was entirely under the control of the instructors and institute. Consequently, learners had little room to arrange their digital learning space as well as to facilitate their learning activities (Väljataga et al., 2011). Thanks to advanced technological development such as increased broadband capacity, substantial software improvement and more powerful development of computer and mobile device, the growth of social media had been phenomenal (Faizi et al., 2013). Social media tools had become pervasive, and they were a part of the daily lives of millions of people around the world. To a large extent, they tremendously influenced multiple facets of our personal and professional lives. Given that a large number of social media users were learners and instructors, social media had potentially affected the way of learning (Faizi et al., 2013).

Stated by Redheendran (2013), inherent advantages of social learning technology were as the followings: i) it provided an opportunity for the learner to upload learner-generated content, ii) it provided the opportunity for self-directed learning, which enhanced learning engagement via purpose, autonomy and mastery, iii) it provided the opportunity to develop an online learning community, leading to a collaboration of their shared learning experience, and iv) metrics beyond a grade, for example, content access and gamification, could be measured.

2.4 Holistic Health

Even Jan Christian Smuts first time stated the term “holism” in a Holism and Evolution book in 1926, “Holistic Healthcare” was relatively a new term to a large number of Thai people. Allison (1999) defined holistic healthcare as an approach to health which considered the whole person and emphasized the connection of mind, body, and spirit. Holistic healthcare concept believed that the maximum state of well-being was a result of the strong synergy of physical, mental, spiritual, and environmental components. The meaning of holistic healthcare term was very close to the World Health Organization (WHO) health definition. According to WHO (1948), health was a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. Both terms emphasized the total synergy of physical, mental and spiritual components rather than one or more separate components. The physical ailment could lead to mental sickness, while mental or spiritual sickness could also lead to body health. According to Non-Communicable Diseases Country Profile (2018), it stated that, in 2016, suicide caused almost 800,000 deaths worldwide. Suicide was the second dominant cause of death among young adults. This obviously implied that mental health was one of the critically significant non-communicable ailments of the world, including Thailand.

Holistic healthcare was proactive and preventive healthcare. Its goal was to help people achieve maximum well-being, where everything was functioning the very best that is possible. It encouraged people to become knowledgeable and accept responsibility for their level of well-being. Furthermore, when people properly knew how to nourish their wellness, it would, to a large extent, prevent people away from non-communicable diseases.

From east to west, holistic healthcare contained a large number of health principles. H-ILS selected four priority health principles: Holistic health & Daily Healthcare, Medicinal Plants in daily life, Dhatu (body elements) for Health and Arm Swing Exercise.

2.5 Relevant Research

2.5.1 Effects of traditional, blended and eLearning on students' achievement in higher education.

According to Al-Qahtani and Higgins (2013), they investigated the effects of traditional, blended and eLearning on students' achievement in higher education. The study sample consisted of 148 students of an Islamic Culture course (101) at Umm Al-Qura University in Saudia Arabia. Randomly, they were assigned into three groups: 50 students in the control group, 43 students in the first experimental group, and 55 students in the second experimental group. This research study was conducted using pre-test and post-test with a control group. All groups undertook an achievement pre-test of their baseline knowledge and understanding of the module content. Then, each group of students was assigned to three different learning approaches. The control group learned under traditional classroom, using a face-to-face mode. For the two experimental groups, the first experimental group learned under traditional eLearning approach. In contrast, the second experimental group learned under blended learning approach (a combination of the face-to-face class with eLearning). Subsequently, the difference in learning achievement between the three groups was identified.

The findings of the research showed that there was a statistically significant difference between three learning approaches in term of students' achievement favouring blended learning with a substantial effect size of 1.34. This result was particular for the combination of face-to-face teaching featuring the presence of an instructor and online learning. There was no significant difference in students' achievement was found between the eLearning group and the traditional classroom group with a negligible effect size of 0.02.

In conclusion, the blended learning approach, which was a combination of face-to-face learning with eLearning, clearly gained higher students' achievement than the other two groups.

2.5.2 The Effectiveness of Blended Learning in Health Professions: Systematic Review and Meta-Analysis

Conducted by Liu et al. (2016), the main objective of this systematic review aimed to quantitatively assess the effectiveness of blended learning in comparison with no intervention and with nonblended learning. The study sample in this research was health professional learners, covering students, postgraduate trainees, or practitioners in a profession directly related to human and animal health. Two meta-analyses were conducted. While the first meta-analyse aimed to summarise studies which compared blended with no intervention, the second aimed to summarise studies which compared blended learning with nonblended learning (including eLearning and traditional face-to-face learning).

The methodology used in this study was a search of citations in Medline, CINAHL, Science Direct, Ovid Embase, Web of Science, CENTRAL and ERIC through September 2014. Two reviewers evaluated the study quality and abstracted information, including characteristics of learners and intervention (study design, exercises, interactivity, peer discussion, and outcome assessment).

The findings were that blended learning appears to have a consistently positive effect in comparison with no intervention and to be more effective than or at least as effective as nonblended instruction for knowledge acquisition in health professions.

2.5.3 Investigation of blended learning video resources to teach health students clinical skills: An integrative review

Conducted by Coyne et al. (2018), the integrative review aimed to find competent educational strategies by integrating research associated with blended learning resources using simulation videos to teach clinical skills for health students.

The research methods used were a systematic search from various databases, such as SCOPUS, MEDLINE, COCHRANE, and PsycINFO. Subsequently, data extracted which included author, year, aims, design, sample, a skill taught, outcome and findings, were assembled in summary tables. Critical appraisal was then completed using the Mixed Methods Appraisal Tool (MMAT).

The findings were summarized that blended learning with video-assisted online resources might be a strategically competent learning approach to educate clinical skills to students of health, including nursing. Two supporting reasons included i) blended learning managed to increase knowledge skills of learners, and ii) blended learning provided learners with the flexibility of learning.

2.5.4 Effects of Facebook usage on English learning behaviour

This study, which was conducted by Sirivedin, Soopunyo, Srisuantang, & Wongsothorn (2018), aimed to investigate the use of Facebook to improve the effectiveness of English writing and English learning among Thai teachers of English.

The research was divided into two main steps. The first step was a survey step. It commenced with finding problems, needs, readiness and suggestions from 1,170 Thai teachers in 437 Bangkok Metropolitan Administration (BMA) schools. A questionnaire, consisting four parts – demographical information, problems, needs and readiness to participate in English learning through a Facebook, and an open-ended question with the IOC validity at .97 - was used as a research instrument. In total, 403 copies of questionnaire were completed and collected.

The second step of the research was an experiment step. Seventeen BMA English-teaching teachers who showed a keen interested in using Facebook were selected as sampling population with one facilitator. All participants, including the facilitator, were required to communicate on Facebook by using the English language every day for six weeks. In the experimental step, both qualitative and quantitative research approaches were employed. Data was collected using the pre- and post-test, which were validated by experts. The tests contained five short paragraph writing items. It was used to assess the progress of English writing skills in two facets: first, English usage consisting of spelling, proper use of vocabulary, idiom, and structure (tenses, sentences arrangement); second, English for communication consisting of meaningfulness, clarity, and relevance.

The answer was rated from 1 to 5 by the English language expert. The Paired Samples T-test was then administered to analyze the results of the pre-test and post-test. Furthermore, the frequency, percentage, and content analysis were used to

analyze the qualitative data which was collected by survey questionnaire, observation on interaction through Facebook, in-depth interviews, participations' s reflections, and the researcher's self-notes.

In conclusion, the findings revealed the benefits of Facebook usage on English learning. The overall improvement of English writing skills was at .000 ($p < .05$). It indicated that Facebook could significantly help improve writing skills, namely accuracy, meaningfulness, clarity and relevance. Furthermore, the content analysis of the qualitative data revealed that Facebook also enhanced the teachers' English learning attributes, namely fluency, confidence, satisfaction, value, and self-efficacy belief.

Additionally, a survey which was conducted by Kabilan, Ahmad, & Abidin (2010) was carried out with 300 undergraduate students at "Universiti Sains Malaysia" in Malaysia. This study aimed to investigate if the students consider Facebook as a useful and meaningful learning environment that could support, enhance and/or strengthen their English learning or not.

The research instrument employed in this study was a questionnaire consisting of two sections. Section A solicited the students' demographic information and their usage of language while Section B comprised of items enquiring information on the students' practices of Facebook and 16 items of a construct on learning English in the Facebook environment that shall be measured. With a 5-level Likert scales of 'Strongly disagree' to 'Strongly agree', the construct had a very high Cronbach alpha score of 0.977. An open-ended item questioning "Did Facebook assist you in improving your English" was also included to describe and explain the quantitative data. Frequency and percentages were employed in the analysis of the demographic data. In contrast, mean scores, frequency and percentages were used to describe the students' views on Facebook as a learning environment for the English language. As for the open-ended question, results were categorized into emerging themes and analyzed using the situation and activities coding strategies.

At the end of the survey, the mean scores for all 16 items indicated that Facebook could be an online learning environment to facilitate English language learning in terms of 1) students' improvement of language skills and, 2) Students' motivation, confidence and attitudes towards English language learning. The students agreed that the use of Facebook enhanced their communication skills (mean score =

3.82), assisted them to practice writing in English (mean score = 3.82), made learning English more fun (mean score = 3.81) and lastly, increased their confidence to write in English (means score = 3.80).

2.5.5 Using a Facebook Group as an Educational Tools: Effects on Student Achievement

This study was carried out by O'Bannon, Beard, & Britt (2013). The major focus of this study was an examination of the effectiveness of using a Facebook group to improve pre-service teachers' knowledge of core technology topics. The sampling was teachers preparation program a the University of Tennessee who were enrolled in five sections of the technology course in the year of 2011. The sampling size was 95 (n = 95). The research was conducted during the final eight weeks of the semester and covered the study of digital diagrams, spreadsheets, multimedia, and web authoring. Under each learning topic, students were required to (i) read textbook chapters and listen to podcasts aligned with study topics, (ii) watch instructor demonstrations of software features, (iii) participate in hands-on guided practice, and (iv) develop project-related artefacts. Concurrently, content and specific questions were posted on the Facebook group for discussion.

The quantitative data collection was performed by using pre- and post-exam scores. The exams consisted of 50 multi-choice questions that were aligned with selected course content. The exams were administered before and after the experiment. The collected data were calculated to determine means and standard deviation, and the Paired Samples T-test was administered to find a significant difference in mean scores.

The result of data analysis revealed that there was a significant increase in scores from pre-test (Means= 37.00; SD = 4.35) to post-test (Means = 43.92; SD = 2.86); $p < 0.001$. Therefore, it was finalized that using a Facebook group as an educational tool attributed significant effects on student's learning achievement.

2.6 Summary of Literature Review

In a digital era, traditional eLearning had been widely recognized as an effective method of learning and teaching in academic institutes and professional organizations all over the world.

However, it became evident that eLearning had crucial drawbacks and limitations. This disadvantage was, in particular for health learning. Blended learning had been regarded as a promising alternative learning approach for health education because it strongly synthesized the inherent advantages of traditional face-to-face learning and eLearning.

To fully comprehend people about holistic health, Integrated Learning System (H-ILS) was developed on the context of the blended or integrated learning approach. It strategically employed inherent strengths of the traditional classroom, traditional eLearning, online social learning as mediums of knowledge delivery. More importantly, health expert, health check and Dhatu check and learning content selection were strategically integrated into the H-ILS.

It was believed that H-ILS substantially conveyed benefits to people by improving their learning comprehension and enabling them to incorporate holistic health knowledge into their daily life.

2.7 Research Hypothesis

For the research hypothesis that can be tested in this study were:

$H_0$1: There is no significant difference in means score of post-test between the H-ILS group and traditional eLearning group.

H_a1: There is a significant difference in means score of post-test between the H-ILS group and traditional eLearning group.

$H_0$2: There is no significant difference between the pre-test and the post-test means value of the H-ILS group.

H_a2: There is a significant difference between the pre-test and the post-test means value of the H-ILS group.

2.8 Theoretical Framework

For the experiment stage in this research study, quasi-experimental non-equivalent control group design, which lacked a randomization assignment, was employed to compare the result of pre-test and post-test between two groups. One group was 28 health-conscious executives who learned under H-ILS (experiment group) whereas another group was 26 health-conscious executives who learned under traditional eLearning group (control group). Therefore, this study composed of two variables – independent and dependent variables. Independent variable was learning approach (integrated learning system and traditional eLearning) whereas the dependent variable was self-holistic health comprehension. The independent was manipulated before the dependent variable was measured. In conclusion, the research was conducted to find which independent variable, between integrated learning system and traditional eLearning, could provide a higher means score of self-holistic health knowledge.

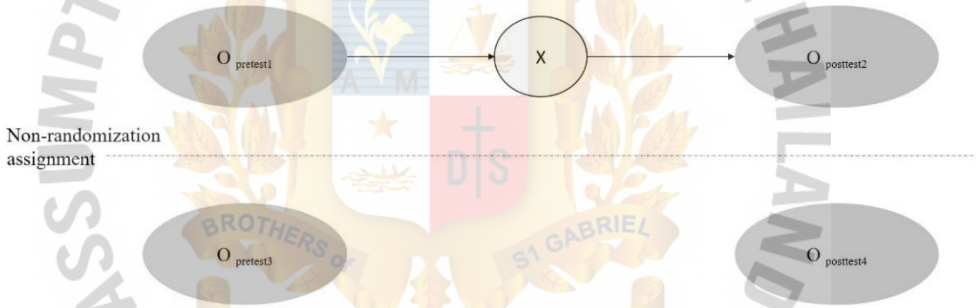


Figure 2.1: Theoretical Framework
Source: Cambell and Stanley (1969)

X = Holistic Health Integrated Learning System (H-ILS)

$O_{pre\text{-}test1}$ = Result of pre-test for experiment group (H-ILS)

$O_{post\text{-}test2}$ = Result of post-test for experiment group (H-ILS)

$O_{pre\text{-}test3}$ = Result of pre-test for control group (Traditional eLearning group)

$O_{post\text{-}test4}$ = Result of post-test for control group (Traditional eLearning group)

2.9 Conceptual Framework

Figure 2.2 showed the relationship within the framework between the independent variable and dependent variables. Initially, the researcher commenced with studying the concept, principles, and reading about eLearning, blended learning, online social learning, holistic health, and learning of health.

The knowledge gained from the review of related works, accompanied by insight information from experts, was exploited as guidelines to draw the system of health learning, which was aimed to improve self-medicated health care comprehension. Subsequently, the context of the study was defined to precisely determine the scope of the research. In this particular research, health-conscious executives of IFARM's members were selected as the sample of the study. The sample was divided into two groups – traditional eLearning (control group) and H-ILS group (experiment group). Learners in traditional eLearning group received the treatment of traditional eLearning. In contrast, those in the H-ILS group received the treatment of Integrated Learning System H-ILS which combined online learning approach (traditional eLearning and online social learning) and offline learning approach (a traditional class with Health Check and Dhatu check. The dependent variable was the means score of self-holistic health comprehension. The experiment composed three stages: pre-test, treatment and post-test. After the experiment, pre-test and post-test results of two groups were statistically collected, measured and compared to answer the research questions.

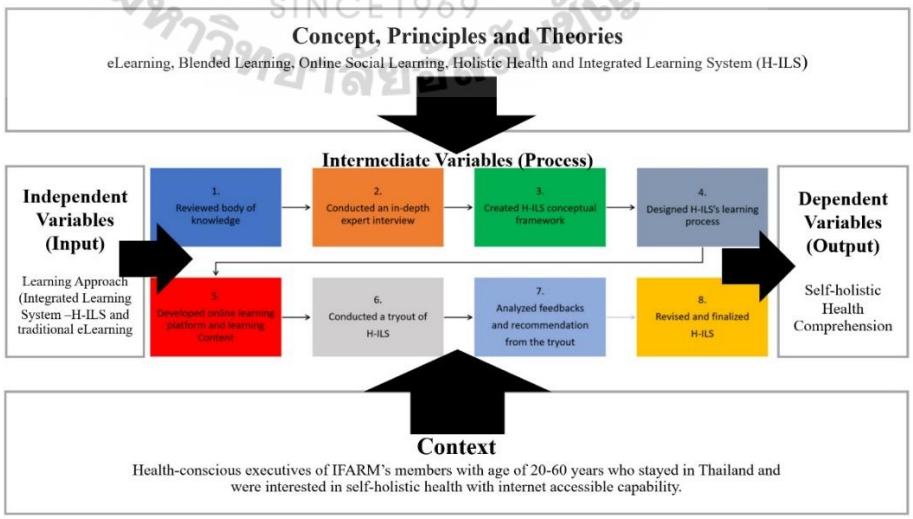


Figure 2.2: Conceptual Framework

CHAPTER III

RESEARCH METHODOLOGY

The previous chapter fully presented and reviewed a related body of knowledge for eLearning, blended learning, online social learning, and also holistic healthcare. Furthermore, it explained a review of associated works involved system and applications of eLearning, blended learning and social learning for different learning purposes.

In this chapter, the research design and methodological approaches which were used to conduct the study were significantly presented. The choice of specific data collection techniques was fully explained.

Briefly, this chapter was organized on the following sections: (i) research design, (ii) stages of research experiment, (iii) populations and sample size, (iv) research tools, and (v) data collection and data analysis methods.

3.1 Research Design

The research design was divided into two significant steps:

(i) Development and verification of a holistic health integrated learning system (H-ILS)

In the first step, qualitative exploratory research was conducted to collect and analyse data for the development of the H-ILS.

(ii) The experiment of H-ILS

In the second step, Quasi-Experimental Design: Non-equivalent Control Group Pre-test Post-test Design was employed to collect and analyse data to investigate learning performance based on the H-ILS.

As the control group of the learners share specific pre-existing characteristics which were similar to those observed in the experiment group but to which the participants were not randomly assigned, the Quasi-Experimental Design: Non-

equivalent Control Group was employed in the experiment process. It specifically aimed to measure a dependent variable following treatment in one group and compares that measure to a non-equivalent control group that does not receive the treatment.

Table 3.1: Summary of Research Design

Group	Treatment: Quasi-Independent Variable	Measurement: Dependent Variable
Experiment Group (H-ILS Group)	Learning of holistic health under H-ILS (traditional eLearning + online social learning + traditional classroom + health check and Dhatu check)	Means score of self-holistic health comprehension
Non-equivalent Control Group (traditional eLearning Group)	Learning of holistic health under traditional eLearning	Means score of self-holistic health comprehension

From Table 3.1, the non-equivalent control group in this current study was the traditional eLearning group which received a treatment of eLearning. In contrast, the experiment group was the H-ILS group which received a treatment of a combination of eLearning, online social learning, traditional classroom with health check and Dhatu check. After the completion of the treatment, the means score from two different treatments was then measured and compared.

3.2 Stages of Experiment Research

The experiment was comprised of three main stages, starting with pre-test, Treatment and post-test. Details of each step for the non-equivalent control group

(traditional eLearning group) and the experiment group (H-ILS group) were fully depicted.

Experiment	H-ILS Group	Traditional eLearning Group
Stage I	Pre-Test (Self-Holistic Health Comprehension Appraisal)	Pre-Test (Self-Holistic Health Comprehension Appraisal)
Stage II	Treatment H-ILS 1. Traditional Classroom 2. Traditional eLearning Class 3. Online Social Learning	Treatment Traditional eLearning Class
Stage III	Post-Test (Self-Holistic Health Comprehension Appraisal)	Post-Test (Self-Holistic Health Comprehension Appraisal)

Figure 3.1: Stages of Experimental Design

Stage I: Pre-test

The pre-test was administered before the treatment. In this beginning stage, both H-ILS group and traditional eLearning group were required to carry out self-holistic health comprehension appraisal. This test was implemented to measure the means score of the self-holistic health comprehension for both groups before the treatment was implemented.

The appraisal test was administered online. Learners from both groups were required to provide their full name and surname with an e-mail to identify themselves. However, all learners from the control group had to additionally provide information on personal physical traits before doing the appraisal. This information was used to identify personal Dhatu elements of the learners and to check the correctness of the answer which learners replied in the tests. For the experiment group, this information was collected during a process of Health Check and Dhatu Check in the face-to-face classroom.

After the pre-test was completely done, the data was then collected and computed to find the means score and standard deviation.

Stage II: Treatment

This second stage was a treatment or learning stage with different learning approaches. Traditional eLearning group was controlled to learn via LMS in traditional eLearning environment solely. In contrast, H-ILS group was intervened to learn in a traditional classroom, traditional eLearning and online social learning in a blended learning environment. Under traditional eLearning approach, both H-ILS group and traditional eLearning group learned from the same content.

Stage III: Post-test

Post-test was administered after the completion of the treatment stage. Both H-ILS group and traditional eLearning group were the second time required to carry out the self-holistic health comprehension appraisal. The process of the post-test was similar to the pre-test. The same Self-holistic health Comprehension Appraisal was used. Then, the data from pre-test and post-test were collected, analysed and compared.

3.3 Population and Sample Size

The target population in this study was IFARM's members who stayed throughout Thailand. IFARM was a company engaging in educating people, mostly young executives, about health and agriculture. The total number of members, as of June 30, 2019, was 3,016 people. Among them were 479 people who used to participate in IFARM's health-related courses. As this study concerns with health, this group of 479 health-conscious people was considered as a study population (N).

In this research study, non-probability sampling was employed. In the initial stage, purposive or judgement sampling was used by the researcher to invite those in the study population who (i) were interested in learning holistic health, (ii) were accessible to the website and social media regularly and (iii) commit to participating throughout this experiment actively. Subsequently, the convenience sampling method

was used. Based on their ability to travel to learn in a traditional classroom in Bangkok, they were assigned into two groups.

1. The first group was 28 people who could travel to learn in Bangkok. Accordingly, they were assigned to the experiment group or H-ILS.
2. The second group was 26 people who were not convenient to travel. They were then assigned to the control group or the Traditional eLearning group.

Therefore, the sampling size in this research was 54 people.

3.4 Research Tools

Based on the research design, the researcher constructed all research instruments as follows:

(i) Development and verification of H-ILS

In this step of research design, health interview form and tryout assessment form were employed.

(ii) The experiment of H-ILS

A 25-item self-holistic health comprehension appraisal was used.

3.5 Data Collection and Analysis

In finding reply for the 2nd and the 3rd research questions, data were collected using self-holistic health comprehension appraisal in the pre-test and post-test. Subsequently, descriptive statistical data was run, by open-source statistical software package PSPP, to determine means and standard deviations. Two types of t-test were administered as the followings: -

1. The Independent Samples T-test

   It was performed to assess whether there was a statistically significant difference in means score of the self-holistic health comprehension appraisal between the H-ILS group and the traditional eLearning group.
2. The Paired Samples T-test

It was performed to assess whether there is a statistically significant improvement of self-holistic health comprehension appraisal score within the H-ILS group.

CHAPTER IV

DATA ANALYSIS

In this chapter, the researcher presented the analysis of data which was collected from two significant steps of research design; (i) development of H-ILS and (ii) the experiment of H-ILS.

A type of research for the development of H-ILS was qualitative exploratory research; the in-depth expert interview was conducted to collect and analyse data which was not found during the literature review. For the experiment of H-ILS, it was quasi-Experimental Design: Non-equivalent Control Group Design. Self-holistic health comprehension appraisal was used as a research tool in the pre-test and post-test.

Therefore, this chapter was organised to present how the interview information was collected and analysed. Furthermore, it showed how self-holistic health comprehension was developed and how the content reliability and validity was administered.

Besides, a tryout was conducted to test the learning process and platform and self-holistic health comprehension appraisal. Feedbacks and modification were also shown in this chapter.

4.1 Development of Holistic Health Integrated Learning System (H-ILS)

4.1.1 Expert Interview

The interview was conducted to find out, from their expertise, experience, and knowledge, what the problems of holistic health education were and what the appropriate learning approach for holistic health should be. Methodologically, the interview duration per interviewee lasts approximately 30 minutes. The interview was composed of 15 questions. Consequently, the results of the interview were comprehensively analysed. Answers responding to each question from three experts

were assembled in a tabular format. The content was then reviewed. If the responses indicated consensus argument (at least two out of the three), the content of that question was valid for further consideration in the process of design and development of H-ILS.

An in-depth interview with three experts in the field of holistic health was conducted to gain insight information. A list of three experts was as the following: -

1. **1st Expert:** He was Thailand's renowned Thai traditional medicine physician. His expertise was witnessed by healing individual members of the royal family of foreign countries.

2. **2nd Expert:** She was a Thailand's renowned Thai traditional medicine physician from Petchburi province. She was awarded as the best physician of Khet 5 in 2015. She has operated Thai traditional medicine clinic for years, since her father's time. She also concerned with several royal medicinal plants project.

3. **3rd Expert:** He was a practitioner of Thai traditional medicine who was registered and licensed to practice Thai traditional medicine by the Thai Traditional Medical Council. Furthermore, he was very keen on developing foods from medicinal plants.

Appendix 3 showed an in-depth health expert interview session with health experts.

4.1.2 Consensus Arguments of Health Expert Interview

The followings were the interview results with consensus argument which were counted as "valid".

Table 4.1: Points of View from Three Health Experts on Interview Question 1

Experts	Question & Points of View	Result
	Q1. Do you think that fully online learning or traditional eLearning best fits with all fields of holistic health education?	

1st	Absolutely, No. For specific knowledge, I think it needs close suggestion/clarification or explanation from a health expert, for example, Dhatu check.	No
2nd	Likely, No. eLearning is not suitable for the content which needs practical skills such as body massage or certain kinds of exercises.	No
3rd	It does not fit with every circumstance.	No
Conclusion	Consensus (3 out of 3): traditional eLearning does not fit with all fields of holistic health care education.	

Table 4.2: Points of View from Three Health Experts on Interview Question 2

Experts	Question & Points of View	Result
	Q2. For the maximum efficiency of learning, do you think that instructors should be certified?	
1st	Yes, it is because it helps ensure accurate learning content and information as health is a critical issue.	Yes
2nd	Yes, it should be a certified health expert.	Yes
3rd	Not necessary. The experienced people who have been recognized are acceptable.	No
Conclusion	Consensus (2 out of 3): The instructor should be a certified health expert.	

Table 4.3: Points of View from Three Health Experts on Interview Question 3

Experts	Question & Points of View	Result
	Q3. According to the learning topics in this research, do you think that health check and Dhatu check are beneficiaries of learning?	
1st	Yes, it is. It will help the instructor to gather health information of learners.	Yes

2nd	Good idea as it enables the instructor to know basic health status. Health is an individual issue. Not all implications fit everyone.	Yes
3rd	Yes, but it must be conducted by the physician or health expert.	Yes
Conclusion	Consensus (3 out of 3): Health check and Dhatu check before learning is beneficiary to holistic health learning.	

Table 4.4: Points of View from Three Health Experts on Interview Question 4

Experts	Question & Points of View	Result
	Q4. According to the WHO, the global mortality rate from suicide in 2016 was about 800,000 deaths. Do you think that it is beneficiary to educate physical health and mental health knowledge in a course simultaneously?	
1st	Yes. Because physical and mental being is linked.	Yes
2nd	It is good if it is done because when people come for medication, I have often stressed the importance of mind towards well-being. I have also tried to integrated religion during communication with them as mind and body must in balance.	Yes
3rd	It is a great idea. Nowadays, more and more people feel sick from depression. If people are mentally healthier, their health will be holistically improved.	Yes
Conclusion	Consensus (3 out of 3): Physical health and mental health knowledge should be taught simultaneously	

Table 4.5: Points of View from Three Health Experts on Interview Question 5

Experts	Questions & Point of View	Result
	Q5. Do you think that classroom learning is essential for holistic health care course?	
1st	Yes, at least 1-2 times. It has many advantages. For instance, an instructor can provide guidance	Yes

	before learning to learners or show some practical knowledge clearly.	
2nd	Yes, it is essential because it can help an instructor and learners know each other. Teaching and learning shall be more productive and efficient.	Yes
3rd	It is highly suggested to have it as it can make learning alive and trigger interaction easier.	Yes
Conclusion	Consensus (3 out of 3): A classroom learning is essential.	

Table 4.6: Points of View from Three Health Experts on Interview Question 6

Experts	Questions & Point of View	Result
	Q6. If extended knowledge is provided to learners via Facebook, do you think that it may help enhance the learning performance?	
1st	I think so if the content is interesting. But format and presentation of learning content should be different from the learning in the course.	Yes
2nd	Not too sure but at least it helps learners to access the information easier as almost everyone nowadays uses social media.	No
3rd	More or less, it can help as today many people use it.	Yes
Conclusion	Consensus (2 out of 3): Facebook and Line may help enhance the learning performance.	

4.2 The Experiment of H-ILS

4.2.1 Self-holistic health Comprehension Appraisal

To reply to the 2nd and the 3rd research question, self-holistic health comprehension appraisal was developed to be administered in the pre-test and post-test. Index of Item Objective Congruence (IOC) by three health experts was used to

validate the content, whereas the test-retest method was employed to measure its reliability. The final appraisal contained 25 items, and the score of each item was rated 0-4 scores. Thus, the full score of this appraisal was 100 scores. The self-appraisal was organized via the website.

4.2.2 IOC Content Validity

Index of Item Objective Congruence (IOC) was used to qualify the content validity of the appraisal. The researcher wrote it under the consultancy from the dissertation advisor. In terms of the content validity of the self-holistic health comprehension appraisal, three experts in areas of holistic health and/or Thai traditional physician were invited to review the items in the assessment. This validity was aimed to ensure the congruence and appropriateness of each item with what it evaluates and correctness of the use of language.

The researcher firstly submitted self-holistic health comprehension appraisal with 30 items for verification by three experts. If the item was congruent, +1 mark was given. If not congruent, -1 mark was given. And if they were uncertain, zero mark was then given. Therefore, the full score for each item was three marks. And the average score was one mark. The item which had the average score higher than .50 mark was considered as “valid”. In contrast, any item with the average score lower than .50 mark, it was regarded as “invalid”.

Table 4.7: Results of IOC Content Validation by Three Experts

Item	1st Expert	2nd Expert	3rd Expert	Total Scores	IOC Score
1	1	1	1	3	1
2	1	1	0	2	0.67
3	1	1	1	3	1
4	1	1	1	3	1
5	1	0	0	1	.33
6	1	1	1	3	1
7	1	1	1	3	1
8	1	1	0	2	.67

9	1	1	0	2	.67
10	1	1	0	2	.67
11	1	1	1	3	1
12	1	1	1	3	1
13	1	1	1	3	1
14	1	-1	-1	-1	-0.33
15	1	1	0	2	.67
16	1	1	1	3	1
17	1	1	1	3	1
18	1	1	1	3	1
19	1	1	0	2	.67
20	1	1	1	3	1
21	1	1	1	3	1
22	1	1	1	3	1
23	1	1	1	3	1
24	1	1	1	3	1
25	1	1	1	3	1
26	1	1	1	3	1
27	1	1	1	3	1
28	1	1	1	3	1
29	0	1	0	1	.33
30	1	1	1	3	1

The marking result of IOC validation was summarized in Table 4.7, whereas detailed comments of each health experts were summarized and shown in Appendix 4. In conclusion, the health experts compliantly argued that 27 items from 30 items were congruent. The scores of item 5, 14 and 29 were .33, -.33 and .33 respectively, which were lower than the average score of .50. Therefore, items 5, 14 and 29 were deleted from the first list. Experts further mentioned that item 19 and 22 were congruent with the objective of the appraisal. However, the 3rd expert noted that, for item 19, the question might mislead people as the question did not explain the symptom clearly. For item 22, the 2nd expert and 3rd expert mutually mentioned that

they had insufficient information about the benefits of arm swing for specific diseases in the appraisal.

Finally, 25 items were left to be listed in the final version of the self-holistic health comprehension appraisal (Appendix 5).

4.2.3 Content Reliability

The test-retest method was conducted to assess the consistency of self-holistic health comprehension appraisal. The number of participants was seven persons. The test was two times executed; the re-test was organized after the first test by two weeks. Based on the Pearson Product Moment Correlation, test results of both test and re-test were formulated and computed in Table 4.8.

Table 4.8: Reliability Test

Participants	Scores of 1st Test (X)	Scores of 2nd Test (Y)	XY	X^2	Y^2
1	45	56	2520	2025	3136
2	53	59	3127	2809	3481
3	42	55	2310	1764	3025
4	62	64	3968	3844	4096
5	45	52	2340	2025	2704
6	57	57	3249	3249	3249
7	57	62	3534	3249	3844
	361	405	21048	18965	23535

$$r = \frac{n\,(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2]\,[n(\sum y^2) - (\sum y)^2]}}$$

$$r = \frac{7x21048 - (361x405)}{\sqrt{[7x18965 - (361)^2][7x23535 - (405)^2}} = .8543$$

The value Pearson correlation was .85; therefore, the self-holistic health comprehension appraisal had high reliability.

4.3 Tryout Process and Results

A tryout was conducted to fine-tune the H-LIS before the experiment. In the tryout process, online learning platform and process, and self-holistic health comprehension appraisal - were tested and evaluated by a group of learners and a group of experts. Three learners, in accompanied by two experts – web designer and traditional Thai physician, were invited to participate in the tryout. Tryout process and results were elaborately summarized in Table 4.9.

Table 4.9: Tryout Process and Results

Items	Learner Group	Expert Group	
		Web Designer	Physician
Number of Persons	3 (one person from three different age group: 25-40, 41-50 and 51-60 years old)	1	1
Tryout Steps	1. The learners were invited to participate in the tryout process. 2. The researcher presented H-ILS's conceptual framework and process. Then, the researcher presented how to use online learning platform and execute the self-holistic health comprehension appraisal testing. 3. They were asked to try out online learning platform via their mobile phone (mobile phone model was recorded) and notebook, which was provided by the researcher.	1. A physician of traditional Thai medicine and a professional web designer was invited. 2. The researcher presented H-ILS's conceptual framework and process. Then, the researcher presented how to use online learning platform and execute the self-holistic health comprehension appraisal testing. 3. They were asked to try out online learning platform and online self-holistic health comprehension appraisal. 4. Finally, both of them were asked to provide feedback and recommendation under the topics corresponding to their respective expertise.	

	4. After that, they were asked to execute online self-holistic health comprehension appraisal. 5. Finally, they were asked to provide feedback and comment on the tryout process.		
Evaluation Method	1. A 25-item paper-based evaluation of the tryout process was distributed to each learner. 2. Learners were then asked to evaluate the tryout by giving marks +1 (agree) / 0 (not certain) / -1 (disagree) and wrote their feedback freely.	1. Experts were asked to comment based on their specific expertise freely. 2. Feedback and recommendation were collected and recorded by the researcher.	
Aspects of Evaluation	1. The learning processes 2. The interface of the web-based learning platform 3. Method and content of self-holistic health comprehension	1. The learning process (excluding learning content) 2. The interface of the web-based learning platform 3. Method of self-holistic health comprehension	1. The learning process (excluding technical aspect) 2. Method and content of self-holistic health comprehension
Results	The total marks for each question were three marks. Therefore, the average mark is 1. Any question with the average mark lower than .50 needed to be considered for further modification. Full results were shown in Table 4.8 and Appendix 6	Full results were shown in Appendix 7	Full results were shown in Appendix 8

Table 4.10: Results of Tryout by Group of Learners

Topic	Item	Details	Learners			Total Score	Average Score
			1	2	3		
Web Interface	1	Are sign-up and login buttons (both website and mobile website) easy to use?	1	0	1	2	.67
	2	Can you access the online learning platform (mobile website) conveniently?	1	1	1	3	1
	3	Can you read the text on the mobile website clearly?	1	1	1	3	1
	4	Are the sound and visual quality of video learning content excellent?	1	1	1	3	1
	5	Is the loading of website and learning platform speedy?	1	1	1	3	1
	6	Are both web registration and login functions easy to use?	1	1	1	3	1
	7	Is online learning platform easy to access from the homepage (menu navigation)?	-1	-1	0	-2	-.67
	8	Are details and schedule of online learning clear and complete?	1	1	0	2	.67
	9	Are links from online learning platform to other additional resources such as health articles easy to use?	1	1	1	3	1

Topic	Item	Details	Learners			Total Score	Average Score
			1	2	3		
	10	Is FAQ or troubleshooting for the use of online learning platform necessary?	1	1	1	3	1
Learning Process	11	After a brief presentation by the researcher, do you have a clear and good understanding of the process of H-ILS learning?	1	1	1	3	1
	12	Is the length of video learning content (Session 1: Arm Swing Exercise) appropriate?	-1	-1	0	-2	-.67
	13	Is the length of video learning content (Session 2: Medicinal Plant in Daily Life – Digestion system) appropriate?	1	1	1	3	1
	14	Do learning time and learning duration (4 weeks, two sessions/week) fit your time?	1	1	1	3	1
	15	If learning schedule was fixed (within three days after loading of the learning content), is it convenient for your time?	-1	-1	1	-1	-.33
	16	Do you think that learning in a traditional classroom shall help you have more understanding?	1	1	1	3	1
	17	Are you convenient for extended learning on Facebook group?	1	1	0	2	.67
	18	Can you participate in learning and activities on Facebook regularly?	0	1	0	1	.33

Topic	Item	Details	Learners			Total Score	Average Score
			1	2	3		
	19	Do you think that you can completely attend all sessions of online learning?	1	1	0	2	.67
	20	Do you agree if notification is sent via LINE or Facebook to you every time new learning content is uploaded?	1	1	1	3	1
Self-holistic health comprehension appraisal	21	Is the answer scheme used in performing self-holistic health comprehension appraisal (limit answering time within 30 seconds, and the question is shown one by one) appropriate?	-1	-1	-1	-3	-1
	22	Is the number of items/questions of the self-holistic health comprehension appraisal (25 items) appropriate?	1	1	0	2	.67
	23	Do have a clear understanding in instructions of the self-holistic health comprehension appraisal?	0	1	1	2	.67
	24	Is web-based appraisal of self-holistic health comprehension convenient for you?	1	1	0	2	.67
	25	Is Post-test date (on September 20 but not later than September 22) convenient for you?	1	1	0	2	.67

Based on the feedback from three learners, it was found that the average score of item 7, 12, 15, 18 and 21 was lower than .50. As a consequent, they were considered

in accompany with recommendations from a professional web designer and a physician of Thai traditional medicine for further modification.

4.4 Modification of Items

Based on the tryout, all feedback and recommendation from learners (only the items with the average score lower than 0.5) and experts were taken into the researcher's deep consideration. The modifications were done to fine-tune H-ILS by the researcher and were summarized in Table 4.11.

Table 4.11: Summary of Feedback and Recommendation by Learners and Experts towards Tryout and Modification by the researcher

Topic	Tryout Groups: Learner Scores	Tryout Groups: Expert: Web Designe	Tryout Groups: Expert: Health Expert		Feedback & Recommendations	Modifications by Researcher
Learning Process	✓	-.67		1.	Learning content of arm swing exercise was too long.	The researcher kept the length of the video unchanged as all parts were necessary. Missing any part may lead to harmful practice. However, the starting time of each part of the learning content was indicated. It allowed learners to selectively or repetitively learn only the part that they want more comfortable. (Appendix 9)
	✓	-.33		2.	Fixed duration of learning time (within three days after uploading the learning	Learning deadline (within three days after loading the learning content into online learning platform) was

				content) was not convenient.	cancelled. However, when the content learning was uploaded, the learners of both groups were notified by LINE. They were urged to log in to learn on an online platform.
	✓	.33	3.	Extended learning via social media was acceptable but needed to be reminded as sometimes it was too busy with daily life.	Apart from system notification from Facebook, the learners were notified by LINE message and Facebook's tagging function whenever any new information was posted to Facebook Group. This notification was to stimulate learners to proactively engage in extended learning activities in an informal learning environment. (Appendix 10)
Interface of Web	✓	-.67	4.	Menu linking to online learning platform was too complicated.	Direct menu to the online learning platform was created and shown on the homepage. (Appendix 11)
		✓	5.	In mobile website, sign-up and login button might be too small for the senior group of the learners. It was advisable to revise and also consider to create an image link to replace text link. This adjustment was to ensure that learners using a mobile phone could access all learning resources properly.	Extra sign-up and login button were created for the mobile website. (Appendix 12)
		✓	6.	Learning timeline, showing specific date and time with related learning activities	Learning timeline showing date and related activities were created.

				should be created and displayed on each learning platform so that learners would have a clear direction to attain the learning achievement.	(Appendix 13)
		✓	7.	As learners have two separate groups, it was highly recommended to reinvent by separating online learning platform into two different platforms, one for the traditional eLearning group and the other for H-ILS group. This separation was to prevent confusion between the two groups.	Another online learning platform was invented, separating one for the traditional eLearning group and the other for the H-ILS group. (Appendix 14)
		✓	8.	For H-ILS group, a connection link to Facebook and Line was advised to be created so that the learners could access online social learning platform easier.	Anchor links to Facebook group and LINE was created for the H-ILS's group. (Appendix 15)
		✓	9.	As videos of learning content were uploaded into the learning platform via the link of Youtube.com, it means that the videos were also published to the people other than the learners. In a general business context, to make the content exclusive to the learner and chargeable, learning content videos were typically uploaded into the server of the learning platform owner.	The video remained at Youtube.com but changed the mode of publication to unseen mode. Only learners can see the video.
Sel		✓	10.	Online self-holistic health appraisal form	A form collecting physical personality trait

					for the eLearning group was not completed. It needed to be revised to collect personality trait of each learner. This set of information was used in analysing the present Dhatu element of learners.	was created and merged into self-holistic health comprehension appraisal of the traditional eLearning group. (Appendix 16)
✓	-1.0	✓	✓	11.	Fixed time duration in answering the self-holistic health comprehension appraisal (30 seconds per question) was too difficult.	Answering scheme of self-holistic health comprehension appraisal was revised from limited time duration of 30 seconds per question to no-time limit. Additionally, all 25 items were concurrently shown instead of exhibiting one by one question in 30 seconds. (Appendix 17)
			✓	12.	The instruction of the self-holistic health appraisal should be clearly shown online, not only on the paper.	Step-by-step instruction of web-based self-holistic health comprehension appraisal was inserted on the top of the page. (Appendix 18)
			✓	13.	As learning content in the research project was only a part of each topic, it was advisable to add "some words" to notify the learners who were assumed not to be familiar with the content.	A word "partial" was added to notify that the learning content was just a part of the whole topic.

CHAPTER V

RESEARCH FINDINGS

This chapter entirely presented significant research findings based on three important research questions. The consensus arguments from the expert interview were consequently analysed incorporation with literature review and the researcher's own experience as a pharmacist in Thai traditional medicine and trainer for years to find out what the blending system components of H-ILS were.

Furthermore, the results of pre-test and post-test were computed by using the Independent Samples T-test and the Paired Samples T-test to reply to the 2nd and 3rd research questions.

In conclusion, this chapter was organised to propose H-ILS and system steps and analytical finding after the treatment of both the experiment group and the control group.

5.1 System Components

Consensus argument received from the process of health expert interview, in accompanied by information from the literature review and the researcher's experience as a pharmacist under Thai Traditional Medicine, were mutually analysed and exploited to find out what the system components of H-ILS were.

Component #1: Traditional Classroom

Traditional classroom was a foundation component of H-ILS since it supports the effectiveness of contents delivered online. Based on in-depth interviews, consensus argument from both Q1 and Q2 showed that full online learning or traditional eLearning was not an optimal option for health learning. The first and second health expert clearly stated that traditional classroom was still essential and very beneficiary to holistic health learning as some certain parts need close clarification and explanation from the instructor.

This information was entirely identical to the previous literature review and the findings of related works. Pande, Wadhai, & Thakare (2016) stated that traditional eLearning makes learners feel isolated as it lacks interaction and may be less effective in the aspect of clarifications, explanations and interpretations. Including the findings from Al-Qahtani & Higgins (2013), It reported that a combination of face-to-face teaching featuring the presence of an instructor and online learning showed better students' achievement.

In conclusion, the traditional classroom was therefore proved to be an essential and worth component of H-ILS. It was believed that it might overcome the drawback of traditional eLearning.

Component #2: Health Check & Dhatu Check

From the results of the expert interview, all three health experts mentioned that health check and Dhatu check were a necessary process. They were required to be done before learning because it enabled an instructor to know the health status of learners and may trigger learners' interest in education. As a consequent, health check and Dhatu check was included in H-ILS's component.

Standard health check and Dhatu check were simultaneously administered by the physician of traditional Thai medicine in the traditional classroom setting. The personal health data and Dhatu data were confidentially recorded and may be used as reference information if any learner questioned on their health during the learning session. These enabled instructors to give answers that were associated with each learner properly. Ultimately, it may help improve learning outcome.

Component #3: Health Expert

Based on relevant research and case studies, it was found the people were sick because they did not have accurate self-medicated knowledge (Puangmalai, 2018). Additionally, they accessed misled health information which has been vastly shared on the internet (Teoh, 2019). Furthermore, consensus result from the expert interview, instructors under H-ILS needed to be health experts with reliable certificates. This component aimed to ensure the creditability and accuracy of the learning content. Health expert was, thus, added as a good part of H-ILS.

Component #4: Traditional eLearning

Traditional eLearning approach was strategically designed to be an extensively vital and integral role in H-ILS because, according to Clover (2017), it enabled learners to learn anywhere and at any time and provided great flexibility and convenience in learning. Learning content could also be rewound and seen and heard repetitively. Also, eLearning potentially enabled those who work irregular hours or stay far from learning place to learn properly (Saeheng, 2017). These predominant strengths of online learning were suitable with the adult education, of which learners had commitments which made it hard to attend a regular course.

Including a recent study from Jitboonyapinit (2015), learning achievement of eLearning class was significantly higher than that of the traditional classroom. Similar findings from Saeheng (2017), it was presented that the mean scores of students' satisfaction in eLearning group and blended learning group were 4.31 and 4.00 respectively, which were higher than that of traditional learning group (2.99).

With a critical purpose of providing dynamic learning content and learning information in an officially structured format, the eLearning component of H-ILS exploited the inherent strengths of the website. It uses Joomla web program, an internationally accredited open source and free CMS (Content Management System) to design and develop a website as the core spine of the learning platform. LMS (Learning Management System) and other learning technologies were optimally integrated and synchronised to empower the learner and also to enhance the learning experiences. According to Coyne et al. (2018), a video which was incorporated in a blended learning model may be a useful teaching tool for students of health. Therefore, the video was mainly embedded as teaching material in the online platform of the H-ILS.

eLearning under H-ILS was a managed learning program. The learners need to enrol before learning and follow the instruction manual and guidance strictly. Furthermore, with the ever-increasing ubiquity of the smartphone and mobile devices, H-ILS's website was potentially invented to allow learners to access learning class from various devices with the best possible experience. Apart from being an online learning channel, the website was designed to extensively provide a tank of holistic

health knowledge and other relevant information. The website could be extensive resources for the learners on an instant basis.

Component #5: Online Social Learning

H-ILS was equipped with social media platforms such as Facebook group, Youtube and Line. The key objectives of integrating online social learning as one of the crucial components of H-ILS were to provide new possibilities for communication and interaction and creating new learning spaces (Froment et al., 2017). It dominantly aimed to i) to support traditional eLearning and to provide extra knowledge and information to learners, ii) to urge learners to participate in all learning activities and to repeat their learning and practice correctly, and iii) to encourage interactions between the instructors and the learners as well as among the learners (Raspopovic et al., 2017). Online social learning component was designed to enable learners to interact and observe the results of their interaction while responding to and engaging with others, leading to the possible development of a more cohesive community of learners. From the interview result, extended learning through social media was advisable. But to draw learners' attention and participation, the first health expert advised that it needed to be delivered in persuasive format.

As a consequent, forms of online social learning under H-ILS include extra learning objects, particularly for video and image, Q & A session and game playing. Facebook (Closed Group) was strategically selected as the focal social platform. Moreover, "LINE", one of the most popular communication technology platforms in Thailand, was used to facilitate the communications between an instructor and learners and to notify learners when new learning chapter was uploaded or ask learners to participate in learning activities outside the traditional eLearning class.

Component #6: Learning Content (Past tense?)

In a holistic perspective, mind, and body played an interdependent role in the overall state of well-being of the people (Allison, 1999). What's more, the result of the in-depth interview showed that simultaneous learning of physical health and mental health knowledge was advisable. Therefore, learning content under H-ILS contains two vital parts. The first part of the content focused on physical wellness.

They were Holistic health & Daily Healthcare, Medicinal Plants in daily life, Dhatu (body elements) for health. The second part focused on mental wellness which was Arm Swing Exercise. Arm Swing Exercise had been widely recognised as an exercise which was good for physical and mental health as it induced learners to mediate themselves during a practice session.

5.2 The Proposed H-ILS

Based on the analysis in topic 5.1, the finding corresponding to the 1st research question was illustrated and proposed in Figure 5.1

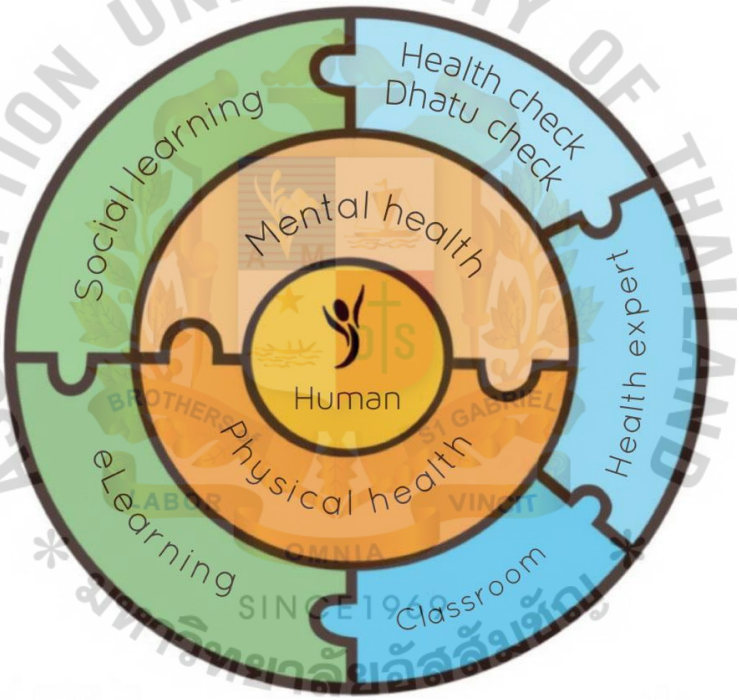


Figure 5.1: H-ILS's conceptual framework

Holistically, the human was the focal point of the system. H-ILS was vitally composed of six interrelated system components, and each element was interlocked like a jigsaw puzzle, missing one piece cannot make a complete image. It was very much similar to the concept of holistic health, where the whole was greater than the sum of its parts. Each system component could not be regarded as inseparable view. H-ILS was elaborately designed to improve learners' holistic health comprehension

and stimulate them to incorporate holistic health practices into their daily life. Hence, their state of wellness was then enhanced.

The H-ILS was invented by selecting the strengths of two significant learning modes – traditional classroom (offline mode) and online learning (online mode). To overcome the shortcomings of traditional eLearning on health, H-ILS was strategically designed as a proactive blended learning approach. It was integrated, in a significant and meaningful way, the inherent advantages of online learning (a combination between traditional eLearning and online social learning) and the traditional classroom, featuring a physical presence of instructors.

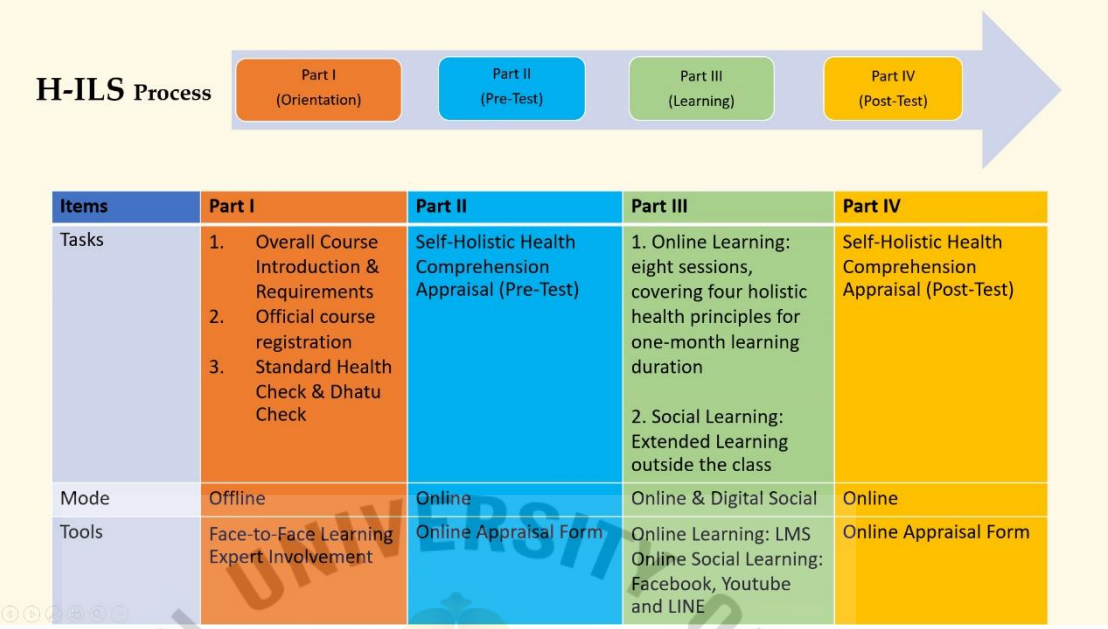
5.3 System Implementation

Figure 5.2: System Implementation

The steps, illustrated in Figure 5.2, needed to be administered to implement H-ILS effectively. It commenced with the designing learning process, developing learning content, develop an online learning platform, setting up Facebook group and LINE, setting up a face-to-face classroom and finally learning.

5.3.1 Design Learning Process

According to Figure 5.3, the learning process of H-ILS simply was composed of four main parts. All learners were required to participate in all four parts completely.



Items	Part I	Part II	Part III	Part IV
Tasks	1. Overall Course Introduction & Requirements 2. Official course registration 3. Standard Health Check & Dhatu Check	Self-Holistic Health Comprehension Appraisal (Pre-Test)	1. Online Learning: eight sessions, covering four holistic health principles for one-month learning duration 2. Social Learning: Extended Learning outside the class	Self-Holistic Health Comprehension Appraisal (Post-Test)
Mode	Offline	Online	Online & Digital Social	Online
Tools	Face-to-Face Learning Expert Involvement	Online Appraisal Form	Online Learning: LMS Online Social Learning: Facebook, Youtube and LINE	Online Appraisal Form

Figure 5.3: H-ILS's Learning Process

Part I: Orientation & Traditional Learning

This part was the first stage of learning was administered in the traditional learning environment. It was composed of three activities; overall course introduction and requirements, official course registration, and health check and Dhatu check. It was required that Health check and Dhatu check had to be conducted by the certified health experts. Personal health information and Dhatu element were confidentially recorded by the researcher and would be used in checking the correctness of the answer in the tests. Moreover, it was used in providing proper recommendation if any learner had a personal question during the learning session. These checks were to ensure that recommendations best suited to each health. Additionally, arm swing exercise and Dhatu balancing, the topics requiring close clarification and explanation, were taught in this face-to-face learning setting.

Part II: Pre-test

Self-holistic health comprehension appraisal was conducted online to evaluate learner's comprehension of holistic healthcare before learning. The assessment was designed to evaluate the level of holistic health comprehension of learners before entering the learning session.

Part III: Learning

Once pre-test was finished. Learning session commenced. The learning duration was four weeks. It was comprised of eight sessions, covering four holistic health principles. Two modes of online learning which were adopted in the H-ILS were traditional eLearning and online social learning. Eight learning sessions were professionally designed to run on a web-based platform, whereas extended learning was executed on Facebook Group in an informal learning setting. According to O'Bannon et al. (2013), Facebook Group was an educational tool which could improve the learning outcome and satisfaction. LINE, which was the most popular communication tool in Thailand, was also used along with Facebook. Before commencing each learning session, all learners were notified via an instant message system of Line. This notification was to ensure that all learners participated in the learning sessions proactively.

5.3.2 Develop learning content

According to Table 5.1, the learning content in this study was composed of (i) Arm Swing Exercise, (ii) Medicinal Plant, (iii) Dhatu or Body Elements, and (iv) Holistic Health. Specific learning topics for web-based learning during eight sessions include (i) Arm Swing Exercise, (ii) Medicinal Plants in daily life – digestive system, (iii) Medicinal Plants in everyday life – skin diseases, (iv) Medicinal Plants in everyday life – urinary system and respiratory system, (v) Being healthy by balancing Dhatu (body elements), (vi) Ailment from Dhatu (body elements) Imbalance. (vii) Nine medicinal tastes to boost the balance of Dhatu, and (viii) Holistic health in daily life. All eight topics were, in video format, developed in advance and taught by the certified health experts.

For online social learning, a wide range of content format regarding four learning principles were introduced, almost every day, in a more persuasive form such as short video, image, and game. Significantly, this was aimed to urge learning participation and engagement among learners.

Table 5.1: Learning Content of H-ILS

Week	Offline Modes	Online Modes		
	Classroom	Traditional eLearning		Social Learning
	Activities & Content (4 hours)	Session	Content (Min.)	Activities & Content
1st	Activity: Course Introduction, Health check & Dhatu check, Content: Health Situation in Thailand & NCDs, Arm Swing Exercise, and Dhatu towards health	1	Arm Swing Exercise (21.28)	A wide variety of health content, encouragement in a change of behaviour towards health, reminder of new lesson uploading, and games, in the form of text, image, and video, were posted on the Facebook group throughout four weeks.
		2	Medicinal Plants in daily life – digestive system (8.30)	
2nd		3	Medicinal Plants in daily life – skin diseases (6.29)	
		4	Medicinal Plants in daily life – urinary system and respiratory system (9.21)	
3rd		5	Being healthy by balancing Dhatu (body elements) (11.07)	
		6	Ailment from Dhatu (body elements) Imbalance (9.43)	
4th		7	Nine medicinal tastes to boost the balance of Dhatu (10.25)	
		8	Holistic health in daily life (7.04)	

5.3.3 Develop Online Learning Platform

eLearning component of H-ILS utilized the potential strengths of the website. In this study, traditional eLearning exploited a sophisticated LMS which was run on an open-source and free-of-charge Joomla program. The program was invented with fully responsive technology; thus, H-ILS's website enabled learners to access learning class from various devices with the best possible experience. Appendix 19 showed the example of an online learning platform (both in desktop and mobile views). On this platform, the learners were required to register and sign in before the link to the assigned learning group was provided.

5.3.4 Set up Online Social Learning

Facebook Group and LINE application were integrated to extend informal learning outside the LMS. LINE was mainly used to notify learners about the publication of new learning content and the test. As for Facebook Group, it was a closed group; only 28 learners under H-ILS were allowed to participate. Content shared on Facebook were in a various informal form, such as a game, Q&A and short video. Social media were included as an integral component of the H-ILS to encourage learner's engagement and participation; the content was uploaded almost every day during 30-day learning. Appendix 20 showed an example of online social learning.

5.3.5 Set up Traditional Classroom

As a traditional classroom was a very significant component of H-ILS, it was required to set up properly. The suitable room had to be large enough for undertaking 28 learners, three health experts, and two instructors and for providing some space for personal health and Dhatu check as well as exercise activities. Learning atmosphere in a face-to-face learning setting was reported in Appendix 21.

5.3.5 Learning

During the learning session, the researcher needed to ensure smooth learning experience, both technical such as accessibility of web-based learning platform and speedy website loading, and non-technical aspects such as notification of uploading of new learning content and giving replies to learners' questions and comments on Facebook and LINE. Furthermore, the research was required to encourage learners to follow the learning process of H-ILS properly.

5.4 Experiment Finding and Analysis

5.4.1 Finding for the 2nd Research Question

At the beginning of the experiment, a pre-test was conducted to measure the self-holistic health comprehension of the learners (dependent variable) from both H-ILS group (experiment group) and traditional eLearning group (control group). The purpose of the pre-test was to measure the means score of the self-holistic health comprehension appraisal for both sampling groups. Appendix 22 showed a sample of data collected by the self-holistic health comprehension appraisal. The data was then stored in an excel file, then transferred to PSPP for computation.

In reply to the 2nd research question, the Independent Samples T-test was explicitly conducted to measure if there was any statistically significant difference in means score of the self-holistic health comprehension between those who learned under the H-ILS and those who learned in the traditional eLearning class, both at the beginning stage of the experiment (pre-test) and at the ending stage of the experiment (post-test).

The hypotheses for the Independent Samples T-test were as the followings: -

$H_0$1: There is no significant difference in means scores of post-test between the H-ILS group and traditional eLearning group

H_a1: There is a significant difference in means scores of post-test between the H-ILS group and traditional eLearning group

Table 5.2: Results of Independent Samples T-test: self-holistic health comprehension appraisal (pre-test and post-test)

Test	Learner Group	n	Means	SD	t	df	p-value
Pre-test	H-ILS	28	47.07	12.640	-.800	52	0.428
	Traditional eLearning	26	49.77	12.111			
Post-test	H-ILS	28	68.68	6.673	5.509	52	0.000*
	Traditional eLearning	26	57.58	8.110			

*Significant difference, $p<0.01$

The Independent Samples T-test was calculated to compare the self-holistic health comprehension (dependent variable) between the H-ILS group (experimental group) and the traditional eLearning group (control group). The results in Table 5.2 showed that, before learning, the means score of self-holistic health appraisal was 47.07 (SD=12.640) and 49.77 (SD=12.111) for the H-ILS group and the traditional eLearning group, respectively. The t-test was not significant, df (52) t = -.800, p = .428. It clearly showed that there is no statistically significant difference in the means score between the H-ILS group and the traditional eLearning group in the pre-test. Thus, the result indicated that, at the beginning of the experiment, the self-holistic health comprehension of the H-ILS group and the traditional eLearning group was not different.

After the experiment, the post-test score of the H-ILS group's self-holistic health appraisal was 68.68 (SD=6.673) while the traditional eLearning group earned 57.58 (SD=8.110), respectively. The result of Independent Samples T-test was statistically significant, df (52) t = 5.509, p = 0.000*. This finding confirms that, after completing the experiment, the self-holistic health comprehension of the H-ILS group was higher than the traditional eLearning group. The null hypothesis ($H_0$1) was, therefore rejected.

5.4.2 Finding for the 3rd Research Question

In replying the 3rd research question, the Paired Samples T-test was carried out to assess the improvement of the H-ILS group during the interval between the pre-test and the post-test. This test aimed to find whether there is any difference between pre-test and post-test means score for the H-ILS group.

The hypotheses for the Paired Samples T-test are as the followings: -

$H_0$2: There is no significant difference between the pre-test and the post-test means value of the H-ILS group

H_a2: There is a significant difference between the pre-test and the post-test means value of the H-ILS group

Table 5.3: Result of self-holistic health comprehension for H-ILS group between the pre-test and the post-test

Test	n	Means	SD	t	df	p-value
Pre-test	28	47.07	12.640	-9.339	27	0.000
Post-test	28	68.68	6.673			

*Significant difference p<0.01

From Table 5.3, the significant difference *p* was less than 0.01 (*p*=.000). Specifically, it concluded that there was a statistically significant difference between the means value of pre-test and post-test result for the H-ILS group. It means that there was an improvement in holistic health comprehension for learners who learned under the Holistic Health Integrated Learning System (H-ILS) during a 30-day learning session. The null hypothesis ($H_0$2) was, therefore rejected.

CHAPTER VI

CONCLUSION, SUGGESTION AND RECOMMENDATION

This chapter was composed of four significant sections. The first section primarily starts with a summary of the study. The second section reveals the significant findings of the study, which were organised in corresponding to all of the three hypotheses initially proposed in Chapter II. For the third section, the discussion concerning the research outcome was elaborately explained in more details. Besides, in the final section, the recommendations for future research to serve other demands of integrated learning approach on self-holistic health learning were proposed.

6.1 Executive Summary

The type of research employed in this current study was a mixed methods research. The research has ultimately fulfilled the general objective of the study as to develop Integrated Learning System (H-ILS) for improvement of holistic health learning, and then, to conduct a study finding learning performance on health-conscious executives of IFARM's members in Thailand. More specifically, the research was conducted with the following specific objectives 1) to compare a score of self-holistic health comprehension appraisal between health-conscious executives who learned under H-ILS and who learned in traditional eLearning class, and 2) to compare a pre-test and post-test score of self-holistic health comprehension appraisal of health-conscious executives who learned under H-ILS.

The target population in this research was health-conscious executives of IFARM's members who resided in various regions of Thailand. The population was 479 people. They were further assigned to two different groups. In a simple sense, 28 people, who were able to participate the face-to-face learning class, were assigned to the H-ILS group (experiment group) whereas 26 people, who could not travel, were

assigned to the traditional eLearning group (control group). The traditional eLearning group solely exposed to fully online learning via web-based LMS while the H-ILS group exposed to blended learning. As a result, the sampling size (n) for H-ILS was 28 people while those of traditional eLearning group was 26 people.
The data collecting instruments for qualitative research method were interview form and tryout assessment form. In contrast, the instrument for quantitative research in the pre-test and post-test was 25- item self-holistic health comprehension appraisal form with IOC validity.

Holistic health course in this study was an adult learning (average age = 40 years old). Based on the in-depth interview with three health experts, a 30-day learning period was advised to be the best length of learning for adult learning. The result of the tryout process affirmed this.

After the completion of the experiment, the data collected from the pre-test and post-test were analysed, in term of the Independent Samples T-test and the Paired Samples T-test, using means, t-test, df and p-value. As a consequent, the testing results of hypotheses were fully described in the next section.

Three significant findings were significantly found in this current study. Firstly, this research created a system of blended learning on holistic health, namely, integrated learning system (H-ILS). The H-ILS was the learning system meaningfully integrated i) online learning setting which combined traditional LMS-based eLearning and online social learning, and ii) offline learning environment which was a traditional classroom with Health Check and Dhatu Check.

According to Figure 5.1, the H-ILS, an innovative blended learning approach for holistic health, was fundamentally comprised of six interrelated components: i) traditional classroom, ii) Dhatu check and health check, iii) health expert, iv) traditional eLearning, v) online social learning, and vi) learning content (physical wellness and mental wellness). Each component was interlocked like a jigsaw puzzle; missing one piece could not make a complete image. It was very much similar to the system of holistic health, where the whole was greater than the sum of its parts. Individual system component could not be regarded as inseparable view.

The H-ILS was invented by selecting the strengths of two significant learning modes – traditional classroom (offline mode) and online learning (online mode). To overcome the shortcomings of traditional eLearning on health, H-ILS was strategically designed as a proactive blended learning approach. It integrated, in a significant and meaningful way, the inherent advantages of online learning (a combination between web-based traditional eLearning and online social learning) and the traditional classroom, featuring a physical presence of instructors.

Secondly, when the results of both groups after the post-test were compared, the p-value clearly showed that there is a statistically significant difference in the means scores between the H-ILS group and traditional eLearning group (p = 0.000*). The finding was that the learners under H-ILS group with the treatment of the Integrated Learning System provided higher self-holistic health comprehension than those with the treatment of mere traditional eLearning.

Thirdly, based on the Paired Samples T-test computation, the significant difference p is less than 0.01 (p=.000). It means that there is a statistically significant difference between the means value of pre-test and post-test result for the H-ILS group. As a result, the third significant finding of this current research is that there was an improvement in holistic health comprehension for the IFARM members who learned under the Integrated Learning System (H-ILS) during a 30-day learning session.

The "new knowledge" derived from the findings mentioned above of the study implied that the H-ILS was a highly effective blended learning approach which helped enhance the holistic health learning capability for the IFARM members who were exposed to it during a 30-day learning duration. Apparently, with formal learning setting (traditional eLearning and traditional classroom with Health Check and Dhatu Check) and informal learning setting (online social learning), plus teaching and advice from the certified health experts, the H-ILS considerably improved learners' comprehension on holistic health and managed to encourage learners to change their improper behaviour to achieve a maximum state of physical and mental well-being.

"Academic progression" which proved the expertise of the researcher in the field of eLearning methodology was that the H-ILS enabled learners to participate in

all learning activities actively. Moreover, the majority of learners from the H-ILS group actively engaged themselves with other learners and an instructor by participating in game, Q&A and extended learning video. Ultimately, learners' holistic health comprehension in the H-ILS group was significantly higher than that of the traditional eLearning group.

6.2 Discussion

6.2.1 To create H-ILS

Before the experiment, the exploratory research was conducted to find the components of the H-ILS and to design how each component work together to maximise the learning outcome of holistic health for the members of IFARM. The research commenced with an in-depth interview with three health experts. The interview placed particular focus on what the problems of holistic health learning and what the better learning approach could be. The interview content was then analysed based on consensus argument result.

Subsequently, the interview excerpts were synthesised along with literature review, results from related works and the researcher's experience as a certified pharmacist under Thai traditional medicines and speaker for a wide variety of adult-learning courses for years to form the system of integrated learning for holistic health. As a result, the exploratory research found that the more appropriate system of holistic health learning should be based on the system of blended or integrated learning approach, which was comprised of six interlocking components i) Classroom learning with a presence of instructor ii) Traditional eLearning iii) Online Social Learning iv) Content Learning for physical health and mental health, and v) Health Check and Dhuta Check.

After the H-ILS was created, the H-ILS process was accordingly developed. It composed of four main steps, which were orientation, pre-test, learning and post-test. Then, self-holistic health comprehension appraisal was designed with the item IOC validity. Then, a tryout process, which focused on traditional eLearning platform, the entire learning process of the H-ILS and the self-holistic health comprehension

appraisal, was administered to fine-tune the H-ILS and the self-holistic health comprehension appraisal. The results of the tryout by three learners and two experts were reviewed and analysed. Based on the analysis of the result, the H-ILS was modified to be the final and complete version of H-ILS for the experiment stage.

6.1.2 To compare a score of self-holistic health comprehension appraisal between health-conscious executives who learned under H-ILS and who learned in traditional eLearning class.

The experiment of H-ILS employed quasi-experimental design: non-equivalent control group pre-test and post-test design. Based on the 2nd and the 3rd research questions, the sampling population was divided into two groups – the traditional eLearning group (control group) and the H-ILS group (experiment group). The control group (n = 26) was exposed to the online learning environment while the experiment group (n = 28) was exposed to the blended learning environment according to the H-ILS. To compare a score of self-holistic health comprehension appraisal between the two groups, web-based pre-test and post-test, were performed. The Independent Samples T-test and the Paired Samples T-test were employed to analyse quantitative pre-test and post-test data.

Before the treatment, the means score of self-holistic health appraisal was 47.07 (SD=12.640) and 49.77 (SD=12.111) for the H-ILS group and the traditional eLearning group, respectively. The means score of both groups was very similar. Therefore, the result of the pre-test was finalised that learners from the H-ILS group and the traditional eLearning group had an equivalent level of holistic health comprehension.

At the end of the treatment, the means score for the H-ILS group was 68.68 (SD=6.673), which increased from 47.07 (SD=12.640) in the pre-test. For the traditional eLearning group, the means score was 57.58 (SD=8.110), which was slightly increased from 49.77 (SD=12.111) in the pre-test.

Besides, the p-value clearly showed that there is a statistically significant difference in the means scores between the H-ILS group and traditional eLearning group (p =

0.000*). Significantly, the analysis uncovered the learners under H-ILS group had higher self-holistic health comprehension than those with the treatment of traditional eLearning or fully online learning. In other words, the H-ILS significantly attributed to the improvement of holistic health learning outcome.

6.1.3 To compare a pre-test and post-test score of self-holistic health comprehension appraisal of health-conscious executives who learned under H-ILS.

In a comparison between the pre-test and post-test result of the H-ILS group, the significant difference *p* is less than 0.01. There is a statistically significant difference between the means value of pre-test and post-test result for the H-ILS group. Therefore, it came to a clear and comprehensive conclusion that there was a significant improvement in holistic health comprehension for the IFARM members who learned under the Integrated Learning System (H-ILS) during a 30-day session. In conclusion, the findings of the study showed that the H-ILS could promote greater improvement in learning outcome of holistic health. The H-ILS could be a visionary, recommended learning approach for holistic health. The completed work could fill up a gap in the research literature. Furthermore, the research findings might have strong implications for population other than the members of IFARM. The implications of this research could also be enormous, not just for Holistic health & Daily Healthcare, Medicinal Plants in daily life, Dhatu (body elements) for Health and Arm Swing Exercise, but other holistic health principles as well. As online learning platforms used in the H-ILS, Joomla LMS, Facebook Group and LINE, were open-source and free, they could stimulate the public to replicate, improve and expand in the future.

At this point, the concept of the H-ILS is new; it is an innovative learning system of holistic health learning. It is disrupting to the idea stating that traditional eLearning or 100% online learning is the approach that best fits for all dimensions of health learning. The H-ILS is beyond disruptive eLearning as it was exquisitely designed and developed to overcome the drawback of eLearning on healthcare learning. Its findings could become an inspiration source for further development of life-long holistic health learning approach and strategy. It can be potentially regarded as one of

the solutions which help increase self-medicated holistic health of the people, and subsequently helps reduce the rate of ailment and premature death in the people in Thailand. Ultimately, The H-ILS could be beneficiary to the society as a whole.

The discussion of the whole research can be described in comparison with other related works, the results of this current study seem to corroborate in general terms with the study by Al-Qahtani & Higgins (2013), Liu et al. (2016), and Coyne et al. (2018). All of the works mentioned above apparently pointed out that blended learning significantly contributed to higher learning performance than other learning approaches. According to Al-Qahtani & Higgins (2013), blended learning, particular for a combination of online with face-to-face teaching featuring the presence of an instructor, gained higher students' achievement than traditional eLearning and traditional classroom. In many contexts of learning, face-to-face learning is essential. As stated by Arkorful & Abaidoo (2014), traditional eLearning inappropriately fits for all fields of education. It was more suitable in social science and humanities rather than medical science and pharmacy, where there is a need to develop practical skills. This information was reaffirmed by the finding of Liu et al. (2016), which stated that blended learning contained consistent positive effects in comparison with no intervention, and to be more effective than or at least as effective as nonblended instruction for knowledge acquisition in health professions.

Based on the researcher's observation on the relationship between participation and score, those who were active and participative in informal learning through Facebook Group could achieve better learning performance. This significant result seemed to be identical, in general terms, with the study by Sirivedin et al. (2018), Kabilan et al. (2010), and O'Bannon et al. (2013). Sirivedin et al. (2018) stated that Facebook could significantly help improve writing skills, namely accuracy, meaningfulness, clarity and relevance. Furthermore, the content analysis of the qualitative data revealed that Facebook also enhanced the teachers' English learning attributes, namely fluency, confidence, satisfaction, value, and self-efficacy belief. In contrast, Kabilan et al. (2010) pointed out that the students agreed Facebook can be an online learning environment to facilitate English language learning in terms of 1) students' improvement of language skills and, 2) Students' motivation, confidence

and attitudes towards English language learning. Furthermore, it was reaffirmed by the study result of O'Bannon et al. (2013), stating that Facebook group as an educational tool attributed significant effects on student's learning achievement.

6.3 Recommendation

6.3.1 Suggestions for improving research methodology

(i) The territory of the sampling population should be narrowed as some people stay very far from the physical learning place. It is not convenient for them to travel.

(ii) Time for a face-to-face classroom session, which includes orientation, Dhatu check and health check and practical learning, should be extended from 3 hours to 4 hours. Health check and Dhatu Check was very time-consuming because most of the learners were enormously interested in asking personal health-related questions with the health experts.

(iii) One more traditional class should be added in the mid of the learning session. Additional traditional learning might help urge learners to practice more.

(iv) The frequency of games should be increased as it can draw attention and participation of the learners. This attention and participation rate has a direct influence on the scores of the learners.

(v) Video plays a vital role in both formal learning setting on LMS and informal learning on Facebook. It can draw high learners' attention. From the researcher's observation, videos which were shown on Facebook obviously gained high analytical data such as seen number, like number and comment number. Unlike text-based knowledge, video can, for some instances, facilitate learners by allowing them to learn by listening only. Also, video can explain hand-on or practical expertise better than the text-based or image-

based learning content. However, to ensure productive learning outcome for H-ILS, the production of the video should consider the following issues i) length of the video should not be too long, ii) loading must be very fast, iii) content of learning should involve with everyday life topic, iv) Visual and sound quality must be excellent, v) language should not be too complicated and difficult to understand, vi) Video display must fit both all sizes of desktops and mobile devices and vii) instructor should be very inspiring.

6.3.2 Recommendations for future research

(i) Impact of social media platform, particularly for Facebook and LINE, on holistic health learning, should be statistically tested.

(ii) "Facebook Group" should be tested, whether it is possible to be used as LMS for holistic health learning.

(iii) Psychology variables such as motivation and socialization should be tested on how it contributes to learning improvement. A few learners mentioned they partially know the holistic health is but have never incorporated with their own life successfully. But when engaging in social learning, they could commit themselves into more practices.

(iv) This current research was solely conducted for IFARM members. Future research should be executed with people other than IFARM members.

(v) The learning topics in this study were Holistic health & Daily Healthcare, Medicinal Plants in daily life, Dhatu (body elements) for Health and Arm Swing Exercise. In the future, the study should expand to other topics under holistic health principles.

(vi) Technology adoption model and other advanced technologies, such as augmented reality, virtual reality, and artificial intelligence should be considered to be included in the H-ILS's components. Moreover, the study of impact should be specifically tested.

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APPENDICES

APPENDIX 1: Thailand's Health Expenditure and Its Ratio to GDP (2010-2014)

Source: Strategy and Planning Division, Ministry of Public Health (2017)

APPENDIX 2: Comparison of Health Expenditure from the Government Sector with Other Sectors (2010-2014)

Source: Health at Glance Thailand (2017)

APPENDIX 3: In-depth Health Expert Interview

APPENDIX 4: Summary of IOC Content Validity by Three Health Experts

สรุปการทำ IOC Content Validity โดยผู้เชี่ยวชาญด้านสุขภาพ

แบบประเมินความเข้าใจการดูแลสุขภาพเชิงป้องกัน

ตามแนวทาง Holistic Health

<u>คำชี้แจง:</u> คำถาม 25 ข้อต่อไปนี้เป็นการประเมินการดูแลสุขภาพเชิงป้องกันตามแนวทาง Holistic Health หรือสุขภาพองค์รวม ให้ท่านเลือกคำตอบที่ตรง หรือใกล้เคียงกับสิ่งที่ท่านเชื่อ / คิดว่าถูกต้องหรือปฏิบัติอยู่ในปัจจุบันมากที่สุด ไม่มีคำตอบที่ถูกหรือผิด ดี หรือไม่ดี <u>โปรดตอบตามความเป็นจริงและตอบทุกข้อ</u> เพื่อท่านจะได้รู้จักตนเองและวางแผนดูแลสุขภาพของตนเองต่อไป

ก. ด้านองค์รวม และการดำเนินชีวิตประจำวัน 8 ข้อ

1. ปัจจุบันท่านมักเข้านอนช่วงเวลาใดอยู่เป็นประจำ

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
หลัง 01.00	00.00-01.00	23.00-24.00	22.00-23.00	ก่อน 22.00

แก้ไข: 2nd Expert เปลี่ยนจากคำว่า “ไม่เกิน” เป็น “ก่อน”

2. ปัจจุบันท่านมีพฤติกรรมการกินอาหารตรงหรือใกล้เคียงกับข้อใดมากที่สุด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ดื่มน้ำอัดลมในมื้ออาหาร เป็นประจำ	ดื่มน้ำไปกินอาหารไปตลอดเวลา	ดื่มน้ำในมื้ออาหารแต่ไม่เกิน 1 แก้ว	ดื่มน้ำในมื้ออาหารแต่ไม่เกิน 1/2 แก้ว	กินแกงจืด หรืออาหารน้ำๆ และดื่มน้ำบ้างหากรู้สึกเผ็ดหรือเท่าที่จำเป็น

แก้ไข:

1st expert ช่อง 5 ให้เอาคำว่า “เน้น” ออก

2nd expert ให้เปลี่ยนคำว่า “ระหว่างมื้อ” เป็น “ในมื้ออาหาร” แทน

3. ท่านคิดว่าพฤติกรรมการกินข้อใดเป็นอันตรายต่อสุขภาพมากที่สุด

0 คะแนน (ไม่เป็นอันตราย)	1 คะแนน (อันตรายเล็กน้อย)	2 คะแนน (อันตรายปานกลาง)	3 คะแนน (อันตรายมาก)	4 คะแนน (อันตรายมากที่สุด)
กินอาหารเพียงวันละ 2 มื้อ	กินอาหารครบ 3 มื้อ โดยเน้นหนักที่มื้อเช้าและเย็น	กินอาหารประเภทแฮมเบเกอร์ระหว่างวันบ่อยๆ	เน้นกินอาหารประเภทโปรตีน ไขมัน หรืออาหารโลว์คาร์บอย่างเดียวเป็นระยะเวลานานๆ	ไปออกกำลังกายที่ Fitness อย่างสม่ำเสมอ ระหว่างเวลา 20.00-21.00 หลังจากนั้นขับรถไปซื้ออาหารทั้งคาวและหวานไปกินที่บ้านตอน 22.00 หรือ 23.00 ทุกวัน

4. ท่านมักกินอาหารมื้อเย็นช่วงเวลาใดเป็นประจำทุกวัน

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
21.00-22.00	20.00-21.00	19.00-20.00	18.00-19.00	ก่อนเวลา 18.00

แก้ไข:

1st และ 3rd expert ช่อง 5 ให้แก้จาก “หลังเวลา 18.00” เป็น “ก่อนเวลา 18.00”

2nd expert ช่อง 1-4 ให้เปลี่ยนเป็นช่วงเวลาจะเหมาะกว่า

5. ปัจจุบันท่านมีพฤติกรรมการกินอาหารเช้าตรงกับข้อใดมากที่สุด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ไม่ค่อยได้กิน เพราะเข้าทำงานไม่ทัน หรือตื่นสาย	เร่งรีบ กินขนมปัง + กาแฟเป็นประจำ	เร่งรีบ กินข้าวเหนียว หมูปิ้ง / หมูทอดเป็นประจำ	มีเวลากินข้าวแกงหรืออาหารจานเดียวทุกเช้า	กินอาหารทำเองที่บ้าน หรือใส่กล่องไปกินที่ทำงาน

ตัดออก:

2nd Expert: คำตอบไม่ชัดเจน และคาบเกี่ยวกัน

3rd Expert คำตอบช่อง 5 การทำอาหารกินเอง ไม่ได้หมายความว่าจะดีกว่ากินอาหารนอกบ้านเสมอไป

6. ท่านมักเลือกซื้อเครื่องดื่ม (หรือจำเป็นต้องเลือก) ชนิดใดมากที่สุด

0 คะแนน (ปริมาณน้ำตาลสูงสุด) 10-11 ช้อนชา	1 คะแนน (สูงอันดับ 2) 9-10 ช้อนชา	2 คะแนน (สูงอันดับ 3) 9-10 ช้อนชา	3 คะแนน สูงอันดับ 4) 5-6 ช้อนชา	4 คะแนน ระดับน้ำตาลต่ำสุด) 4-5 ช้อนชา
ชามะนาว 500 มล.	น้ำอัดลมรสส้ม 325 มล.	ชาเขียวต้นตำรับ 500 มล.	น้ำส้มเขียวหวาน (กล่อง) 200 มล.	นมเปรี้ยว 180 มล.

7. ท่านมีพฤติกรรมในการนั่งทำงาน / เล่นเกมส์ตรงกับข้อใดมากที่สุด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
นั่งทำงาน /เล่นเกมส์ทั้งวันโดยแทบไม่ลุกไปไหน	นั่งทำงาน / เล่นเกมส์ต่อเนื่องนานกว่า 1 ชม. โดยไม่ลุกไปไหน	ลุกจากที่นั่งเพื่อยืดเส้นยืดสายทุก 1 ชม.	ลุกจากที่นั่งเพื่อยืดเส้นยืดสายทุก 45 นาที	ลุกจากที่นั่งเพื่อยืดเส้นยืดสายทุก 30 นาที

8. ท่านปฏิบัติตัวตรงกับข้อใดมากที่สุดเมื่อตื่นขึ้นมาทุกเช้า

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
หลังจากทำธุระส่วนตัว (อาบน้ำล้างหน้า แปรงฟัน)เรียบร้อยแล้ว มักดื่มกาแฟเพื่อเพิ่มความสดชื่นทันที	ไม่ค่อยได้ดื่มน้ำ รอดื่มตอนอาหารเช้าทีเดียวเลย	ดื่มน้ำ (ไม่เย็น) ½ แก้ว ก่อนกินอาหารเช้า	ดื่มน้ำ (ไม่เย็น) 1 แก้วหลังจากตื่นนอนทุกเช้าทันที	ดื่มน้ำ (ไม่เย็น) 1-2 แก้วหลังจากตื่นนอนทุกเช้า อย่างน้อยก่อนอาหาร 30-40 นาที

แก้ไข:

2nd expert ช่อง 1 คำว่า “ธุระส่วนตัว” มีความหมายไม่ชัดเจน เพราะอาจหมายถึงการขับถ่ายได้ ควรเปลี่ยนคำ หรือระบุให้ชัดเจน

9. ท่านมีพฤติกรรมการขับถ่ายอย่างไร

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
มากกว่า 2-3 วันครั้ง	ประมาณ 2 วันครั้ง และเวลาไม่แน่นอน	ประมาณ 1-2 วัน ครั้ง และเวลาไม่แน่นอน	ขับถ่าย 1-2 ครั้งต่อวัน และเวลาไม่แน่นอน	ขับถ่าย 1-2 ครั้งต่อวัน และค่อนข้างตรงเวลา

10. ท่านมีลักษณะการกินอาหารตรงกับข้อใดมากที่สุด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
เร่งรีบ มีเวลาจำกัด เคี้ยวไม่กี่ครั้งแล้วกลืนเลย	กินไป คุยไป เคี้ยวอาหารไม่นานมาก	เคี้ยวอาหารทุกชนิดประมาณ 10-12 ครั้ง	พยายามเคี้ยวอาหารให้ละเอียดทุกชนิด ทั้งผัก และเนื้อสัตว์ให้ละเอียด	ถ้าเป็นอาหารไม่แข็งมาก เคี้ยวประมาณ 10-12 ครั้ง ถ้าเป็นอาหารประเภทเนื้อสัตว์ประมาณ 15-20 ครั้ง

ข. ด้านการใช้สมุนไพรเบื้องต้น 8 ข้อ

11. ถ้าท่านมีอาการท้องเสียไม่รุนแรง และไม่มีอาการอื่นรุนแรงร่วมด้วย เช่น อาเจียน) ปกติท่านมักเลือกตัดสินใจดูแลสุขภาพของท่านอย่างไร

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ใช้เมล็ดแมงลัก 1-2 ช้อนชา แช่น้ำอุ่น 1 แก้ว (250 ซีซี) จนพองตัวเต็มที่ รับประทานจนกว่าจะอาการจะทุเลา	ซื้อยาแก้ท้องเสียที่ร้านขายยา หรือไปพบแพทย์ที่โรงพยาบาลทันที	รอดูอาการสักระยะหากยังไม่หาย ไปซื้อยาแก้ท้องเสียมากินทันที	รอดูอาการสักระยะ พร้อมงดนมอาหารเผ็ด อาหารรสเปรี้ยว ไปซื้อยาแก้ท้องเสียมากินทันที	งดอาหารเผ็ด อาหารรสเปรี้ยว นม รอดูอาการ หากยังไม่หายให้หาซื้อผงกล้วยดิบ หรือผงคาร์บอนมาชงดื่ม หากยังไม่ดีขึ้นให้ไปพบแพทย์

แก้ไข:

2nd expert คำถามควรแก้ไขจาก ไม่เกิน 3 ครั้ง เป็นไม่เกิน 3-4 ครั้ง

12. ถ้าท่านมีอาการไอและมีเสมหะเล็กน้อย ปกติท่านมักเลือกตัดสินใจดูแลสุขภาพของท่านอย่างไร

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ปล่อยให้หายเอง	ซื้อยาแก้ไอที่ร้านขายยามากินทันที	งดน้ำเย็น ดื่มน้ำอุ่น	งดน้ำเย็น จิบน้ำมะนาวผสมน้ำผึ้งเป็นระยะ	งดน้ำเย็น อาหารทอด อาหารมัน นำขิงแก่สดขนาดเท่าหัวแม่มือทุกให้แตก ต้มกับน้ำให้เดือด จิบบ่อยๆ

13. ปัจจุบันท่านมีความเข้าใจเกี่ยวกับใช้สมุนไพรฟ้าทะลายโจรตรงกับข้อใดมากที่สุด

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
เป็นสมุนไพรที่ใช้รักษาอาการมีไข้สูงอย่างได้ผลและไม่มีอันตรายเหมือนยาแผนปัจจุบัน	เป็นสมุนไพรที่ใช้รักษาไข้ได้	เป็นสมุนไพรที่ใช้รักษาไข้และท้องเสียได้ และวิธีการใช้เหมือนกัน	ใช้รักษาไข้และท้องเสียได้แต่วิธีการนำมาใช้เหมือนกัน	ใช้รักษาและท้องเสียได้แต่วิธีการนำมาใช้ไม่เหมือนกัน และต้องใช้ให้ถูกวิธี และกินติดต่อเป็นระยะเวลานานๆ ไม่ได้

แก้ไข:

1st 2nd 3rd expert ต้องแก้ไขจาก “ไข้หวัด” เป็น “ไข้”

14. ถ้าท่านมีอาการท้องเฟ้อ ท่านคิดว่าน้ำแกงในอาหารชนิดไหนน่าจะช่วยบรรเทาอาการท้องเฟ้อได้ดีที่สุด

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ต้มข่าไก่	แกงเลียงผักรวม	ต้มยำกุ้งน้ำข้น	ต้มยำกุ้งน้ำใส	ต้มแซ่บหมู

ตัดออก คำตอบไม่ถูกต้อง

15. ถ้าท่านญาติมีอาการท้องผูก ท่านคิดว่าท่านจะช่วยดูแลสุขภาพของพวกเขาอย่างไร

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน

				(ถูกต้องมากที่สุด)
นำเหง้ากระชายสดประมาณครึ่งกำมือทุบพอแหลก ต้มเอาน้ำให้ท่านดื่มบ่อยๆ	แนะนำให้ท่านดื่มน้ำ และกินผักผลไม้มากๆ	เอามะขามเปียกรสเปรี้ยวๆ ให้ท่านจิ้มกับเกลือกิน 5-10 ฝัก	เอามะขามเปียกรสเปรี้ยวๆ ให้ท่านจิ้มกับเกลือกิน 10-15 ฝัก และให้ดื่มน้ำตามมากๆ	เอามะขามเปียกรสเปรี้ยวๆ ให้ท่านจิ้มกับเกลือกิน 10-15 ฝัก และให้ดื่มน้ำตามมากๆ และลองนำเมล็ดแมงลักมาแช่น้ำให้พองให้ท่านกินเพิ่มเติม

แก้ไข

2nd expert: แนะนำให้เปลี่ยนโจทย์จากปู่ย่าตายาย เป็นญาติผู้ใหญ่ เพราะคนสูงอายุกินมะขามเปียกมากไม่ดี

3rd expert: ควรเอาคำว่า “เป็นประจำ” ออก เพราะคำตอบเป็นวิธีแก้ไขเฉพาะหน้า ถ้าจะใช้ “เป็นประจำ” ต้องเพิ่มคำว่า “ปรับเปลี่ยนพฤติกรรม” ในช่อง 5 เข้าไป

16. ถ้าท่านคิดจะต้มน้ำตะไคร้ดื่มเพื่อลดอาการท้องเฟ้อ ท้องอืด และแน่นจุกเสียด ท่านคิดว่าวิธีไหนทำถูกต้องมากที่สุด

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
นำใบสดประมาณ 1-2 กำมือ ต้มกับน้ำครึ่งลิตร ดื่มบ่อยๆ เท่าที่ต้องการ	นำเหง้าแก่สดๆ ประมาณ 1 กำมือทุบพอแหลก ต้มกับน้ำ 500 ซีซี เอาน้ำดื่ม	นำเหง้าและลำต้นสดๆประมาณ 40-60 กรัม ทุบพอแหลก ต้มกับน้ำ 500 ซีซี เอาน้ำดื่ม	นำเหง้าหรือลำต้นแก่สดๆ ประมาณ 40-60 กรัม ทุบพอแหลก ต้มกับน้ำ 500 ซีซี เอาน้ำดื่ม	นำเหง้าและลำต้นแก่สดๆ ประมาณ 40-60 กรัม ทุบพอแหลก ต้มกับน้ำ 500 ซีซี เอาน้ำดื่ม

17. ท่านคิดว่าสมุนไพรกลุ่มไหนใช้ดูแลอาการขัดเบาได้ทั้งหมด

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ขมิ้นชัน กล้วยน้ำว้า	กระเจี๊ยบแดง ฝรั่ง มังคุด มะขาม	กระเจี๊ยบแดง ตะไคร้ มังคุด มะขาม	กระเจี๊ยบแดง ตะไคร้ หญ้าคา มะขาม	กระเจี๊ยบแดง ตะไคร้ หญ้าคา อ้อยแดง

แก้ไข

2nd expert: ให้เปลี่ยนจาก “กระเจี๊ยบ” เป็น “กระเจี๊ยบแดง”

18. หากท่านโดนน้ำร้อนลวก และท่านต้องการใช้ว่านหางจระเข้ช่วยบรรเทาอาการ ท่านจะเลือกปฏิบัติตามข้อไหน

0 คะแนน	1 คะแนน	2 คะแนน	3 คะแนน	4 คะแนน

(ไม่ถูกต้องที่สุด)	(ถูกต้องน้อยที่สุด)	(ถูกต้องปานกลาง)	(ถูกต้องมาก)	(ถูกต้องมากที่สุด)
ตัดส่วนที่เป็นใบ ให้รีบเอาส่วนที่เป็นวุ้นทาบริเวณที่ถูกน้ำร้อนลวก เพราะถ้าช้าแผลอาจอักเสบได้	ตัดส่วนที่เป็นใบ รีบเอาเอาส่วนที่เป็นวุ้นมาทาบริเวณที่โดนน้ำร้อนลวกให้ชุ่มชื้นอยู่ตลอดเวลาใน 1 ชั่วโมงแรก	คัดเอาเฉพาะใบยอดๆ นำมาปอกเปลือกสีเขียวออกก่อน แล้วเอาส่วนที่เป็นวุ้นมาทาบริเวณที่โดนน้ำร้อนลวกให้ชุ่มชื้นอยู่ตลอดเวลาใน 1 ชั่วโมงแรก	ตัดเอาใบล่างๆ นำมาปอกเปลือกสีเขียวออกก่อน แล้วเอาส่วนที่เป็นวุ้นมาทาบริเวณที่โดนน้ำร้อนลวกให้ชุ่มชื้นอยู่ตลอดเวลาใน 1 ชั่วโมงแรก	ตัดเอาใบล่างๆ นำมาปอกเปลือกสีเขียวออกก่อน นำไปล้างน้ำ แล้วเอาส่วนที่เป็นวุ้นมาทาบริเวณที่โดนน้ำร้อนลวกให้ชุ่มชื้นอยู่ตลอดเวลาใน 1 ชั่วโมงแรก

แก้ไข

2nd expert: ควรขีดเส้นใต้ในจุดที่เกี่ยวข้องกับใบให้เห็นชัด

19. ท่านจะปฏิบัติตนอย่างไรเพื่อรักษาอาการท้องผูก

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ปล่อยไว้เฉยๆ เพราะ 2-3 วันผ่านไปก็ถ่ายเองได้	ออกกำลังกาย	ดื่มน้ำ และทานผักผลไม้ให้มากขึ้น	ดื่มน้ำ และทานผักผลไม้ให้มากขึ้น พร้อมออกกำลังกายช่วย	ดื่มน้ำ และทานผักผลไม้ให้มากขึ้น พร้อมออกกำลังกายช่วย และหาสมุนไพรกลุ่มช่วยเพิ่มกาก เช่น เทียนเกล็ดหอย มากินเสริม

แก้ไข

2nd expert: โจทย์ควรถามวิธี “ป้องกัน”

3rd expert: อาการท้องผูกมีหลายลักษณะอาการ หนักเบาไม่เท่ากัน ถ้าเป็นนานๆ จะเป็นอันตรายได้ ควรให้แพทย์ หรือผู้เชี่ยวชาญดูแล้ว ควรระวัง ไม่ควรใช้คำถามนี้

20. ตามความเข้าใจของท่าน ข้อใดเป็นการรักษากลาก หรือเกลื้อนด้วยสมุนไพรอย่างได้ผล

0 คะแนน (ไม่ถูกต้องที่สุด)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
นำกระเทียบสดทั้งกลีบ ไม่ต้องปลอก	นำกระเทียมฝานเป็นแผ่น นำมาถูวันละ 1	นำกระเทียมฝานเป็นแผ่น นำมาถู	นำกระเทียมฝานเป็นแผ่น นำมาถู 3-	นำกระเทียมฝานเป็นแผ่น นำมาถู 3-4

เปลือกนำมาถูบริเวณที่เป็นทั่ว วันละ 3-4 ครั้ง	ครั้ง ทาติดต่อกัน 3 วัน	บ่อยๆ หลังจากหายแล้วให้ทาต่ออีก 7 วัน	4 ครั้งต่อวัน หลังจากหายให้ทาต่ออีก 7 วัน	ครั้งต่อวัน ก่อนถูให้เอาไม้ไผ่สะอาดๆ มาขูดบริเวณที่เป็นให้พอมีผืดแดงๆ ด้วย หลังจากหายให้ทาต่ออีก 7 วัน

แก้ไข

2nd expert:

คำว่า “กาก” เปลี่ยนเป็น “กลาก”

คำว่า “กีบ” เปลี่ยนเป็น “กลีบ”

คำว่า “ผิดแดงๆ” เปลี่ยนเป็น “ผืดแดงๆ”

ค. ด้านการออกกำลังกายด้วยการแกว่งแขวน 3 ข้อ

21. ท่านออกกำลังกายด้วยการแกว่งแขวนหรือไม่?

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ไม่เคยเลย	ทำบ้าง แต่ไม่สม่ำเสมอ	ทำครั้งละ 200-300 ครั้ง 2-3 ครั้ง/สัปดาห์	ทำครั้งละ 500-600 ครั้ง 2-3 ครั้ง/สัปดาห์	ทำครั้งละ 600-800 ครั้ง 2-3 ครั้ง/สัปดาห์

22. ท่านคิดว่าข้อความใดอธิบายเกี่ยวกับการแกว่งแขวนถูกต้องที่สุด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
การแกว่งแขวนเป็นการออกกำลังกายที่เหมาะสมกับผู้สูงอายุเท่านั้นเพราะช่วยให้เพิ่มออกซิเจนให้แก่ร่างกาย ทำให้ออกซิเจนไหลเวียนไป	การแกว่งแขนเป็นการออกกำลังกายที่ไม่ต้องใช้อุปกรณ์ ไม่ต้องใช้พื้นที่มาก และสามารถทำเองได้โดยไม่มีอันตราย	ยิ่งทำมาก ยิ่งมีประโยชน์เพราะช่วยลดพุง ลดโอกาสป่วยจากโรคไม่ติดต่อร้ายแรง เช่น ความดันโลหิตสูง ข้อเสื่อม หรือโรคเรื้อรังอื่นๆ	ช่วยลดระดับน้ำตาลในเลือดในผู้ที่เป็นเบาหวานได้หาก แกว่งแขวน 30 นาที ต่อครั้ง 3 ครั้งต่อสัปดาห์	ช่วยลดระดับน้ำตาลในเลือดในผู้ที่เป็นเบาหวานได้หาก แกว่งแขวน 30 นาที ต่อครั้ง 3 ครั้งต่อสัปดาห์ เป็น

ตามเส้นเลือดทั่วร่างกายได้ดีขึ้น				ระยะเวลา 6-12 สัปดาห์

2nd and 3rd Expert ส่วนตัวของผู้เชี่ยวชาญมีข้อมูลเกี่ยวกับประโยชน์เฉพาะโรคไม่เพียงพอ

23. หากตอนนี้มีใครขอคำแนะนำเกี่ยวกับการเริ่มออกกำลังกายด้วยแกว่งแขวนจากท่าน ท่านคิดว่าท่านจะให้คำแนะนำเขาว่าอย่างไร

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ไม่แนะนำเพราะไม่มีข้อมูล	แนะนำให้ลงมือทำได้เลย เพราะยิ่งทำมากยิ่งดี ไม่มีอันตราย	แนะนำให้ลงมือทำได้เลย เพราะยิ่งทำมาก ยิ่งดี แต่ย้ำให้ทำท่าทางให้ถูกต้องเพื่อลดความเสี่ยงในการบาดเจ็บ	ให้เริ่มต้นแกว่งครั้งละ 500-600 ครั้ง พร้อมย้ำให้ทำท่าทางให้ถูกต้องเพื่อลดความเสี่ยงในการบาดเจ็บที่ไหล่หรือที่ข้อเข่า	ให้เริ่มต้นแกว่งแค่ครั้งละ 200-300 ครั้ง ไปจน 1500-2000 ครั้ง หรือไม่เกิน 30 นาที พร้อมย้ำให้ทำท่าทางให้ถูกต้องเพื่อลดความเสี่ยงในการบาดเจ็บที่ไหล่ หรือที่ข้อเข่า

24. ข้อใดตรงกับความเข้าใจในปัจจุบันของท่านเกี่ยวกับการออกกำลังกายด้วยการแกว่งแขวนที่สุด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ไม่มีประโยชน์เพราะไม่มีการเคลื่อนไหวแบบชัดเจน	เป็นการออกกำลังกายที่ช่วยให้แขนขามีแรง	เป็นการออกกำลังกายที่ช่วยให้แขนขามีแรง เลือดลมเดินดี สดชื่น	เป็นการออกกำลังกายที่ช่วยให้แขนขามีแรง เลือดลมเดินดี ช่วยป้องกันและรักษาอาการป่วยได้หลายโรค เช่น เบาหวาน	เป็นการออกกำลังกายที่ช่วยป้องกันและรักษาอาการเจ็บป่วย และโรคต่างๆ เช่น เบาหวาน และช่วยเพิ่มสมาธิ และทำให้จิตใจเข้มแข็งได้

ง. ด้านการกินอาหารตามธาตุ 6 ข้อ

25. ท่านคิดว่าลักษณะประจำตัวข้อไหนใกล้เคียง หรือตรงกับคนที่ธาตุดินเป็นธาตุเจ้าเรือนมากที่สุด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
รูปร่างโปร่งผิวพรรณไม่ค่อยดี ผมบาง เรียนรู้ได้เร็ว	รูปร่างใหญ่ ผมบาง ผมหงอกก่อนวัย เรียนรู้ได้เร็ว	น้ำหนักตัวมาก กระดูกใหญ่ ผิวพรรณใสเต่งตึง ผมบาง	น้ำหนักตัวมาก กระดูกใหญ่ เสียงดังฟังชัด ผิวพรรณใสเต่งตึง	รูปร่างสูงใหญ่ ผมคิ้วดกดำ ผิวค่อนข้างคล้ำ เสียงดังฟังชัด

26. ท่านคิดว่าลักษณะประจำตัวข้อไหนใกล้เคียง หรือตรงกับคนที่ธาตุลมเป็นธาตุเจ้าเรือนมากที่สุด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
รูปร่างโปร่งผิวพรรณไม่ค่อยดี ผมบาง เรียนรู้ได้เร็ว	รูปร่างไม่สูงไม่ต่ำ ผมดกดำ เรียนรู้ช้า ผิวเต่งตึง	รูปร่างไม่สูงไม่ต่ำ ผมดกดำ ดูอ่อนวัย ผิวเต่งตึง	รูปร่างค่อนข้างโปร่ง ผมดกดำเรียนรู้ได้ไว เสียงต่ำ	รูปร่างค่อนข้างโปร่ง ผมบาง เรียนรู้ได้ไว เสียงต่ำ

27. หากให้ประเมินจากลักษณะและบุคลิกของท่านเอง ท่านคิดว่า “ธาตุเจ้าเรือนเกิด” ของท่านมีลักษณะใด?

0 คะแนน (คำตอบไม่ถูกต้อง)	4 คะแนน (คำตอบถูกต้อง)
เลือก 1. ดิน 2. น้ำ 3. ลม 4. ไฟ	เลือก 1. ดิน 2. น้ำ 3. ลม 4. ไฟ

28. หากให้ประเมินจากลักษณะและบุคลิกของท่านเอง ท่านคิดว่า “ธาตุเจ้าเรือนปัจจุบัน” ของท่านมีลักษณะใด?

0 คะแนน (คำตอบไม่ถูกต้อง)	4 คะแนน (คำตอบถูกต้อง)
เลือก 5. ดิน 6. น้ำ	เลือก 5. ดิน 6. น้ำ

7. ลม 8. ไฟ	7. ลม 8. ไฟ

29. ถ้าท่านรู้สึกไม่สดชื่น เบื่ออาหาร ท่านคิดว่าท่านควรจะเลือกกินอาหารรายการไหน

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
แกงจืดฝัก ผัดบวบ น้ำเก็กฮวย มะละกอสุก	แกงจืดฝัก แกงจืดตำลึง น้ำเสาวรส แตงโม	ต้มแซบหมู แกงจืด ตำลึง น้ำมะนาว แตงโม	ต้มยำไก่น้ำใส แกง จืดตำลึง น้ำส้ม มะดัน	แกงส้มผักหวาน ต้ม ยำกุ้ง น้ำเสาวรส มะดัน

ตัดทิ้ง: 1st & 3rd expert; คำตอบไม่ชัดเจน

30. ในความคิดของท่าน ท่านคิดว่าสมุนไพรกลุ่มที่คนเป็นโรคหัวใจไม่ควรกินทั้งหมด

0 คะแนน (ไม่ถูกต้อง)	1 คะแนน (ถูกต้องน้อยที่สุด)	2 คะแนน (ถูกต้องปานกลาง)	3 คะแนน (ถูกต้องมาก)	4 คะแนน (ถูกต้องมากที่สุด)
ดอกคำฝอย รากชะเอมไทย ดอกคำไทย	ดอกลำโพง ดอกคำฝอย รากชะเอมไทย ดอกคำไทย	รากขันทองพยาบาท ผลกระเบา รากชะเอมไทย ดอกคำไทย	ดอกลำโพง ชุมเห็ดเทศ รากทองพันชั่ง	รากขันทองพยาบาท ผลกระเบา ชุมเห็ดเทศ สะแก

แก้ไข: 2nd expert: ในคำถาม ให้เพิ่มคำว่า “โรค” ที่หน้าคำ “หัวใจ”

APPENDIX 5: The Validated Version of Self-Holistic Health Comprehension Appraisal by Three Health Experts

Self-Holistic Health Comprehension Appraisal Form with Answer and Corresponding Score

Instructions:

This appraisal is a self-holistic health comprehension appraisal with 25 items. It places a particular focus on the assessment of your comprehension of health care based on holistic health principle. Please kindly select one answer that mostly coincided with what you are believing or practising in the present time. All your answers shall be confidentially kept for the research propose only. Therefore, please answer all the items by accordance with the truth for the sake of your health care.

A. Holistic health in daily life

1. For now, what is your regular bedtime?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
After 01.00	00.00-01.00	23.00-24.00	22.00-23.00	Not later than 22.00

2. Which one is most close or same to your current eating behaviour?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Drink carbonated drink during a meal often.	Drink water during a meal all the times.	Drink water during a meal but not more than a cup of water.	Drink water during a meal but not more than half a cup of water.	Eat soup during a meal or drinking water as necessary as possible or when feeling hot.

3. From your point of view, what is the most risk eating behaviour to health?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Having two meals a day.	Having three meals a day, but two heavy meals in breakfast and the dinner.	Eating hamburger during the day regularly.	Eating only high-protein or fat foods for a long period.	Regularly do exercise at a fitness during 20.00-21.00. After finishing, driving to buy foods to eat at home around 22.00 or 23.00 every day.

4. What is your regular time for dinner?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
After 22.00	21.00-22.00	20.00-21.00	19.00-20.00	Before 18.00

5. If you were in the situation to buy the below soft drinks, which one do you think that it has the least negative effect on your health?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Lemon tea 500 ml.	Orange carbonated drink 325 ml.	Green tea (Original) 500 ml.	Tangerine fruit juice 200 ml.	Fermented milk 180 ml.

6. Which one is your regular habit during working in the office or playing a game?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)

Sit without a move all day long.	Sit more than one hour (but all day long) without a move.	Stand up to stretch every one hour.	Stand up to stretch every 45 minutes.	Stand up to stretch every 30 minutes.

7. Which one is your regular habit for every morning?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Drink coffee instantly after brushing teeth or taking a bath.	Rarely drink water. Always drink water in the breakfast.	Drink half a cup of water (not cold) before breakfast.	Immediately drink half a cup of water (not cold) after wake-up.	Immediately drink half a cup of water (not cold) after wake-up and at least 30-40 minutes before a meal.

8. Which one is your current excretion habit?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
More than 2-3 days per time.	About every two days per time but not at the same time.	About 1 or 2 days per time but not at the same time.	About 1-2 times per day but not at the same time.	About 1-2 times per day and at quite the same time.

9. Which one is your current eating habit?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Often in a hurry. Swallow with less chewing.	Talk much during the meal. Swallow with less chewing.	Chew 10-12 times for every kind of food.	Try to chew meat and vegetable as many times as possible.	Chew 10-12 times for soft food and 15-20 times for meat.

B. Medicinal Plants in Daily Life

10. When your bowels were upset, how you normally cure it?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Get one or two teaspoons of Lemon Basil seed soaked in a cup of warm water (250 cc.). Wait until it was fully dilated. Eat as often as possible until stopping upset.	Take medicine or go to see a doctor immediately.	Follow up a symptom for a while. If not better, take medicine immediately.	Omit milk, hot foods, acidic food. Follow up a symptom for a while. If not better, take medicine immediately.	Omit milk, hot foods, acidic food. Follow up a symptom for a while. If not better, take raw banana powder or pure carbon powder. But if worsen, go to meet a doctor.

11. Which one is the choice that mostly coincided with your current understanding of the usage of Andrographis paniculate?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)

It is a herb that can be used to cure high fever effectively. Unlike the modern pill, it has no harmful effects on health.	It can be used to cure a cold.	It can be used to cure cold and diarrhoea. Use instruction is the same for both symptoms.	It can be used to cure cold and diarrhoea, but use instruction is different for both symptoms.	It can be used to cure cold and diarrhoea. Use instruction is different, and it cannot be continuously used for a long period.

12. If your elderly family members frequently get constipation, how will you help naturally take care of their health?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Recommend them to drink warm fingerroot water (smash thumb-sized fingerroot and boil in water) as often as possible.	Recommend to drink more water and eat vegetables.	Asked them to get 5-10 pods of ripe tamarind to go with salt and eat[1]	Asked them to get 5-10 pods of ripe tamarind to go with salt and eat. Also, recommend them to drink more water.	Asked them to get 5-10 pods of ripe tamarind to go with salt and eat. Also, recommend them to drink more water. As well as this, recommend to eat soaked Lemon Basil seeds.

13. If you want to drink lemongrass water to relieve indigestion symptom, how will you prepare it?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Get one to two handful amounts of fresh leaves and boil with a half-litre of water. Drink as often as possible.	Get one handful amount of fresh old rhizome of lemongrass and smash it. Then, boil with water (500 cc.). Drink as often as possible.	Get rhizome and stem of lemongrass (40-60 grams) and smash it. Then, boil with water (500 cc.).	Get rhizome or stem of fresh old lemongrass (40-60 grams) and smash it. Then, boil with water (500 cc.).	Get rhizome and stem of fresh old lemongrass (40-60 grams) and smash it. Then, boil with water (500 cc.).

14. According to your current comprehension, which one is a group of medicinal herbs which can be used to heal “Urinary Hesitancy”?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Turmeric, Banana	Roselle, Guava, Mangosteen, Tamarind	Roselle, Lemongrass, Mangosteen, Tamarind	Roselle, Lemongrass, Thatch Grass, Tamarind	Roselle, Lemongrass, Thatch Grass, Sugar Cane

15. When you have a little cough, how you usually treat it?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Do nothing	Take cough pill immediately.	Drink warm water and omit cool water.	Omit cool water and drink lime water often.	Omit cool water, fried and greasy foods. Drink hot ginger water (smash thumb-

				sized ginger and boil in water) as often as possible.

16. If you got scalded, what is the correct usage of Aloe Vera in alleviating and healing your burns?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Cut the leaf and take its gel to apply on the scalded area quickly. If too slow, the burn might get inflamed.	Cut the leaf and take its gel to apply on the scalded area quickly and keep it nourished throughout one hour.	Select the top leaves and peel it. Get the gel to apply on the scalded area quickly and keep it nourished throughout one hour.	Select the bottom leaves and peel it. Get the gel to apply on the scalded area quickly and keep it nourished throughout one hour	Select the bottom leaves. Peel and then wash it. Get the gel to apply on the scalded area quickly and keep it nourished throughout one hour.

17. According to your current comprehension, what the best herb use in healing ringworm is?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Get a whole garlic clove (fresh and not peeling) to apply on the ringworm three to four times per day	Get the sliced garlic to apply on the ringworm one time per day, and three days consecutively	Get the sliced garlic to apply on the ringworm often. Further, do it at least 7 days after the ringworm disappears.	Get the sliced garlic to apply on the ringworm three to four times per day. Further, do it at least 7 days after the ringworm disappears.	Use clean and young bamboo softly rub on the ringworm and get the sliced garlic apply on the ringworm three to four times per day. Further, do it at least 7 days after the

				ringworm disappears.

C. Arm Swing Exercise

18. Have you ever done arm swing exercise?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Never	Sometimes but not regularly	200-300 times / time	500-600 times / time	600-800 times / time

19. In your comprehension, which one is the correct explanation for arm swing exercise?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
It is an exercise that best fits with the elderly people only because it helps increase oxygen to the body and improves the circulation of oxygen throughout the entire body.	It is a harmless exercise that everyone can do. Furthermore, it does not rely on equipment and space.	The more people do, the better the healthy result is because it can reduce the risk of Non-communicable diseases such as hypertension, osteoarthritis, and other chronic diseases.	It helps reduce the level of blood sugar in diabetic patients if they perform 30 minutes/time and three times/week.	It helps reduce the level of blood sugar in diabetic patients if they perform 30 minutes/time and three times/week in 6-12 weeks.

20. If there is someone asking recommendation involved arm swing exercise from you, how shall you recommend them?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)

Not recommend as there are not enough information and comprehension.	Recommend them to do immediately. The more they do, the more the healthy body becomes.	Recommend them to immediately do but stress to perform according to the right instructions strictly. Doing improperly, it can lead to harmful effects.	Recommend to start at 500 times/session immediately and stress to perform according to the right instructions to reduce pain risk at the shoulder and knee.	Recommend to start at 200-300 times/session and gradually increase to 1500-2000 times/session (or not more than 30 minutes) and stress to strictly perform according to the right instructions to reduce pain risk at shoulder and knee.

D. Dhatu for Health

21. What are physical traits which you think it is mostly close to a person with "Earth" Dhatu?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Tall / Not fair Skin / Thin hair / Able to learn quickly	Big & tall / Thin hair / Hair turns grey too early / Able to learn quickly	High weight / Big bone / Brilliant skin / Thin Hair	High weight / Big bone / Clear and loud voice / Brilliant skin	Big & tall / Dark hair and thick eyebrow / Quite dark skin / clear and loud voice

22. What are physical traits which you think it is mostly close to a person with "Wind" Dhatu?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Tall / Not fair Skin / Thin hair / Able to learn quickly	Moderate Tall / Thick and black hair, Able to learn slowly / Firm skin	Moderate Tall / Thick and black hair, Able to learn slowly / Look younger / Firm skin	Tall / Thick and black hair / Able to learn quickly / Low voice	Tall / Thin hair / Able to learn quickly / Low voice

23. Based on your physical traits, what is your Dhatu element?

0 Score (Not correct)	4 Scores (The Most Correct)
9. Earth 10. Water 11. Wind 12. Fire	9. Earth 10. Water 11. Wind 12. Fire

24. Based on your physical traits, what is your "Present" Dhatu element?

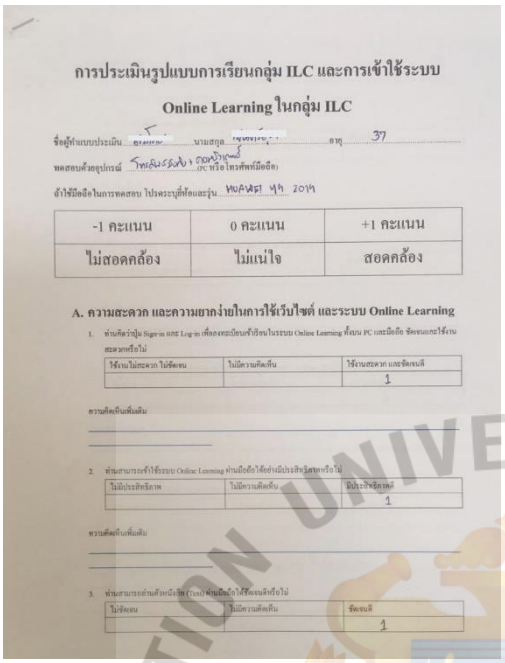
0 Score (Not correct)	4 Scores (The Most Correct)
1. Earth 2. Water 3. Wind 4. Fire	1. Earth 2. Water 3. Wind 4. Fire

25. From your point of view, which group of herbal plants in which people with heart disease must avoid?

0 Score (Not correct)	1 Score (The least correct)	2 Scores (Moderate Correct)	3 Scores (Most Correct)	4 Scores (The Most Correct)
Safflower Root of Albizia myriophylla Benth. Anatto Flower	Thorn Apple Safflower Albizia myriophylla Benth.	Suregada multiflora (A.Juss.) Baill.	Thorn Apple Acapulo	Suregada multiflora (A.Juss.) Baill.Fruit of Chaulmoogra

	Anatto Flower	Fruit of Chaulmoogra Albizia myriophylla Benth. Anatto Flower	Root of white crane flower	Acapulo Bushwillows

APPENDIX 6: The Tryout Assessment Form for Group of Learners



การประเมินรูปแบบการเรียนกลุ่ม ILC และการเข้าใช้ระบบ

Online Learning ในกลุ่ม ILC

ชื่อผู้ทำแบบประเมิน [redacted] นามสกุล [redacted] อายุ 37

ทดสอบด้วยอุปกรณ์ โทรศัพท์ + คอมพิวเตอร์ (PC หรือโทรศัพท์มือถือ)

ถ้าใช้มือถือในการทดสอบ โปรดระบุยี่ห้อและรุ่น HUAWEI Y9 2019

-1 คะแนน	0 คะแนน	+1 คะแนน
ไม่สอดคล้อง	ไม่แน่ใจ	สอดคล้อง

A. ความสะดวก และความยากง่ายในการใช้เว็บไซต์ และระบบ Online Learning

1. ท่านคิดว่าปุ่ม Sign-in และ Log-in เพื่อลงทะเบียนเข้าเรียนในระบบ Online Learning ทั้งบน PC และมือถือ ชัดเจนและใช้งานสะดวกหรือไม่

ใช้งานไม่สะดวก ไม่ชัดเจน	ไม่มีความคิดเห็น	ใช้งานสะดวก และชัดเจนดี
		1

ความคิดเห็นเพิ่มเติม

2. ท่านสามารถเข้าใช้ระบบ Online Learning ผ่านมือถือได้อย่างมีประสิทธิภาพหรือไม่

ไม่มีประสิทธิภาพ	ไม่มีความคิดเห็น	มีประสิทธิภาพดี
		1

ความคิดเห็นเพิ่มเติม

3. ท่านสามารถอ่านตัวหนังสือ (Text) ผ่านมือถือได้ชัดเจนดีหรือไม่

ไม่ชัดเจน	ไม่มีความคิดเห็น	ชัดเจนดี
		1

การประเมินรูปแบบการเรียนกลุ่ม ILC และการเข้าใช้ระบบ

Online Learning ในกลุ่ม ILC

ชื่อผู้ทำแบบประเมิน [redacted] นามสกุล [redacted] อายุ 46 ปี

ทดสอบด้วยอุปกรณ์ โทรศัพท์มือถือ + PC (PC หรือโทรศัพท์มือถือ)

ถ้าใช้มือถือในการทดสอบ โปรดระบุยี่ห้อและรุ่น iPhone 6S

-1 คะแนน	0 คะแนน	+1 คะแนน
ไม่สอดคล้อง	ไม่แน่ใจ	สอดคล้อง

A. ความสะดวก และความยากง่ายในการใช้เว็บไซต์ และระบบ Online Learning

1. [illegible]

[illegible]	[illegible]	[illegible]
	✓	

ความคิดเห็นเพิ่มเติม

[illegible] Sign-in/Log-in [illegible]

2. [illegible]

[illegible]	[illegible]	[illegible]
		✓

ความคิดเห็นเพิ่มเติม

3. [illegible]

[illegible]	[illegible]	[illegible]
		✓

การประเมินรูปแบบการเรียนกลุ่ม ILC และการเข้าใช้ระบบ

Online Learning ในกลุ่ม ILC

ชื่อผู้ทำแบบประเมิน [redacted] นามสกุล [redacted] อายุ 50 ปี

ทดสอบด้วยอุปกรณ์ [illegible]

ถ้าใช้มือถือในการทดสอบ โปรดระบุยี่ห้อและรุ่น [illegible]

-1 คะแนน	0 คะแนน	+1 คะแนน
ไม่สอดคล้อง	ไม่แน่ใจ	สอดคล้อง

A. ความสะดวก และความยากง่ายในการใช้เว็บไซต์ และระบบ Online Learning

1. [illegible]

[illegible]	[illegible]	[illegible]
		1

ความคิดเห็นเพิ่มเติม

2. [illegible]

[illegible]	[illegible]	[illegible]
		1

ความคิดเห็นเพิ่มเติม

3. [illegible]

[illegible]	[illegible]	[illegible]
		1

APPENDIX 7: Assessment of a Tryout by a Web Designer (Translated from Thai into English)

Feedbacks

(i) As learners have two separate groups, it was highly recommended to reinvent by separating online learning platform into two different platforms, one for traditional eLearning group and the other for H-ILS group. This separation was to prevent confusion between two groups of the learners.

(ii) Security code or password should be created and provided to each learner to prevent those who were not the learners to enter the online platform.

(iii) Learning timeline, showing specific date and time with corresponding learning activities should be created and shown on each learning platform so that learners have a clear direction to attain the learning achievement.

(iv) For H-ILS group, a link connected to Facebook and Line was advised to be created so that the learners could access online social learning platform easier.

(v) It was advisable to have a troubleshooting section for frequently asked problems, for example, how to restore password.

(vi) As videos of learning content were uploaded into the learning platform via the link of Youtube.com, it means that the videos were also published to the people other than the learners. In a general business context, to make the content exclusive to the learner and chargeable, learning content videos were normally uploaded into the server of the learning platform owner. In that case, web speed must be taken into further consideration. However, as the research project was academic work, the expert provided no clear-cut recommendations but asked the researcher to decide by own consideration.

(vii) In mobile website, log in and sign in buttons might be too small for the older group of the learners. It is advisable to revise and also consider to create an image link to replace text link. This change was to ensure that learners using a mobile phone could access all learning resources properly.

(viii) For appraisal test, showing question one by one with limited time in answering might be tough and create discomfort atmosphere to learners. It gave the learners no chance to review the answer. The expert also asked the researcher to take this sensitive issue into his deep consideration.

APPENDIX 8: Assessment of a Tryout by a Physician of Thai Traditional Medicine

(Translated from Thai into English)

Feedbacks

(i) A form collecting personality trait of learners in traditional eLearning group must be created so that there is information to check the correctness of the answer that they do in the appraisal of self-holistic health comprehension.

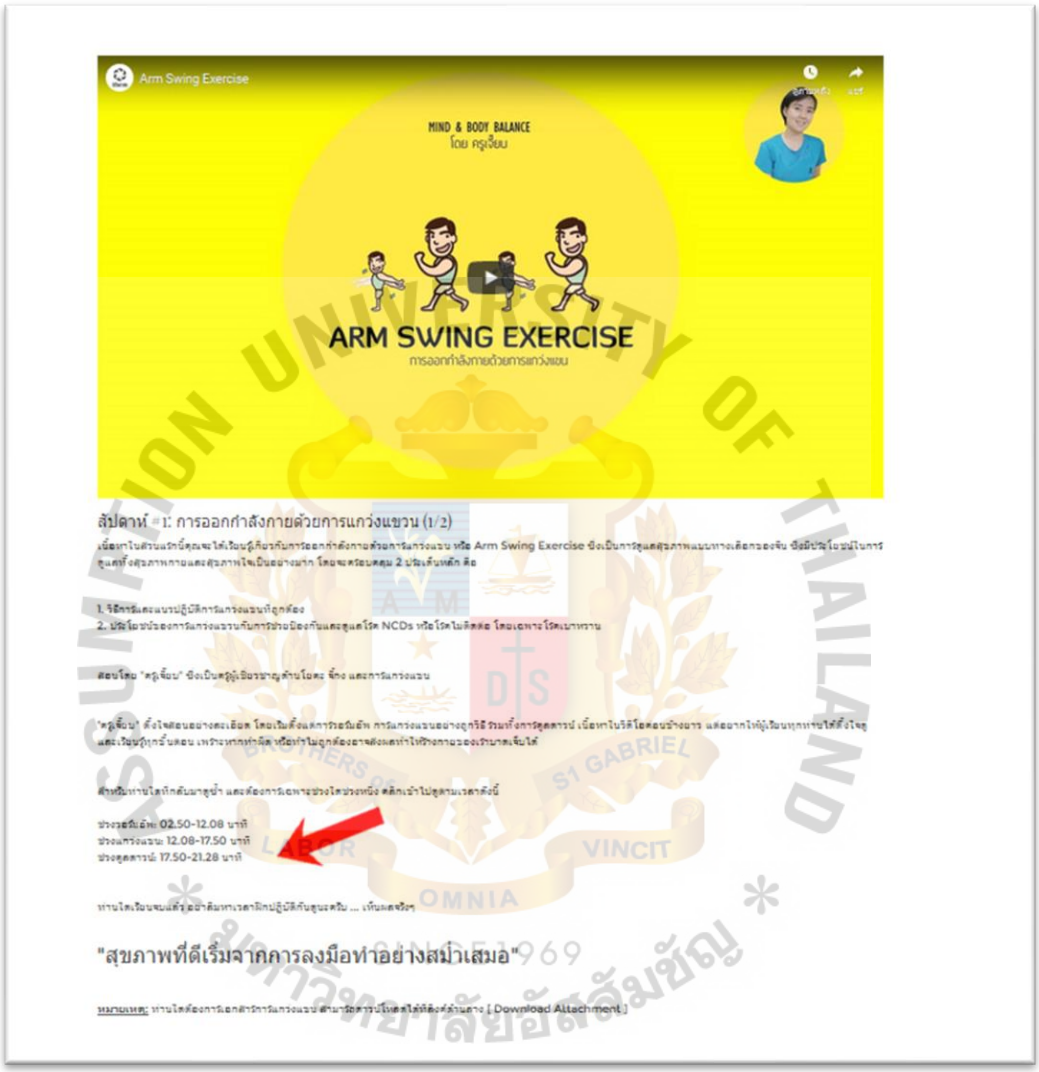
(ii) As learning content in the research project is only a part of each topic, it is advisable to add “some words” to notify the learners who are assumed not to be familiar with the content.

(iii) For some certain items in appraisal test, question and answer are very long. The physician recommended not to limit time in answering. The time limit should not be used as it is not academic learning.

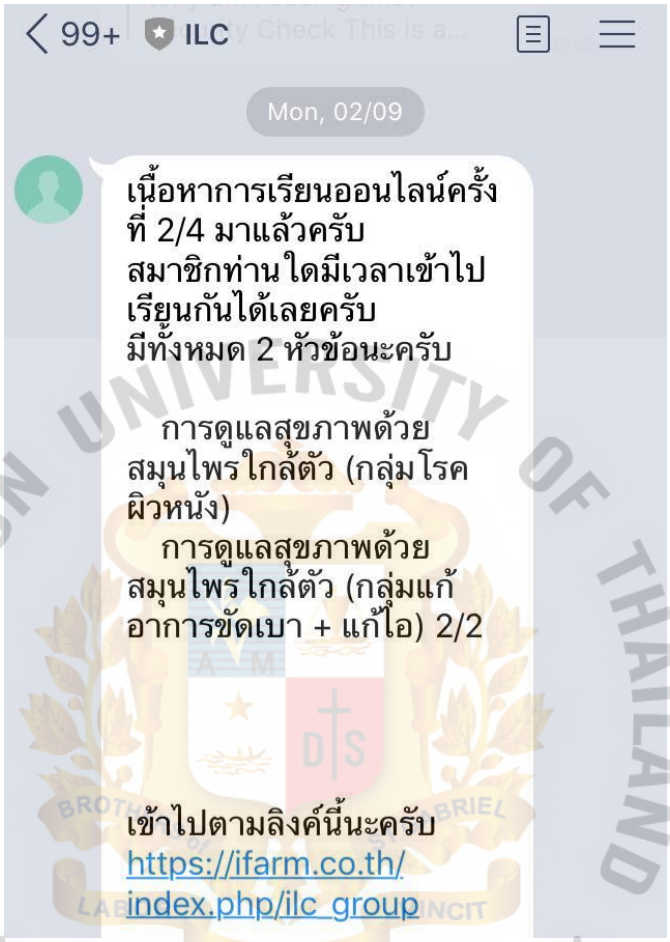
(iv) If possible, reliable online reading resources should be provided as the video covers only a part of the topic.

(v) The instruction of the self-holistic health appraisal should be clearly shown online, not only on the paper.

APPENDIX 9: Modification of a Tryout (Adding Time Duration of Each Part in the Video-based Learning Content of Arm Swing Exercise)

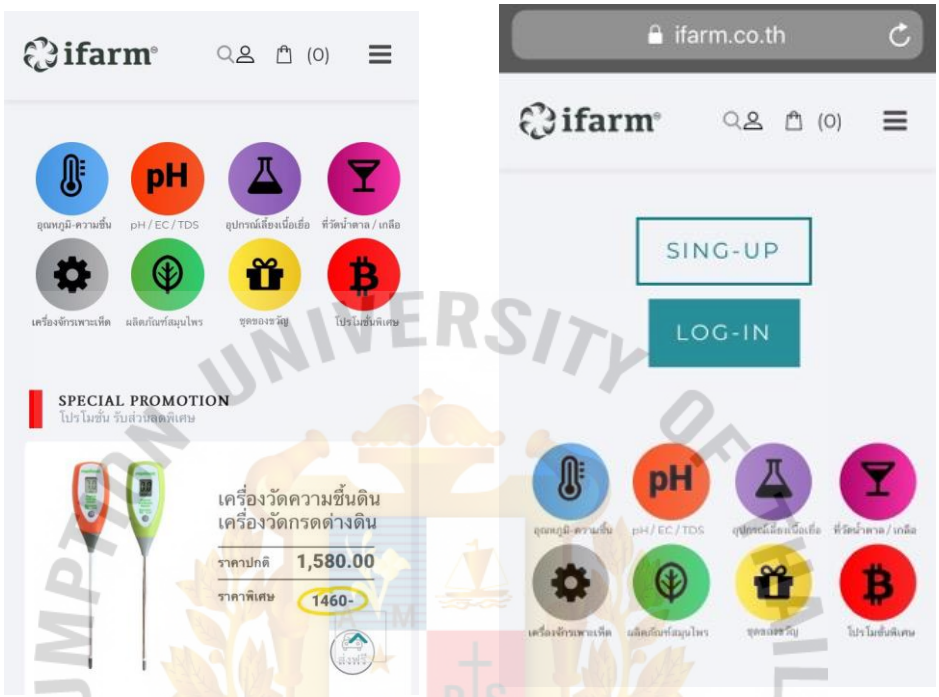


APPENDIX 10: Modification of a Tryout (Sending Notification to Learners when New Learning Content was uploaded)

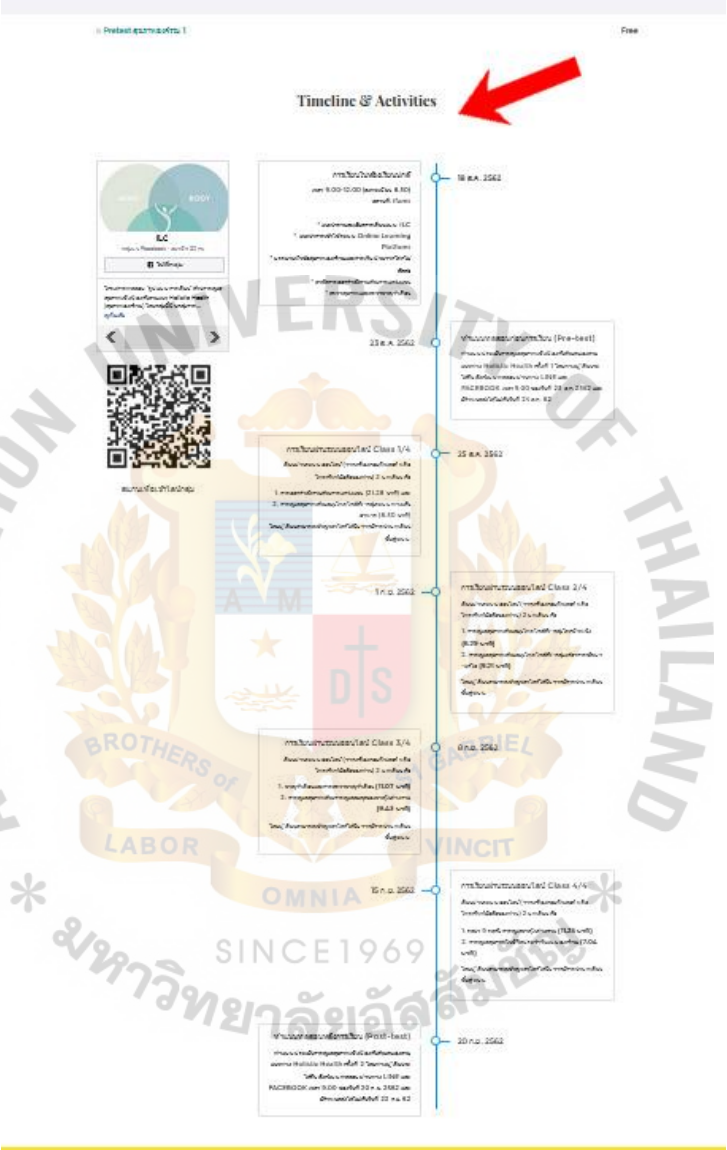


APPENDIX 11: Modification of a Tryout (Adding Direct Linking Menu Online Learning Platform)

APPENDIX 12: Modification of a Tryout (Adding Sign-up and Log-in Button on Mobile Website)

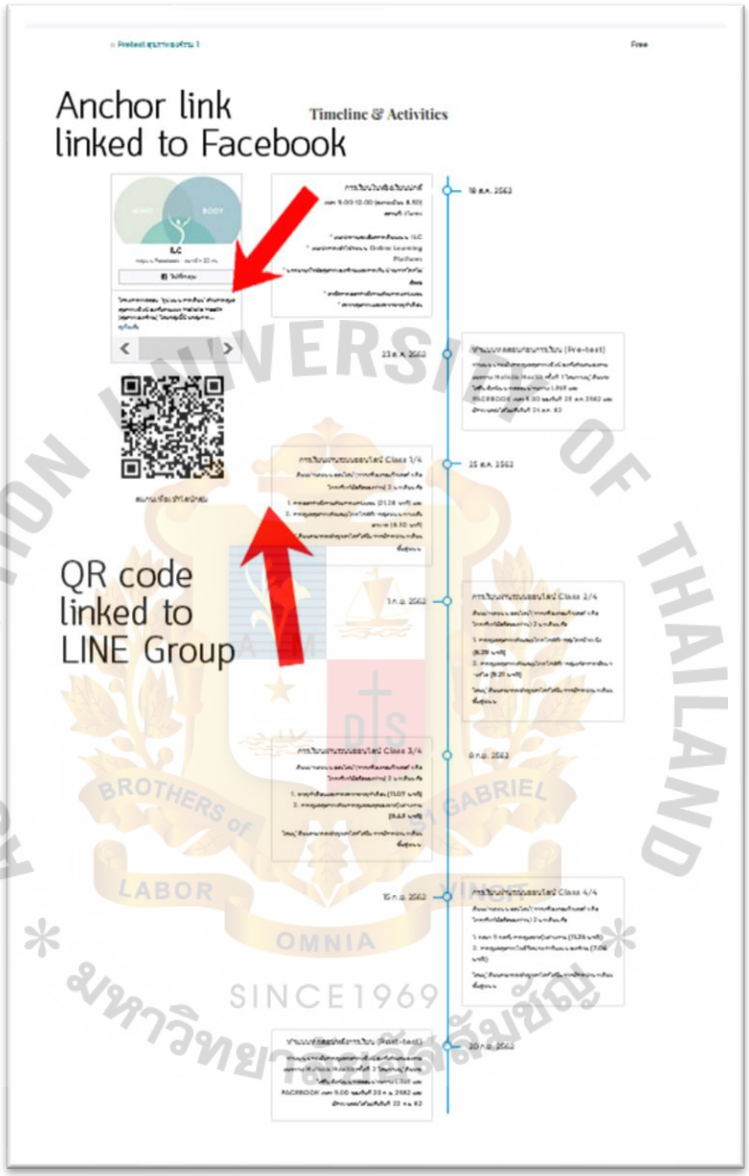


APPENDIX 13: Modification of a Tryout (Adding Learning Time to Online Learning Platform)



APPENDIX 14: Modification of a Tryout (Creating Separate Online Learning Platform for Traditional eLearning Group)

APPENDIX 15: Modification of a Tryout (Adding Anchor Link and QR Code Linked to Facebook and LINE Group)



APPENDIX 16: Modification of a Tryout (Adding a Form Requesting for Learners' personality traits into Self-Holistic Health Comprehension Appraisal of Traditional eLearning Group)

การประเมินการดูแลสุขภาพเชิงป้องกัน
ตามแนวทาง Holistic Health (สุขภาพองค์รวม)

กลุ่มที่ 2: รูปแบบการเรียนผ่านระบบออนไลน์อย่างเดียว (EG)

การประเมินก่อนการเรียน (Pretest)

ดำชี้แจง

แบบประเมินมี 2 ส่วน ในส่วนนี้ (1/2) เป็นการเก็บข้อมูลเกี่ยวกับลักษณะและพฤติกรรมของท่าน โปรดเลือกคำตอบที่ใกล้เคียงกับตัวท่านมากที่สุด (แม้ในข้อนั้นจะมีบางส่วนที่ไม่ตรงกับตัวท่านก็ตาม) พร้อมรูปถ่ายตัวท่าน 1 รูป เมื่อตอบครบทุกข้อแล้ว ให้กดปุ่ม "ส่งคำตอบ" หลังจากนี้ระบบจะนำท่านไปสู่การทำแบบประเมินในส่วนที่ 2/2 โดยอัตโนมัติ

ข้อมูลทั้งหมดจะถูกใช้เพื่อประโยชน์ในงานวิจัยชิ้นนี้เท่านั้น ไม่มีการนำไปเผยแพร่สู่สาธารณะในทุกกรณี

ส่วนที่ 1/2

ชื่อ-นามสกุล

Enter your email address

A. รูปร่าง

B. ผิวพรรณ

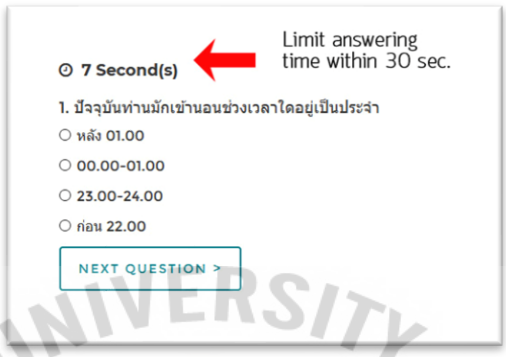
C. เส้นผม / ขน

D. ดวงตา

E. ปาก

F. การขับถ่าย

APPENDIX 17: Modification of a Tryout (Changing Answering Scheme of Self-Holistic Health Comprehension Appraisal)

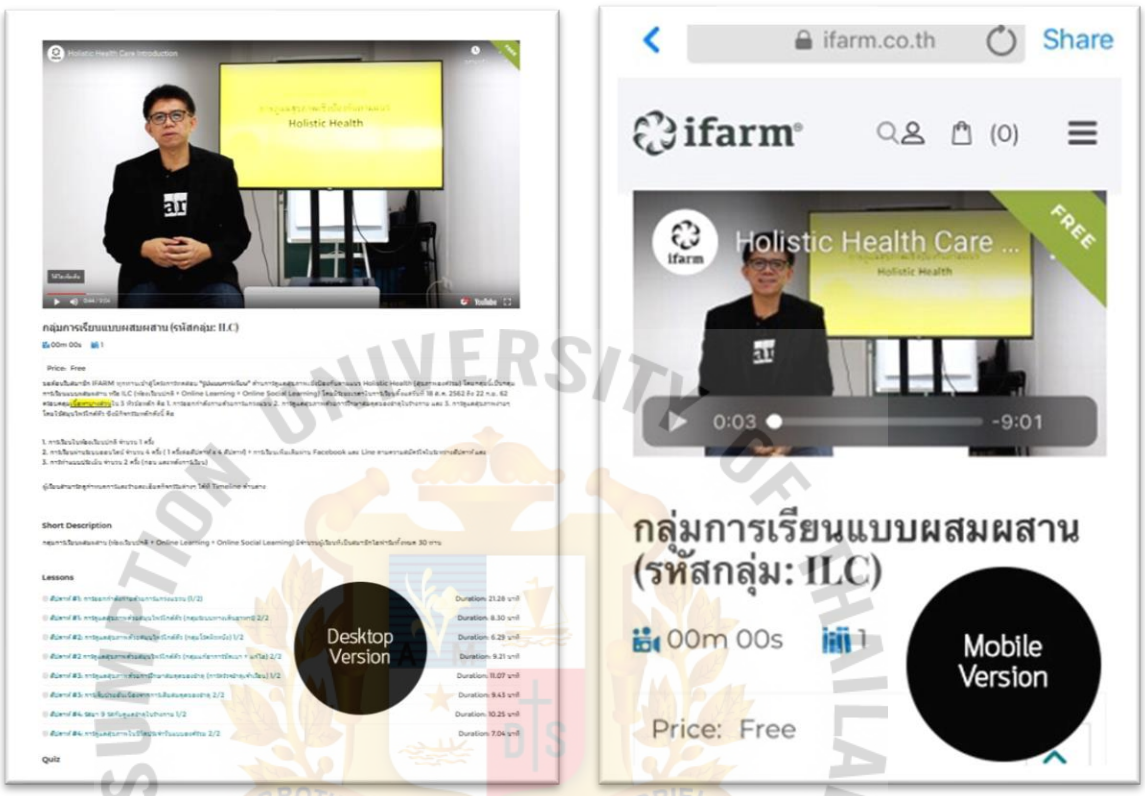


(Before Modification)

(After Modification)

APPENDIX 18: Modification of a Tryout (Adding Step-by-Step Instruction of Self-Holistic Health Comprehension Appraisal)

APPENDIX 19: The Example of Online Learning Platform (Desktop and Mobile View)



APPENDIX 20: The Example of Facebook Group which was used for Online Social Learning

Appendix 21: Learning Atmosphere (Traditional Class) of the Experiment Stage

APPENDIX 22: An Example of Data Collected by the Self-Holistic Health Comprehension Appraisal

APPENDIX 23: T-test Analysis for Differences between Experiment and Control Group

	Group	N	Mean	Std. Deviation	Std. Error Mean
PRE_TEST_SCORE	HLIS	28	47.07	12.640	2.389
	EG	26	49.77	12.111	2.375
POST_TEST_SCORE	HLIS	28	68.68	6.673	1.261
	EG	26	57.58	8.110	1.591

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of .		
		F	Sig.	t	df	Sig. (2-tailed)
PRE_TEST_SCORE	Equal variances assumed	.084	.773	-.800	52	.428
	Equal variances not assumed			-.801	51.944	.427
POST_TEST_SCORE	Equal variances assumed	.001	.974	5.509	52	.000
	Equal variances not assumed			5.469	48.546	.000

		t-test for Equality of Means		
		Mean Difference	Std. Error Difference	99% Confidence Interval of the Difference
				Lower / Upper
PRE_TEST_SCORE	Equal variances assumed	-2.698	3.374	-11.719 / 6.323
	Equal variances not assumed	-2.698	3.369	-11.705 / 6.309
POST_TEST_SCORE	Equal variances assumed	11.102	2.015	5.714 / 16.489
	Equal variances not assumed	11.102	2.030	5.660 / 16.543

Paired Samples Statistics[a]

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE_TEST_SCORE	47.07	28	12.640	2.389
	POST_TEST_SCORE	68.68	28	6.673	1.261

a. Group = HLIS

Paired Samples Test[a]

		Paired Differences			
					99% Confidence ...
		Mean	Std. Deviation	Std. Error Mean	Lower
Pair 1	PRE_TEST_SCORE - POST_TEST_SCORE	-21.607	12.242	2.314	-28.017

Paired Samples Test[a]

		Paired ...			
		99% Confidence Interval of the ...			
		Upper	t	df	Sig. (2-tailed)
Pair 1	PRE_TEST_SCORE - POST_TEST_SCORE	-15.197	-9.339	27	.000

a. Group = HLIS

Bio-data

Doctor of Philosophy: Major in eLearning Methodology

Khanawath Teranitiwath

Dissertation Title:

DEVELOPMENT OF A HOLISTIC HEALTH INTEGRATED LEARNING SYSTEM FOR HEALTH-CONSCIOUS EXECUTIVES IN THAILAND

Advisor

Asst. Prof. Poonsri Vate-U-Lan, Ed. D

Education

- B.BA., Assumption University, Thailand, 1993
- M.BA., Bangkok University, Thailand, 1997
- Thai Traditional Pharmacy, Pataravejsiam, 2016
- Ph.D. (eLearning Methodology), Assumption University, Thailand, 2020.

Employment

Jan 2004 – Present	Managing Director – IFARM Corporation Limited, Bangkok, Thailand
Sep 2000 – Dec 2003	Business Development Manager – Rubia Industries Limited, Samutprakarn, Thailand