



RESEARCH ARTICLE

Research and Development Of Project-Based Learning Management Competencies Of Health Education Teachers To Enhance The Well-Being Of The Elderly In Thailand

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ABSTRACT

Research objectives are 1) Study the needs, (2) Create a model, (3) Study the results of using the model, and (4) Study satisfaction with the development of project-based learning management competencies of health education teachers to enhance the well-being of the elderly in Thailand. The research is divided into 4 phases, with the sample used as follows: Phase 1: Health Education Teacher under the secondary educational service area office of Nakhon Ratchasima Thailand. 458 people. Phase 2 Experts 9 people by purposive sampling model to evaluate the draft model. Phase 3: 10 health education teachers to try out the model. Phase 4 consisted of 10 health education teachers, school administrators, and supervisors to assess satisfaction with the model. Statistics used to analyze data include percentage, average, and standard deviation. Modified Priority Need Index (PNIModified) and Wilcoxon signed-rank test. The results of this research were shown as follows: 1) Health education teachers want to develop competencies in project-based learning management. Overall, it was found that the sample had all the necessary needs with PNIModified values between 0.45 and 1.30. The second is project-based learning management skills, and the last is curriculum development. 2) Project-based learning management competency development model for teachers to enhance good health behaviors of the elderly, Nakhon Rachasima Province in Thailand. It operates with an action-driven research process. Real-world practice, self-learning, and mentoring with Coaching and Mentoring 3) The results of the experiment on developing the competency of project-based learning management of teachers to enhance good health behaviors of the elderly, Nakhon Rachasima Province in Thailand found that the competency of project-based learning management of teachers after receiving higher development. At a statistically significant level .01, students had the highest learning and innovation skills, and older adults had a high level of well-being behaviors and 4) Health education teachers are most satisfied with the developing teachers' project-based learning management competencies. School administrators and supervisors are satisfied with the development of teachers' project-based learning management competencies to a large extent.

INTRODUCTION

The United Nations has divided the entry-level into an aging society by country. Level 1: Aging society: More than 10% of the country's population is 60 years and over. Level 2 is the Aged society level, which is the population aged 60 years and above, more than 20% of the total population of the country, and Level 3, the Super aged society, which is the population aged 65 years and above, more than 20% of the total population. Thailand has been transitioning into an aging society since 2005,

accounting for 10.3% of the country's total population, and the trend of elderly people in Thailand is steadily increasing (Kaspar Peek, Vasana Im Em, and Rattanaporn Tangthanaset, 2015).

The increase in older adults may be seen as a burden for their children to care for in the future due to physical deterioration such as back pain, lumbar pain, muscle pain, and eye and eye problems such as blurred vision, cataracts, etc. Such cognition also affects negative attitudes towards the elderly, with the stereotype that the elderly have the same characteristics as everyone dependent, recipient, and caregiver. At the same time, there are still many older people who are healthy. Sharp intellect Ability to transfer knowledge and value to family, community, and society (Kanchana Tangcholathip et al., 2010). If the elderly are physically and mentally ready, economically social, or are elderly people who still have the power to live, it will have a positive impact on the elderly themselves and society as a whole. At the same time, it reduces the government's budget for medical care. If the elderly contribute significantly to the economy, it will positively affect economic growth. Thus, it takes advantage of the increasing proportion of the aging population to contribute to the growth of the national economy, also known as the Second Demographic Dividend. The entry into an aging society in many countries around the world led the World Health Organization to introduce a conceptual framework. Active Aging is a concept about improving the quality of life of the elderly at both individual and social levels to ensure their physical and mental well-being. It is a guideline for countries to adapt to their context (Department of Elderly Affairs, 2021).

In order to change the lifestyle behavior of the elderly and help them have good health, these three dimensions are holistically linked by changing lifestyle patterns to be appropriate and encompassing physical, mental, and social dimensions. They are essential to help prevent and delay possible complications. Paying attention and managing one's well-being This makes it possible to control various chronic non-communicable diseases to a certain level. It also reduces the burden of expenses the state will have to spend on continuing to care for patients. Cakir & Pinar, 2012 : pp 190-215). However, health promotion for the elderly mainly focuses on changing physical and emotional lifestyle behaviors. Weight management, exercise, and stress management (Ummorn Bunchuai, 2012) This does not cover other aspects of well-being behaviors, such as mental well-being behaviors and participation in social activities.

For this reason, many schools have tried to promote the learning process through various learning activities to reduce risky behaviors that can negatively affect health. It was found that teachers' learning activities lacked the ability to enable students to make health adjustments. This is because students are unaware of the need to modify their health habits. Enhancing effective health behaviors encourages learners to learn through practice and seek self-knowledge from real contexts and situations. Many schools have a certain level of knowledge and experience in project-based learning (PBL). Therefore, the learning process design should collaborate with the community and relevant partners in the area to provide opportunities for learners to learn from the community. From the body of health knowledge/wisdom available in the community, the health problems of the elderly are seen as a challenge for the development of learners. In addition to developing students' learning skills, engaging learners in editing/developing communities is also a way to develop 21st-century skills and cultivate a sense of good citizenship. At the same time, it also develops effective learning management skills for teachers. It also engages families and communities as learning resources and promotes social factors that enable learners to practice and change health habits continuously (Thai Health Promotion Foundation, 2020).

With the above thought base. Therefore, the research team and participating schools jointly researched and developed project-based learning management competencies to enhance the well-being of the elderly. It is hoped that it will be an essential tool in encouraging teachers to develop learning for learners. In addition, executives, families, communities, and related agencies have seen the importance of having well-being for the elderly, and the elderly can live a quality life.

2. Research Objectives

22.1 To study the needs of health education teachers' project-based learning management competencies in Nakhon Rachasima Province, Thailand.

2.2 To create a competency development model for project-based learning management of teachers to enhance the well-being of the elderly in Nakhon Rachasima Province, Thailand.

2.3 To study the results of using teachers' project-based learning management competency development model to enhance the well-being of the elderly in Nakhon Rachasima Province, Thailand.

2.4 To study the satisfaction of the developing project-based learning management competencies of teachers to enhance the well-being of the elderly in Nakhon Rachasima Province, Thailand.

3. RESEARCH METHODOLOGY

Phase 1: Study the needs of health education teachers' project-based learning management competencies in Thailand.

1. Population and sample

1.1 The population is divided into two groups:

1.1.1 Health education teachers teaching in Secondary School Year 3 under Nakhon Ratchasima Primary Educational Area Office and Nakhon Ratchasima Secondary Educational Area Office in Thailand 458 people.

1.1.2 Expert.

1.2 The sample is divided into two groups as follows:

1.2.1 Health education teachers teaching in Secondary School Year 3 under Nakhon Ratchasima Primary Educational Area Office and Nakhon Ratchasima Secondary Educational Area Office in Thailand 300 participants at multi-stage randomization. (Paisarn Wangpanich. 2017).

1.2.2 Experts who gave interviews on how to create a model for developing project-based learning management competencies of health education teachers to enhance the well-being of the elderly. Five persons

2. Research Instrument

2.1 Health Education Teachers' Competency Development Questionnaire the IOC is between 0.80 - 1.00, the Discrimination power is between 0.24 -0.68, and the Reliability is 0.94.

2.2 Interview Form to find ways to build a competency development model for project-based learning management of health education teachers to enhance the well-being of the elderly. It has an IOC value of 1.00.

3. DATA ANALYSIS

3.1 Needs analysis by calculating the Modified Priority Needs Index (PNIModified)

3.2 Content Analysis

Phase 2: Creating a competency development model for project-based learning management of teachers to enhance the well-being of the elderly in Thailand.

1. Data sources include:

1.1 Papers and related research

1.2 The assessors drafting the competency development model are experts. Nine people.

2. Research Instruments include formats and manuals for developing project-based learning management competencies of teachers to enhance good health behaviors of the elderly, Nakhon Ratchasima Province in Thailand. The workshop is driven and consists of 4 activities: training. The manual is divided into 4 parts: 1) development model, 2) training approach, 3) supervision and counseling approach, and 4) project-based learning management competency assessment. Nine of them found that they were the most suitable and feasible.

3. Research Analysis: Mean and standard deviation

Phase 3: Experiment with a project-based learning management competency development model for teachers to enhance the well-being of the elderly in Thailand.

1. The research used a sample by selecting a specific model from 10 health education teachers of schools under the Office of Secondary Education Area Office in the second semester of the academic year 2022.

2. Research instruments

2.1 The style is a multiple-choice type in a project-based learning management test. Choose four choices, 30 questions.

2.2 Project-based Learning Management Competency Assessment

2.3 Measures students' learning and innovation skills

2.4 Project-based Learning Management Observation

2.5 Measure the well-being behavior of the elderly.

3. RESEARCH ANALYSIS

3.1 Compare project-based learning management knowledge before and after development using Wilcoxon signed rank test statistics.

3.2 Comparison of project-based learning management competencies of teachers before training After the training and follow-up on the development of the data, data analysis will be conducted using Wilcoxon signed rank test statistics.

3.3 Study of students' study skills and innovation Based on teacher and student self-assessment. Perform analysis using basic statistics, including mean and standard deviation.

3.4 Study the healthy behaviors of the elderly. Perform data analysis, including mean and standard deviation.

Phase 4: Assessment of satisfaction with the development of project-based learning management competencies to enhance good health behaviors of the elderly.

1. Target groups include:

1.1 10 health education teachers who attended the academic year 2022

1.2 10 school administrators

1.3 10 students, 2 research instruments include satisfaction questionnaires on developing project-based learning management competencies to enhance healthy behaviors of the elderly in Nakhon Ratchasima Province in Thailand.

3. Research Analysis, including mean and standard deviation

4. Research Finding

We analyzed the data in the following sequence of steps:

Phase 1: Study the needs of project-based learning management competencies of health education teachers in Nakhon Ratchasima Province in Thailand.

Table 1 evaluation and prioritization of health education teachers in the project- based management

Area	I	D	$PNI_{Modified}$	Priority
Curriculum Development	4.23	2.90	0.45	5
Project-based learning management design	4.73	2.05	1.30	1
Project-based learning management skills	4.71	2.06	1.28	2
The use of innovative technology media for learning management	4.40	2.71	0.62	4
Learning Measurement and Evaluation	4.54	2.37	0.91	3

Table 1 shows the results of the evaluation and prioritization of health education teachers in project-based management using PNIModified, of 0.45-1.30. The priority was in order: project-based learning management skills, project-based learning management skills, learning Measurement and Evaluation, The use of innovative technology media for learning management, and curriculum development.

Phase 2: Creating a competency development model for project-based learning management of teachers to enhance the well-being of the elderly in Thailand.

The results of teachers' project-based learning management competency development model to enhance the well-being of the elderly in Nakhon Ratchasima province are shown in Figure 1 and Table 2.

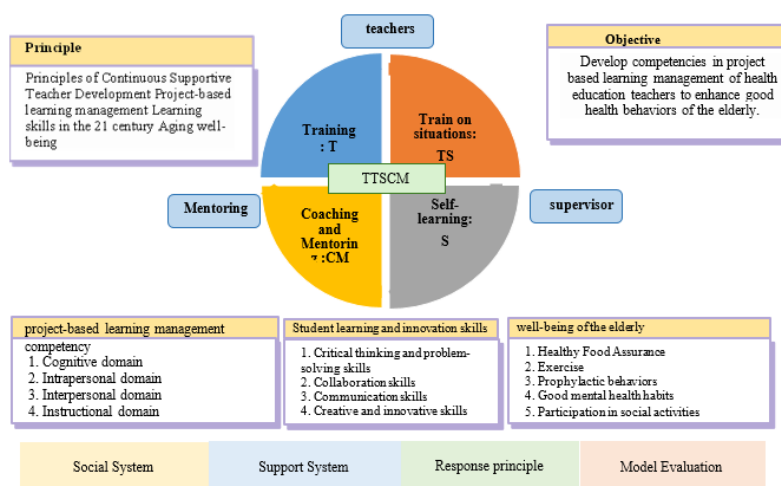


Figure 1: Project-based learning management competency development model of health education teachers to promote the well-being of the elderly, Nakhon Ratchasima Province in Thailand (TTSCM MODEL)

Table 2 shows an evaluation of the appropriateness and feasibility of the learning management competency development model. The project is the base of health education teachers to the well-being of the elderly.

Area	appropriateness		Interpretation	feasibility		Interpretation
	\bar{x}	S.D.		\bar{x}	S.D.	
1. Background and significance	4.43	0.53	High	4.57	0.53	Very High
2. Purpose of the format	4.57	0.53	Very High	4.57	0.53	Very High
3. Basic concepts	4.57	0.53	Very High	4.71	0.49	Very High
4. Main characteristics of the model	4.57	0.53	Very High	4.71	0.49	Very High
5. Development methods and processes	4.71	0.49	Very High	4.57	0.53	Very High
6. Content structure	4.57	0.53	Very High	4.57	0.53	Very High
7. Measurement and evaluation	4.57	0.53	Very High	4.57	0.53	Very High
Total	4.57	0.53	Very High	4.61	0.5	Very High

Table 2 shows that the results of the assessment of the appropriateness and feasibility of the project-based learning management competency development model of health education teachers to enhance healthy behaviors of the elderly by experts as a whole are appropriate and feasible at the highest level.

Phase 3: Experiment with the project-based learning management competency development model of health education teachers to enhance the well-being of the elderly.

Table 3 Comparison of average cognitive scores on project-based learning management of health education teachers Before and after the workshop

test	n	\bar{x}	S.D.	Z	p-value
pretest	10	13.50	1.35	2.809**	.00
posttest	10	28.30	1.41		

** $p < .01$

Table 3 shows that the average knowledge score of the students in the post-workshop group was statistically significantly higher at .01, with the average score of 13.50 before the experiment and an average score after the experiment 28.30.

Table 4 Comparative results of project-based learning management competencies of health education teachers obtained from Measure 3 times.

Pair that	project-based learning management competencies	n	\bar{x}	S.D.	Z	p-value
1	Round 1	10	3.18	0.03	2.668**	.00
	Round 2	10	3.66	0.05		
2	Round 2	10	3.66	0.05	2.666**	.00
	Round 3	10	4.88	0.02		
3	Round 1	10	3.18	0.03	2.666**	.00
	Round 3	10	4.88	0.02		

** $p < .01$

Table 4 shows the results of developing project-based learning management competencies of health education teachers participating in the development. It was found that when comparing the project-based learning management competency scores of health education teachers from Round 1, Round 2, and Round 3 after participating in the development process on a pair basis, it was found that in Round 1 and Round 2 and Round 1 and Round 3, there was a statistically significant difference in teachers' project-based learning management competencies at the level of .01.

Table 5 The study results of learning skills and innovation of students who have managed project-based learning from teachers who have developed competencies in project-based learning management of health education teachers.

Student learning and innovation skills	\bar{x}	S.D.	Interpretation
1. Critical thinking and problem-solving skills	4.58	0.23	Very High
2. Collaboration skills	4.62	0.36	Very High
3. Communication skills	4.64	0.33	Very High
4. Creative and innovative skills	4.52	0.41	Very High
Total	4.59	0.40	Very High

Table 5 shows that students' learning and innovation skills were project-based learning from teachers. That has developed the competency of project-based learning management of health education teachers. The most average was ($\bar{x} = 4.59$, S.D. = 0.40). It was the highest average ($\bar{x} = 4.64$, S.D. = 0.33), followed by collaboration skills. The highest average ($\bar{x} = 4.62$, S.D. = 0.36) was critical thinking and problem-solving skills It averaged at the highest level ($\bar{x} = 4.58$, S.D. = 0.23) and creative and innovative skills. It has the highest mean level ($\bar{x} = 4.52$, S.D. = 0.41).

Table 6 Findings of the study of the well-being of the elderly who received the geriatric project of the students.

well-being of the elderly	\bar{x}	S.D.	Interpretation
1. Healthy Food Assurance	3.87	0.41	High
2. Exercise	3.50	0.52	High

3. Prophylactic behaviors	3.52	0.41	High
4. Good mental health habits	4.02	0.40	High
5. Participation in social activities	4.00	0.33	High
Total	3.78	0.38	High

Table 6 shows the well-being of the elderly who received the overall geriatric project of the students. ($\bar{x} = 3.78$, S.D. = 0.38) When considering the aspects, it was found that the most average aspect was good mental health habits. The average level was high ($\bar{x} = 4.02$, S.D. = 0.40), followed by participation in social activities. The average was high ($\bar{x} = 4.00$, S.D. = 0.33), and the lowest average was an exercise with the highest average ($\bar{x} = 3.50$, S.D. = 0.52).

Table 7 Average and standard deviation of satisfaction with project-based learning competency development of health education teachers to enhance the well-being of the elderly as a whole and in each area.

Area	teachers			school administrators			supervisor		
	\bar{x}	S.D.	Interpretation	\bar{x}	S.D.	Interpretation	\bar{x}	S.D.	Interpretation
1. Usefulness	4.88	0.14	Very High	4.46	0.13	High	4.48	0.35	High
2. Possibilities	4.68	0.14	Very High	4.44	0.30	High	4.40	0.50	High
3. Suitability	4.64	0.19	Very High	4.42	0.27	High	4.52	0.45	Very High
4. Accuracy	4.55	0.24	Very High	4.38	0.14	High	4.52	0.46	Very High
Total	4.69	0.11	Very High	4.42	0.10	High	4.48	0.33	High

Table 7 shows the level of satisfaction with the development of project-based learning management competencies of health education teachers to enhance the well-being of the elderly as a whole and in each aspect, from the study of teachers participating in the development and stakeholders, such as school administrators and supervisor, it was found that the satisfaction of teachers with the development of project-based learning management competencies to enhance the health behavior of the elderly was at the high to very high level.

5. RESEARCH CONCLUSIONS

1. The results of grading the needs of health education teachers in project-based learning management. Overall, it was found that the sample had all the essential needs with PNIModified values between 0.45 and 1.30. The priority is project-based learning management design (1.30), project-based learning management skills (1.28), 3rd is learning measurement and evaluation (0.91), 4th is the use of innovative technology for learning management (0.62), and the list of essential needs with the least PNIModified value is 5th in curriculum development (0.45). In addition, teachers must have a wide range of knowledge in effective communication. They can be applied in conjunction with learning management methods to develop learners. Teachers must also understand and be able to apply learning management techniques to develop awareness (metacognition), self-regulation, and perseverance. This aligns with learning objectives and standards and develops and facilitates learners' learning experience using project-based learning management. (Job for the Future (JSS); & Council of Chief State School Officers (CCSSO). 2015: p. 2) stated that teacher competency development for learning management for learners is the first step in identifying knowledge. Teachers must possess skills and management skills to create and develop learning management skills for learners.

2. Project-based learning management competency development model of health education teachers to enhance the well-being of the elderly, Nakhon Ratchasima Province in Thailand. Four development principles: brainstorming, facilitation, emphasis on natural or direct experience. Teaching and feedback. It is operated by an action-driven research process, which includes four activities that

health education teachers must perform: training. This development emphasizes the concept of empowerment in development and uses the principle of participation between health education teachers, school administrators, mentors, and supervisor educators work together. Purposeful implementation planning In line with Conger and Kanungo (1988: p. 474), who say that empowerment should provide feedback because when mistakes occur or performance is evaluated, whether it is an individual, group, or whole organization, the results should be communicated to everyone so that they can be corrected or improved. Practitioners will be happy to hear and encourage their work. However, executives should provide constructive feedback so operators feel they want to improve. Therefore, effective communication is also an essential factor in providing feedback. In addition, the format also provides training and facilitation, which will clarify the practice of project-based learning management in the classroom, which is in line with Suwimon Wongwanich. (2012) has divided the characteristics of empowerment assessment into training, facilitation, advocacy, illumination, and liberation. Minor group meeting appointments and private consultations on Facebook allow health education teachers to solve problems quickly.

3. The experiment's results on the project-based learning management competency development model of health education teachers to enhance the well-being of the elderly, Nakhon Ratchasima Province in Thailand found that the results of project-based learning management competency development in different periods. As a result, health education teachers have different competencies in project-based learning management. It was found that the project-based learning management competency level belonged to health education teachers, resulting in a statistically significant higher post-development and post-development level of .05 overall and individually. The first issue is that the learner is the creator (Construct) of knowledge from the relationship between what is seen and the existing cognition —using their cognitive apparatus. The second point of the theory is that cognitive structures result from thought efforts. Learners build knowledge through psychological processes on their own, resulting in the highest level of learning and innovation skills. As a result, when students get into action on elderly projects. This gives the elderly a good level of healthy behavior and allows students to have a good relationship with them as well. This is aligned with Tisana Kammanee (2015: 90), who said self-knowledge is created by creating workpieces —good learning results of building the power of self-knowledge and self-knowledge of learners. Suppose students have the opportunity to create ideas and apply their ideas to create pieces using appropriate media and technology. Moreover, when a learner creates something in the world, it creates knowledge in himself (Chaiwat Sutthirat. 2015: 37). and works to achieve the goals set.

4. Health teachers are most satisfied with the developing project-based learning management competencies of health education teachers to enhance the well-being of the elderly in Nakhon Ratchasima province in Thailand. School Administrators: There is a high level of satisfaction in supervisors. This is due to the development of project-based learning management competencies of health education teachers to enhance the healthy behaviors of the elderly. This time, it is accurate, comprehensive, and possible to implement.; It is envisaged that project-based learning will give learners critical thinking and problem-solving, collaborative, communicative, creative, and innovative skills. This is in line with Stormont's research.

6. REFERENCES

- Clark, (2012). Effectiveness of a Lifestyle Intervention in Promoting the Well-Being of Independently Living Older People: Results of the Well Elderly 2 Randomized Controlled Trial. *Journal of Epidemiology & Community Health*. 66: 782-790.
- Caspar Peak et la., Vasana Im Em, and Rattanaporn Tangtanaset. (2015). Report on the Situation of Thai Population 2015 "The Face Thai families with low birth, long life". Bangkok: United Nations Population Fund Thailand and Office of the National Economic and Social Development Board.
- Caspar Peak et la., Vasana Im Em, and Rattanaporn Tangtanaset. (2015). Report on the Situation of Thai Population 2015 "The Face Thai families with low birth, long life". Bangkok: United Nations Population Fund Thailand and Office of the National Economic and Social Development Board.

- Conger et al., A.J. and Kanungo, R.N. (1988). The Empowerment Process: Integrating Theory and Practice. *The Academy of Management Review*, 13(3): 471-482
- Department of Elderly Affairs (2021). Measures to drive the National Agenda on Aging Society (Revised Edition). 2nd edition. Bangkok: Printing and Publishing co., ltd.
- Jobs for the Future and the Council of Chief State School Officers. (2015). *Educator Competencies for personalized, Learner-Centered Teaching*. Boston, MA: Jobs for the Future.
- Kanchana Tangcholathip, (2015). The Value of Geriatrics: A Reflection of Perspectives from Two Ages. In Suchada Thaweessit, and Swarai Bunyamanon (editor). *Population and Society 2009: The value of the elderly in the eyes of Thai society*. Proceedings of the Institute of Population and Social Research, Mahidol University, No. 372. 1st ed. Nakornpathom: Population and Society Publishing.
- Miok and C.L., (2002). Lifestyle Modification in Hypertension Management among older Korean Americans. *The Advancing Nursing Practice Excellence*.
- Paisarn wangpanich, (2017). *Research methods. Teaching materials*. Nakhon Ratchasima: Faculty of Education, Vongchavalitkul University.
- Stormont, (2015). Teaching to the big ideas. In: Solomon, M.Z. (Ed.), *The diagnostic teacher: constructing new approaches to professional development*. New York:Teacher College Press.
- Supachet Chansarn. (2012). Active Ageing of Thai Elderly People, The Demographic Dividends and Thailand's Economic Prospect in an Ageing Society. *Srinakharinwirot Research and Development*, 4(7): 201-204
- Suwimon Wongwanich. (2012). *Research and development of internal evaluation systems of educational institutions*. Bangkok: Good Print.
- Thai Health Promotion Foundation. (2020). *Community-based project-based teaching guide to strengthen Health awareness of secondary school students*. Bangkok: Thai Health Promotion Foundation.
- Tisana Kammanee. (2015). *Pedagogical Sciences*. Bangkok: Chulalongkorn University Press.
- Ummorn Bunchuai. (2012). The Effects of Health Promotion Program for Hypertension Hypertension Elderly Case study :Thri tong Tumbon Health Promoting Hospital Chaiburee District, Surat thani Province. *Journal of Community Health Development Quarterly Khon Kaen University*, 3(2): 231-244.