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Development of Competency-Based Training Model on E-Commerce Business for Pre-Elderly Entrepreneurs in Thailand

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Abstract

The objectives of this research were to: (1) to synthesize occupational competencies in the e-commerce business for the pre-elderly, (2) to develop a curriculum based on these competencies, (3) to develop a targeted training model for this specific group, and (4) to investigate the impact of implementing the training model. The researchers conducted the study in five phases: (i) competency synthesis, (ii) competency-based curriculum development, (iii) training model development, (iv) training tool development, and (v) training model implementation. The sample in the study consisted of 25 formal workers aged 40 to 59, selected through voluntary sampling. The results of the study were as follows: (1) The e-commerce business competency for pre-elderly comprised one key role, three key functions, seven units of competence, and twenty elements of competence. (2) The competency-based curriculum consisted of seven training modules and twenty learning outcomes. (3) The designed training model was rated as highly appropriate ($\overline{X}$ = 4.68, S.D. = .52). (4) The implementation of the training model with the sample revealed that (4.1) post-training knowledge in the e-commerce business was significantly improved, when compared to pre-training knowledge at the significance level of .05. (4.2) The participants' overall satisfaction reached the highest level ($\overline{X}$ = 4.60, S.D. = .44). And (4.3) one month after training, 23 participants (92% of the total) met all the performance criteria.

Keywords: *Model development, competency-based training, occupational competencies, e-commerce business, pre-elderly*

1. Background and Research Viability

Thailand is experiencing a rapid demographic shift, characterized by a declining working-age population and a continuously increasing elderly population. This transition presents challenges in elderly care and the promotion of quality of life across economic, social, health, housing, and environmental domains (Ratchavieng, 2020; Pengchuay & Whattananarong, 2023). The goal is to enable the elderly to be self-reliant and contribute effectively to their families, communities, and society. The 20-year

National Strategy (2018-2037) and the 5-year Government Action Plan (2023-2027) emphasize the development of potential and preparation for aging among the population aged 25–59 years, which represents the working-age group crucial to driving the economy and society (National Statistical Office, Thailand. (n.d.).

Concurrently, Thailand has fully entered the digital era, with online activities and transactions playing a pivotal role in daily life (Nuangjamnong, Suesaowaluk & Shinasharkey, 2024) and contributing to rapid economic growth. In 2022, Thais spent an average of 10 hours and 36 minutes per day online, with e-commerce and financial transactions showing the most significant growth among online activities (Power BI Report, n.d.). E-commerce has created opportunities for small and medium-sized enterprises (SMEs) and individuals interested in retail to access global consumer markets easily (An, 2023).

However, Thailand's transition to a complete-aged society, with projections indicating a super-aged society status within 15 years, presents challenges, particularly severe labor shortages. The increasing number of low-income elderly individuals leads to limited spending, potentially slowing domestic consumption and impacting the country's overall economic performance.

Consequently, integrating the growing elderly population with the expanding e-commerce sector presents a strategy to encourage the pre-elderly group to prepare for their senior years. Enhancing capabilities and reinforcing crucial digital-age skills through e-commerce competency training can help the pre-elderly adapt effectively to technological changes and evolving labor markets (Wetsanarat, 2021; Pholsward, Phakamach & Panjarattanakorn, 2024). This approach can equip the pre-elderly with essential skills for post-retirement careers, fostering a sense of value and contributing to the country's economic stimulation.

Therefore, developing an e-commerce business competency training model for the pre-elderly is of paramount importance. This proactive approach can guide the governmental and private sectors, as well as relevant agencies, in preparing and developing the elderly population to maintain a high quality of life as Thailand transitions into a super-aged society.

2. Research Assumption

The research assumption was that pre-elderly individuals would develop e-commerce business competencies after participating in a training model specifically designed to enhance these competencies.

3. Scope of Research

This research involved 25 formal workers aged 40 to 59, selected through voluntary sampling in Bangkok Metropolitan Region of Thailand.

The independent variable was the training model designed to develop e-commerce business competencies for the pre-elderly population. The dependent variable was the participants' performance in e-commerce business competencies following their engagement with the developed training model.

The content utilized in the training model to enhance e-commerce business competencies for the pre-elderly encompassed:

(1) E-commerce business management
(2) E-commerce laws and regulations
(3) Digital marketing strategies
(4) E-commerce platform utilization
(5) Online sales operations
(6) Online transactions and financial management
(7) Customer service in e-commerce

4. Research Objectives

The objectives of this study were to:

(1) Synthesize occupational competencies in the e-commerce business for the pre-elderly,
(2) Develop a curriculum based on these competencies,
(3) Develop a targeted training model for this specific group, and
(4) Investigate the impact of implementing the training model.

5. Research Methodology

The researchers studied the concepts and relevant information on e-commerce business competencies for the pre-elderly, and then analyzed and synthesized the roles, duties, and essential competencies. After that, the researchers developed a competency-based training model to enhance e-commerce business competencies. The researchers conducted the study in five phases as follows:

Phase 1: Synthesis of e-commerce business competencies for the pre-elderly. The researchers used functional analysis techniques to create a functional map, defining key purpose, key role, key functions, units of competence, and elements of competence for e-commerce business.

Phase 2: Development of a competency-based curriculum for e-commerce business. The researchers transformed the synthesized competencies into learning modules, creating a draft curriculum for e-commerce business competencies targeted at the pre-elderly.

Phase 3: Development of a training model for enhancing e-commerce business competencies. The researchers designed a training model incorporating principles, objectives, content, process, and evaluation components suitable for pre-elderly learners.

Phase 4: Development of training tools and materials. The researchers created training plans, supporting media, and assessment tools aligned with the developed curriculum and training model.

Phase 5: Implementation and evaluation of the e-commerce business competency training model.

The researchers conducted the training, assessed participants' knowledge and competencies, and evaluated the effectiveness of the training model.

Research Tools

Phases 1-4: The researchers used assessment forms to analyze the development of competencies, curriculum, training model, and training tools. These forms adopted a 5-level Likert scale with the following interpretations:

4.51-5.00: Highest agreement/quality
3.51-4.50: High agreement/quality
2.51-3.50: Moderate agreement/quality
1.51-2.50: Low agreement/quality
1.00-1.50: Lowest agreement/quality

For content validity, the researchers used the Content Validity Ratio (CVR) with a criterion of 0.99, as determined by 5 experts in e-commerce business competencies.

For item-objective congruence, the researchers used the Index of Item-Objective Congruence (IOC) with a criterion of 0.5.

Phase 5: Data collection involved four stages:
(1) Pre-test and post-test knowledge assessments,
(2) Competency evaluation using standardized assessment tools,
(3) Satisfaction survey using a 5-level Likert scale, and
(4) Follow-up competency assessment in one month after training completion.

The sample comprised 25 pre-elderly formal workers aged 40–59 years, selected through voluntary sampling. Data analysis included percentage, mean, standard deviation, dependent samples t-test, and content analysis for qualitative data.

6. Data Collection and Data Analysis

Phases 1-4: The researchers collected data using various assessment forms for competency synthesis, curriculum development, training model development, and training tools development. These tools were content validated by 5-14 experts in e-commerce business, digital technology, and education. The obtained data were analyzed for Content Validity Ratio (CVR) with a criterion of 0.99 obtained from 5 experts, Index of Item-Objective Congruence (IOC) with a criterion of 0.5, mean, and standard deviation. For the appropriateness and quality of the developed components, a 5-point Likert scale was used, with a criterion of 3.51 out of 5.00 to be considered appropriate in quality.

Phase 5: The researchers collected data from pre-test and post-test knowledge assessments, competency evaluation forms, and satisfaction surveys. The effectiveness of the training model was determined by comparing pre-test and post-test scores using a dependent samples t-test. The competency achievement was evaluated using standardized assessment tools, with results categorized as "Pass" or "Fail" based on predetermined criteria. The number of trainees who passed the competency assessment was compared to the total number of trainees in terms of percentage. The satisfaction level was analyzed

using mean and standard deviation, with a criterion of 3.51 out of 5.00 to be considered satisfactory.

7. Research Results

The Synthesis of E-commerce Business Competencies for the Pre-Elderly

The e-commerce business competencies for the pre-elderly were synthesized and assessed by 14 experts. It was found that the e-commerce business professional competency for the pre-elderly consists of 1 key purpose, 1 key role, 3 key functions, 7 Units of Competence and 20 Element of Competence.

The components of the function diagram and performance list are shown in Tables 1-3 (reference to actual tables in the research). These components were meant to develop the potential of the pre-elderly to conduct e-commerce business effectively.

Key Role: Conducting E-commerce Business Operations

Key Functions: A. E-commerce Business Management
B. E-commerce Sales Operations
C. Customer Service

The competencies were further broken down into 7 units of competence and 20 elements of competence, which formed the basis for the development of the training curriculum and model. The curriculum consisted of 7 training modules, each corresponding to a unit of competence.

Table 1: Key Functions A: E-commerce Business Management

Unit of competence	Element of competence
A1 Manage e-commerce business planning	A11 Plan e-commerce business
	A12 Plan product or service procurement
	A13 Plan online sales channels
	A14 Plan payment channels
	A15 Plan product delivery channels
A2 Comply with laws and ethics related to e-commerce business	A21 Comply with laws related to e-commerce business
	A22 Adhere to ethics in e-commerce business

Table 2: Key Functions B: E-commerce Sales Operations

Unit of competence	Element of competence
B1 Prepare for product sales	B11 Create seller accounts on online channels
	B12 Prepare product content for sales
	B13 Create product still images for sales
	B14 Create product video content for sales
B2 Conduct product sales	B21 Manage online sales channels
	B22 Manage payment channels
B3. Conduct packaging and product tracking	B31 Choose packaging methods for shipping
	B32 Choose shipping methods and track products
	B33 Choose channels for returns or exchanges

Table 3: Key Functions C: Customer Service

Unit of competence	Element of competence
C1 Build customer relationships	C11 Provide consultation to customers in making purchase decisions differences of opinion
	C12 Interact with customers rationally
C2 Manage complaints	C21 Identify and analyze complaints
	C22 Respond to complaints

The Development of a Training Model to Enhance E-Commerce Business Competencies for Pre-Elderly Individuals

The training model was developed and evaluated by 5 experts in e-commerce business competencies, who found it to be highly appropriate for enhancing e-commerce business competencies among the pre-elderly. The model incorporated principles, objectives, content, process, and evaluation components tailored to the learning needs of pre-elderly individuals. The model consists of three key components:

Input Factors:

- E-commerce business competencies for pre-elderly individuals.
- A competency-based training curriculum for e-commerce business for pre-elderly individuals.

- Learning steps: Based on modular competencies, which include:
  (i) Business preparation: 2 modules.
  (ii) Sales and delivery operations: 3 modules.
  (iii) Customer interaction procedures: 2 modules.

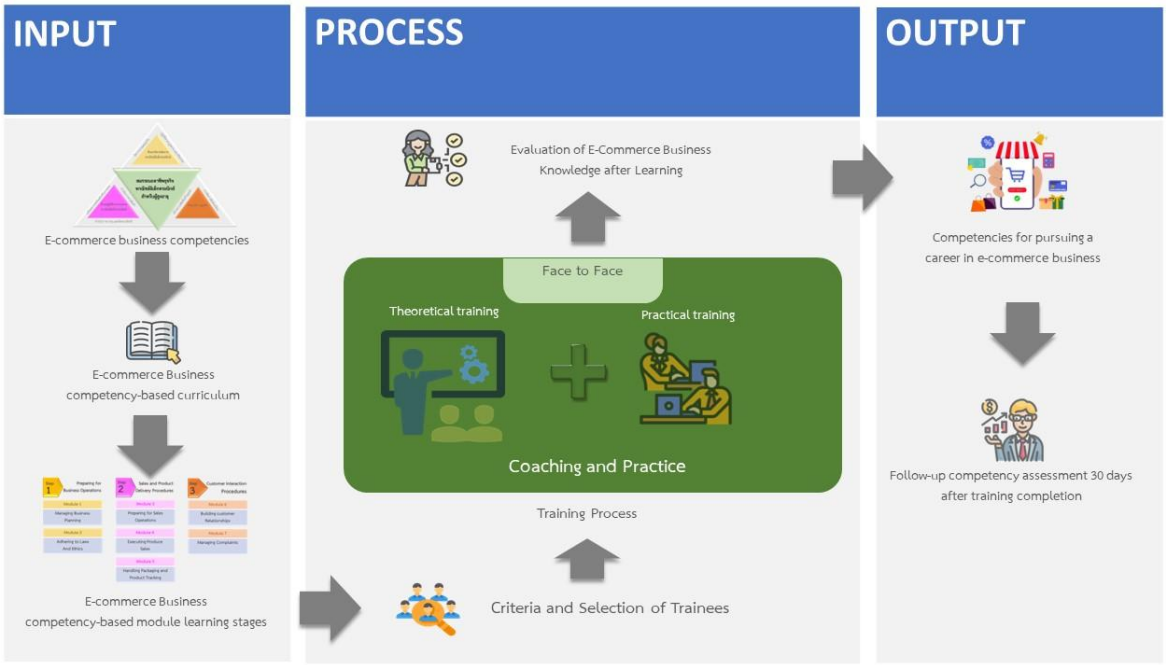
Learning Process:

- Selecting and enrolling trainees.
- Theoretical and practical training sessions.
- Competency evaluation post-training for pre-elderly individuals.

Outputs:

- Competency evaluation during the training by assessors.
- Competency evaluation of e-commerce business for pre-elderly individuals one month after the training.

Figure 1: Learning Modules Based on Competencies in E-Commerce Business Careers



Training and Evaluation of the E-Commerce Business Competencies for Pre-Elderly Individuals

The effectiveness of the training model was demonstrated through a significant increase in their understanding of e-commerce business operations, is presented in Table 4. The results of the t-test comparing the mean scores before and after the training yielded a t-value of 6.27 and a significance (Sig) value of 0.0000018, which is less than the predetermined statistical significance level of 0.05. This indicates that there is a statistically significant difference at the 0.05 level between the participants' knowledge of e-commerce business operations before and after the training. The average post-training score was 91.47 (S.D. = 7.08), which is higher than the pre-training average score of 73.33 (S.D. = 18.36).

Table 4: Analysis of Pre-Training and Post-Training Knowledge Test Scores

	Total number of trainees	Percentage of total score (%)	Percentage of average score (%)	S.D.	t	Sig.
Pre-Test	25	100	73.33	18.36	6.27	0.0000018
Post-Test	25	100	91.47	7.08		

**p-value <0.05*

During the training period, the participants were assessed on their competencies and practical skills by a panel of three evaluators. The assessment methods included oral questioning, observation of techniques and skills, and evaluation of participants' work. The assessment covered all seven training modules. The results revealed that all 25 participants met the required standards in every training module, representing 100% of the total participants, as shown in Table 5.

Table 5: Assessment Results of Participants' Competencies during Training

Module	Number of trainees		Percentage of trainees (%)	
	Passed	Fault	Passed	Fault
A1 Manage e-commerce business planning	25	0	100.00	0.00
A2 Comply with laws and ethics related to e-commerce business	25	0	100.00	0.00
B1 Prepare for product sales	25	0	100.00	0.00
B2 Conduct product sales	25	0	100.00	0.00
B3 Conduct packaging and product tracking	25	0	100.00	0.00
C1 Build customer relationships	25	0	100.00	0.00
C2 Manage complaints	25	0	100.00	0.00
Passed evaluation criteria			25 trainees	
Passed percentage			100.00%	

The results of the satisfaction assessment for the e-commerce business competency training for pre-elderly individuals indicated that overall, the participants' satisfaction in all aspects was at the highest level, with a mean score of 4.60 (S.D. = 0.44). The highest-rated aspect was content, which was also at the highest level, with a mean score of 4.80 (S.D. = 0.41). The second highest aspect was the application of knowledge, at the highest level, with a mean score of 4.73 (S.D. = 0.45), followed by the training process, also at the highest level, with a mean score of 4.73 (S.D. = 0.43). The trainer aspect was rated at the highest level, with a mean score of 4.71 (S.D. = 0.45), while the knowledge and understanding gained from the training program was rated at a high level, with a mean score of 4.02 (S.D. = 0.44), as presented in Table 6.

Table 6: Assessment of Participants' Satisfaction with Training

No.	Satisfaction evaluation criteria	Mean ($\bar{X}$)	S.D.	Result
1	Satisfaction with the training content	4.71	0.45	Highest
2	Satisfaction with the application of knowledge	4.73	0.43	Highest
3	Satisfaction with the training process	4.80	0.41	Highest
4	Satisfaction with the trainer	4.02	0.44	Highest
5	Satisfaction with the gained knowledge and understanding	4.73	0.45	Highest

After one month of training, the researchers evaluated the e-commerce business operational competencies of the participants. The evaluation covered 7 competence units using oral questioning and a competency-based assessment, where the participants were required to provide evidence of their e-commerce business operations. Out of the 25 participants, 23 met the competency criteria in all units, while 2 did not pass due to insufficient performance based on the evaluation standards. The result on 92% of the participants passing the competency assessment, is presented in Table 7.

Table 7**:** Evaluation of Participants after One-Month Training

Module	Number of trainees		Percentage of trainees (%)	
	Passed	Fault	Passed	Fault
A1 Manage e-commerce business planning	23	2	92.00	8.00
A2 Comply with laws and ethics related to e-commerce business	23	2	92.00	8.00
B1 Prepare for product sales	23	2	92.00	8.00
B2 Conduct product sales	23	2	92.00	8.00
B3 Conduct packaging and product tracking	23	2	92.00	8.00
C1 Build customer relationships	23	2	92.00	8.00
C2 Manage complaints	23	2	92.00	8.00
Passed evaluation criteria			25 trainees	
Passed percentage			92.00%	

8. Conclusion and Discussion of Results

This research aimed to develop a training model to enhance e-commerce business competencies for pre-elderly entrepreneurs in Thailand. The model was developed by synthesizing e-commerce business competencies obtained from related literature and evaluated by 14 experts in e-commerce, digital technology, and education. The researchers converted the synthesized competencies into a competency-based training curriculum and training plans for e-commerce business for the pre-elderly, comprising 7 learning modules. The following points are discussed in the sequence of the research objectives:

8.1 Development of E-commerce Business Competencies

The development of e-commerce business competencies for the pre-elderly used the Functional Analysis technique to create a Functional Map. This systematic approach, which included defining Key Purpose, Key Role, Key Functions, Units of Competence, and Elements of Competence, resulted in a comprehensive competency framework. The process involved synthesizing data from diverse academic sources and gathering empirical data from experienced practitioners, ensuring that the developed competencies accurately reflected the real-world requirements of the e-commerce industry. The selection of experts with extensive experience in e-commerce and related fields for competency evaluation further enhanced the validity and relevance of the developed competencies.

This approach supports other research in competency development, particularly studies by Roopngamm & Wiriyanon (2023), Kiewthong & Wiriyanon (2022), and Chalermphol (2019), who used similar functional analysis techniques to develop competencies in various occupations.

8.2 Development of Competency-Based Curriculum

The competency-based curriculum for e-commerce business was developed by translating occupational competency requirements into a training curriculum. The curriculum development process involved a systematic approach, including competency analysis, learning objective definition, content design, and clear assessment criteria. This approach resulted in a curriculum that effectively integrated theory and practice, tailored to the learning needs of the pre-elderly group.

The curriculum design aligns with research by Kumsuth (2023) on competency-based curricula for 21st-century skills development, emphasizing the importance of structured competency standards and learning objectives. It also corresponds with Thana-Amornkan, Rakkusol & Ramwarungkura (2023)'s research on developing competency-based curricula for construction foremen, highlighting the need for curricula that align with industry requirements.

8.3 Development of Training Model

The training model for e-commerce business competencies was developed using a systemic approach, incorporating input, process, and output components. The model emphasized creating occupational competencies specifically for the pre-elderly context. The learning process in both theoretical and practical training considered activities that promote participant engagement and experience sharing.

This approach is consistent with research by Laparojkit & Ek-uru (2022) on motivation factors for pre-retirement skill enhancement, and Sinchindawong & Klinkaesorn (2020)'s study on lifelong learning for the elderly, which emphasize the importance of experiential learning and self-directed activities for older adult learners.

8.4 Implementation and Effectiveness of the Training Model

The implementation of the training model resulted in all participants meeting the competency assessment criteria. This success is attributed to the systematic learning

management based on the developed e-commerce business competencies, the translation of competency units into learning modules, and the use of behavioral objectives for assessment criteria. The training model promoted activities that encouraged participants to express their thoughts and skills, utilizing experiences gained from practical learning.

The effectiveness of training was demonstrated by significantly higher post-training achievement scores compared to pre-training scores ($p < .05$). This result aligns with research by Numpradit (2022) on developing a competency-based training curriculum for digital technology project writing, which found that participant-centered group activities and project-based learning led to significantly improved post-training achievement scores.

Furthermore, the provision of comprehensive training materials, including theoretical content and practical steps, allowed participants to review and practice independently, contributing to their successful competency development. This finding is consistent with Sawangkit (2019)'s research on developing information technology competencies for the elderly, which found that self-paced learning materials helped reduce memory issues and increased motivation for practice among older learners.

9. Suggestions

Based on the obtained findings, the researchers would like to suggest the following:

- Government and private organizations should implement practical training programs that integrate technology and innovation into daily life, facilitating continuous preparation for the transition to elderly.
- Relevant agencies supporting pre-elderly preparation should adopt this training model to expand career opportunities and promote financial stability for the aging population.
- Future research should explore integrating AI technologies into e-commerce business competencies for the pre-elderly, including AI-powered live streaming, chatbots, and content creation.
- Researchers should broaden the scope of inquiry to develop training models for pre-elderly populations in diverse contexts, thereby ensuring more comprehensive preparation for aging across various demographic groups.

10. The Authors

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11. References

An, C. (2023). The influence of interactive marketing of webcast platform on users' purchase intention mediated by perceived information quality. *RICE Journal of Creative Entrepreneurship and Management, 4*(3), 1–18. https://doi.org/10.14456/rjcm.2023.13

Chalermphol, B. (2019). *Development of training model for occupational competency of jig & fixture technician* [Doctoral dissertation, King Mongkut's University of Technology North Bangkok].

Kiewthong, K., & Wiriyanon, T. (2022). *Development of nutritional food cooking process model for readiness of pre-aging population* [Doctoral dissertation, King Mongkut's University of Technology North Bangkok].

Kumsuth, S. (2023). Competency-based curriculum to develop skills in the 21st century. *Dhonburi Rajabhat University Journal, 17*, 239–258.

Laparojkit, S., & Ek-uru, S. (2022). Motivation and reinforcements in the development of skills for career enhancement of pre-retirement seniors. *Burapha Journal of Business Management, 12*(1), 140–161.

National Statistical Office, Thailand. (n.d.). *Plan policy*. Retrieved April 26, 2025, from https://www.nso.go.th/nsoweb/category/t?set_lang=en

Nuangjamnong, C., Suesaowaluk, P., & Shinasharkey, T. (2024). Consumers' perception of e-service quality by internet service providers: A focus on satisfaction and loyalty. *RICE Journal of Creative Entrepreneurship and Management, 5*(3), 43–63. https://doi.org/10.14456/rjcm.2024.16

Numpradit, J. (2022). *A competency-based training curriculum development on application of enterprise architecture for digital technology project writing through project-based learning and cooperative learning* [Doctoral dissertation, King Mongkut's University of Technology North Bangkok].

Pengchuay, W., & Whattananarong, K. (2023). Development of learning model to enhance the elderly's digital competencies of media and information. *RICE Journal of Creative Entrepreneurship and Management, 4*(3), 19–36. https://doi.org/10.14456/rjcm.2023.14

Pholsward, R., Phakamach, P., & Panjarattanakorn, D. (2024). Technical and soft skills of university graduates in Thailand. *RICE Journal of Creative Entrepreneurship and Management, 5*(2), 38–55. https://doi.org/10.14456/rjcm.2024.9

Power BI Report. (n.d.). *Power BI dashboard report*. Retrieved April 26, 2025, from https://app.powerbi.com/view?r=eyJrIjoiYWYxNDUzOWEtOWMyOS00MjMzLWFiY2QtYjQzYzQ2OTZkNTJjIiwidCI6Ijk5MjczNGE0LWRmZmEtNGZjMC1iNjc1LTY2ZWNmZTNhZmUwYyIsImMiOjEwfQ%3D%3D

Ratchavieng, A. (2020). Integrated marketing communication model of elderly care business in Thailand. *RICE Journal of Creative Entrepreneurship and Management, 1*(2), 26–36. https://doi.org/10.14456/rjcm.2020.8

Roopngamm, J., & Wiriyanon, T. (2023). *The development of a training model for enhancing the competency of garland maker* [Doctoral dissertation, King Mongkut's University of Technology North Bangkok].

Sinchindawong, S., & Klinkaesorn, P. (2020). Lifelong learning for the elderly. In *National Academic Conference and Selected Research Dissemination in the Field of Education: 'Digital Disruption in Education' (pp. 70–83)*. Chateau de Khaoyai Hotel.

Sawangkit, W. (2019). Development of elderly people’s information technology competency in Chiang Rai Province by competency-based training. *Journal of Chandrakasemsarn, 25*(2), 80–94.

Thana-Amornkan, A., Rakkusol, N., & Ramwarungkura, A. (2023). Guidelines on the development of construction foreman’s competency-based curriculum in the high-rise building industries. *Journal of Arts Management, 7*(3), 922–940.

Wetsanarat, N. (2021). Soft skill competency development to enhance competitiveness of Thai incentive travel industry. *RICE Journal of Creative Entrepreneurship and Management, 2*(1), 53–65. https://doi.org/10.14456/rjcm.2021.24