Program Development for Enhance Teachers' Competencies for Managing Logistics and Supply Chain in Institutions under the Office of the Vocational Education Commission

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Abstract

This research purposes 1) to study teachers' competency in logistics and supply chain in vocational institutions, 2) to investigate teacher competencies in logistics and supply chain, and 3) to create and develop programs, 4) to strengthening teachers' competencies in logistics and supply chain. This research and development approach was separated into 3 phases; 1) teachers' competency in logistics and supply chain by experts; 2) requirement needs to develop the competency of teachers in logistics and supply chain in education institutes by experts and 3) applying the program for developing teachers' complacencies in logistics and supply chain. The sample group were 144 people, and 23 indicators of teacher competency, 2) Study current conditions revealed that teacher's competency as a whole at a whole highest and overall need was at an average level with (PNImodified) 0.36, 3) the results of creating and developing a teacher competency program for logistics and supply chain management in educational institutions the Vocational Commission contents, 4) development methods, and 5) program evaluations. The overall evaluation of the program was suitable, feasible, and useful. The results of the teacher competency shown; 1) knowledge, competence, the efficiency of the practice process/efficiency of knowledge outcomes with an average percentage of 93.01/92.83, which is higher than 80/80 criterion set and, 2) after development knowledge is higher which is equal 0.9014, which meant gaining more knowledge at 90.14 percent when applying with the target group before using the program, mean values of the teachers ($\bar{X}$=3.30, S.D.=0.50) and after using the program, the logistics and supply chain management was at the highest level.

Keywords: program, teacher competency enhancement, logistics and supply chain management

1. Introduction

Globalization has been affected intensely from the businesses opposition. In addition, trade liberalization has affected to the business segment, need to upgrade their capability to conduct business as well as the progression of technology, communication, and transportation, achieving to the movement of production factors, both goods and investment services capital and skilled labor. Consequently, logistics management is an important goal that businesspersons use to generate chances and reasonable compensations. In the ASEAN Economic Community, the role of logistics formations in Thailand has enlarged free competition, which logistics advances are not enough for the capable labor and the quantity is not enough for the logistics business part. Hence, Ministry of Education policies and strategies have been recognized for education reform in the development of vocational education in strengthening the country's supportable development with the teamwork of all sectors in the production of logistics manpower that is still uncommon and is required in the contemporary labor market.

To meet the needs of the establishment, there are curriculum development and teacher development workers to support data and knowledge in their explicit areas and remain to produce quality manpower with a specialized competence. Though, the report study of the Office of the National Economic and Social Development Board shows that the quality of developments in this field is unquestionably the quality of the teachers of the above-mentioned corrections. While the curriculum has been advanced to have cooperation with creativities. If teachers who teach logistics do not have proficiency in teaching and learning management or knowledge transfer to learners, the quality

of the learners will not see the needs of the establishment and will produce manpower in amount over quality forever. Additionally, ability to develop logistics management to strive with foreign countries affects the economic wealth of Thailand.

Thus, the researcher is interested in developing a digital leadership development program for school administrators of the primary education service area office by applying the concepts of the development program of Barr and Keating (1990); Houle (1996); Suwimon Vongvanich (2015); Chantarasombat and Meekhamtong (2019) is a model or structure for developing digital leadership development programs for school administrators for the development of digital leadership of school administrators

2. Research Questions

- What are the components and indicators of teacher competency of the Department of Logistics and Supply Chain Management of educational institutions?

- What are the recent conditions, desirable conditions, and needs for teacher competency of the Department of Logistics and Supply Chain Management of educational institutions?

- What should be created and developed as a program to enhance teacher competency in the logistics management and supply chain?

- What are the results of implementing a program to enhance teacher competency in the Logistics Management and Supply Chain

3. Research Objective

- To study the components and indicators of teacher competency in the Department of Logistics and Supply Chain Management of educational institutions

- To study current conditions, desirable conditions, and the need of teacher competency development in School Logistics and Supply Chain Management

- To create and develop a program to enhance teacher competency in Logistics Management and Supply Chain

- To study the results of implementing the teacher competency-building program in the Department of Logistics and Supply Chain Management of educational institutes

4. Research Framework

Developing Logistics and Supply Chain have conceptual framework; 1) the competency in Logistics Management and Supply Chain, 2) the components of the program, 3) Using program in Logistics Management and Supply Chain, show in figure 1.

5. Research Methodology

5.1 The Researcher Divided Methods

The teachers' competency in Logistics and Supply Chain management, educational institutions Vocational.

- The study of documents and research on the study of components and indicators of teachers' competency

- The assessment of the appropriateness of components and indicators of teachers' capability

- The group of informants evaluated the suitability of components and pointers of teachers' competency in world management of informative institutions acquired by purposive sampling, 7 people were measured.

5.2 Researching Tools

- The component data analysis table and teacher competency indicators in Logistics and Supply Chain Management of the educational institution.

- The suitable evaluation form of components and indicators of teacher competency in world management, there is a rating scale of 5 levels (Rating Scale) with a reliability index between .80 - 1.00. index between .80 - 1.00.
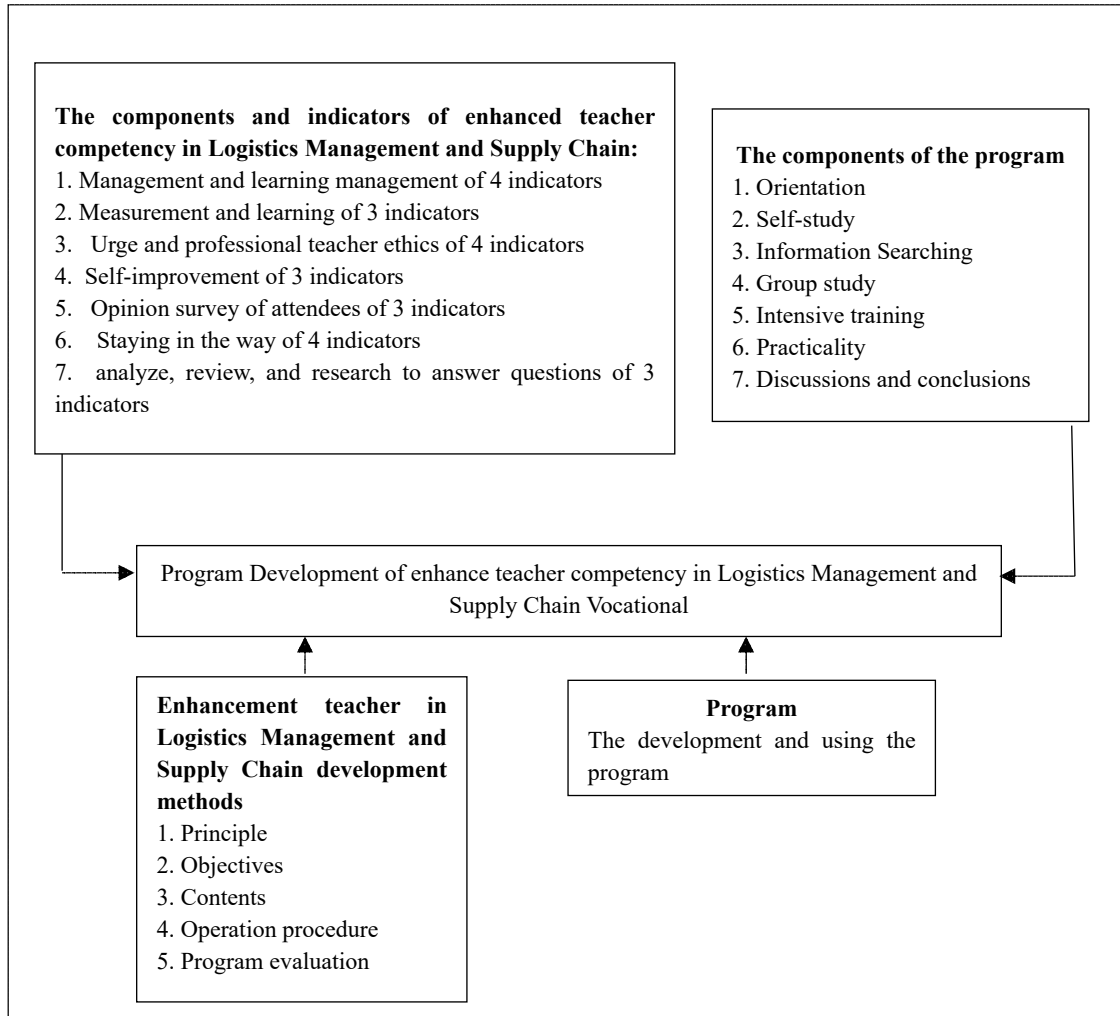
The components and indicators of enhanced teacher competency in Logistics Management and Supply Chain:

1. Management and learning management of 4 indicators
2. Measurement and learning of 3 indicators
3. Urge and professional teacher ethics of 4 indicators
4. Self-improvement of 3 indicators
5. Opinion survey of attendees of 3 indicators
6. Staying in the way of 4 indicators
7. analyze, review, and research to answer questions of 3 indicators

The components of the program

1. Orientation
2. Self-study
3. Information Searching
4. Group study
5. Intensive training
6. Practicality
7. Discussions and conclusions

Program Development of enhance teacher competency in Logistics Management and Supply Chain Vocational

Enhancement teacher in Logistics Management and Supply Chain development methods
1. Principle
2. Objectives
3. Contents
4. Operation procedure
5. Program evaluation

Program
The development and using the program

Figure 1. Developing Logistics and Supply Chain Have Conceptual Framework to Enhance Teacher Competency in Logistics Management and Supply Chain the Conceptual

5.3 Data Analysis

- Investigating the data on components and performance indicators for teachers in Logistics and Supply Chain Management of educational institutions

- Analyzing the data on the suitable assessment form of components and presentation indicators for teachers to find mean (Mean) and the standard deviation (Standard Deviation).

5.3.1 The Necessary Conditions the Development Teacher Competency in Logistics and Supply Chain Management

5.3.1.1 Population and Sample

- Population: Logistics and Supply Chain management teachers in the academic year 2022, 150 colleges, 230 students

- The sample group was 144 students of Logistics and Supply Chain management, the Academic Year 2022. The sampling group was determined using the criteria according to the Krejcie and Morgan table using the stratified random sampling method of educational institutions. The Office of the Vocational Education Commission was the tier in the sample group.

- The research tools were the current situation questionnaire, desirable conditions for teacher competencies. It is a 5-level rating scale (Rating Scale), which has a reliability index between .80 - 1.00, and Cronbach's Alpha

Coefficient is .99.-

5.3.1.2 Data Analysis

- To examine current conditions, and desirable conditions, the basic statistics are frequency (Frequency), percentage (Percentile), mean (Mean), and standard deviation (Standard Deviation).

- To analyze the necessary needs data using the Modified Priority Needs Index

(PNImodified) formula of Suwimon Vongvanich (2015).

- To arrange the needs of teacher competencies by sorting the index of necessary needs from the most to the least.

5.3.2 Teacher Competency-building in Logistics and Supply Chain Management the Vocational

- Information obtained from phase 1– 2, the results of the necessary needs assessment were used as questions for the interviews with school administrators that had practical methods for developing teachers' competency.

- Drafting reviewing teacher competency programs in Logistics and Supply Chain Management of the conducting a focus group discussion, evaluating the using the situations.

5.3.2.1 Informant Group

• The group of informants in the interview were educational institute administrators who had the best practices for developing teacher competencies obtained by purposive selection (Purposive Sampling); 1) the director of Udon Thani Education Center, 2) the director of Northeastern Vocational Education Institute 1, and 3) the director of Nong Khai Vocational College.

• The group of informants conducted a focus group discussion on drafting and reviewing the draft model by evaluating from 9 experts on the program and its manual and obtained by purposive sampling based on specified qualification criteria.

5.3.2.2 Research Tools

• The best practices interview form for developing teachers' competency with outstanding practices (Best Practices) was semi-structured (Semi-Structured Interview).

• Program evaluation forms and manuals for teacher competency building programs, there is a rating scale of 5 levels (Rating Scale) with a consistency index between .80 - 1.00.

5.3.2.3 Data Analysis

• The information obtained from the interviews were compiled, organized, and summarized by content analysis.

• Analyzing the data of the model evaluation form and the manual of the model, including the mean (Mean) and the standard deviation (Standard Deviation).

5.3.3 The Teacher Competency-building Programs Logistics and Supply Chain Management Institutes

- A Use of teacher competency building program by obtained the data in phase 3 to conduct the program trial with a sample group of teacher's behaviors satisfaction towards teacher competency programs.

- A Group that tried out the program was the Logistics and Supply Chain management teachers at Udon Thani Technical College. Under Vocational 11 people obtained purposive sampling and voluntarily participated in the development.

5.3.3.1 Research Tools

• 7 Modules of Program Manual; 1) Module 1 Curriculum Administration and Curriculum Development, 2) Module 2 Learning Assessment and Evaluation, 3) Module 3 Ethics and Teacher Code of Conduct, 4) Module 4 Self-Development, 5) Module 5 Innovation and Information Technology in Education, 6) Module 6 Classroom Management, and 7) Module 7 Analysis, Synthesis and Research for Student Development.

• Behavior evaluation form for teacher competency building program, there is a rating scale of 5 levels (Rating Scale), Cronbach's Alpha Coefficient, equal to .99.

3.3 In Logistics management the competency program, there is a rating scale of 5 levels (Rating Scale), Cronbach's Alpha Coefficient, equal to .98.

5.3.3.2 Data Analysis

• Analyzing the behavioral assessment data about management teacher competency program, the basic statistics were

used were frequency (Frequency), percentage (Percentile), mean (Mean), and standard deviation (Standard Deviation) t-test. (Boonchom, 2011)

• Analyzing the satisfaction questionnaire data of teachers in Logistics management toward the teacher competency building program are (Frequency), (Percentile), (Mean), and (Standard Deviation). (Boonchom, 2011)

$$E_1 = \frac{\sum X/N}{A} X100 \qquad \text{(Chaiyong, 2013)}$$

$$E_2 = \frac{\sum F/N}{B} \times 100 \qquad \text{(Chaiyong, 2013)}$$

6. Research Results

6.1 Components and Indicators Teacher Competency in Logistics and Supply Chain Management

- Components indicators for enhancing teacher competency in Logistics and Supply Chain management consisted 7 components 23 indicators; 1) 4 indicators of the Curriculum administration and learning management, 2) 3 indicators for measuring and evaluating learning outcomes, 3) 4 indicators of ethics and professional ethics of teachers, 4) 3 indicators of self-development, 5) 3 indicators of the class management, 6) 3 indicators of analysis Synthesis.

- Assessment results of the suitability of components and indicators for enhancing teacher competency in Logistics and Supply Chain management by 7 experts, found that it was appropriate.

The results of the study of up-to-date conditions, the desirable and necessary conditions for the development of teachers' competencies were found that the overall current condition was at a moderate level ($\overline{X}$ =3.30, S.D.= 0.31). The overall desirable condition was at the highest level ($\overline{X}$ =4.53, S.D.= 0.21), and the results of the assessment of necessary needs showed that the necessary needs index (PNI modified) of teacher competency improvement was 0.36 when considering each aspect.

It was found that the feature with the highest needs index was curriculum administration and learning management (PNI modified = 0.52), followed by analysis, synthesis, and research for student development (PNI modified = 0.50), teachers, and management. Classroom (PNI adapted = 0.38), Ethics and Professional Conduct (PNI modified = 0.35), Self-Development (PNI adapted = 0.34), Measurement and Evaluation of Learning (PNI modified = 0.24), and Innovation and Information Technology (PNI modified = 0.23), as detailed in Table 1.

Table 1. Mean Details, and the Order the Needs of the Condition Teacher Competency Program in Logistics and Supply Chain Management

Teacher Competency in the Logistics and Supply Chain Management	Current Condition (D)			Desirable Condition (I)			Necessity (PNI)	
	$\overline{X}$	S.D.	interpret	$\overline{X}$	S.D.	interpret	(I-D/D)	No.
1. Curriculum administration and learning management	2.93	0.37	moderate	4.47	0.28	high	0.52	1
2. Measurement and evaluation of learning	3.75	0.44	high	4.65	0.22	highest	0.24	6
3. Ethics and professional ethics of teachers	3.45	0.50	moderate	4.69	0.35	highest	0.35	4
4. Self-development	3.45	0.74	moderate	4.64	0.44	highest	0.34	5
5. Innovation and information technology in education	3.61	0.66	high	4.45	0.28	high	0.23	7
6. Class Management	3.26	0.68	moderate	4.52	0.30	highest	0.38	3
7. Analysis, synthesis, and research for student development	2.88	0.48	moderate	4.32	0.29	high	0.50	2
overview	3.33	0.31	moderate	4.53	0.21	highest	0.36	3

6.2 The Results of Creating and Developing a Teacher Competency-building in Logistics and Supply Chain Management of

- The results of creating and developing a program to enhance teacher competency in Logistics and Supply Chain Management of institutions.

Components of the management teacher competency in Logistics and Supply Chain are:

• The contents of teacher competency development activities consist 7 modules: 1) Module 1 Curriculum Administration and Curriculum Development, 2) Module 2 Learning Measurement and Evaluation, 3) Module 3 Ethics and Teacher Conduct, 4) Module 4 Self-Development, 5) Module 5 Innovation and Information Technology in Education, 6) Module 6 Classroom Management, and 7) Module 7 Analysis, Synthesis, and Research for Student Development.

- The evaluation of teacher competency building programs found that, in general, it was appropriate at a high level has a possibility, and is useful.

- Manual for implementing the teacher competency building program of the experts found that overall picture appropriate at the modules.

6.3 Use Teacher Competency-building Programs in Logistics and Supply Chain Management Are Follows:

- The results of using the teacher competency building program found that 1)

knowledge, competence, and the efficiency of the practice process/efficiency of the results were average percentages of 93.01/92.83, which was higher than the 80/80 criterion set, and 2) the had equal to 0.9014, with an increase in knowledge, representing 90.14%.

- The results of using the teacher competency building program for teachers applied target group before using the program overall, teachers had average mean values ($\bar{X}$ =3.30, S.D.= 0.50) and after using the program, the overall average values were development of teacher competency enhancement programs for teachers applied informant's target audience. It was found that overall had practical skills and when aspect had practical skills all aspects, respectively, which were practical skills activities average, had highest average level of Logistics and Supply Chain management behavior skills.

- Evaluation results teacher with the teacher competency-building program in overall, were highest level.
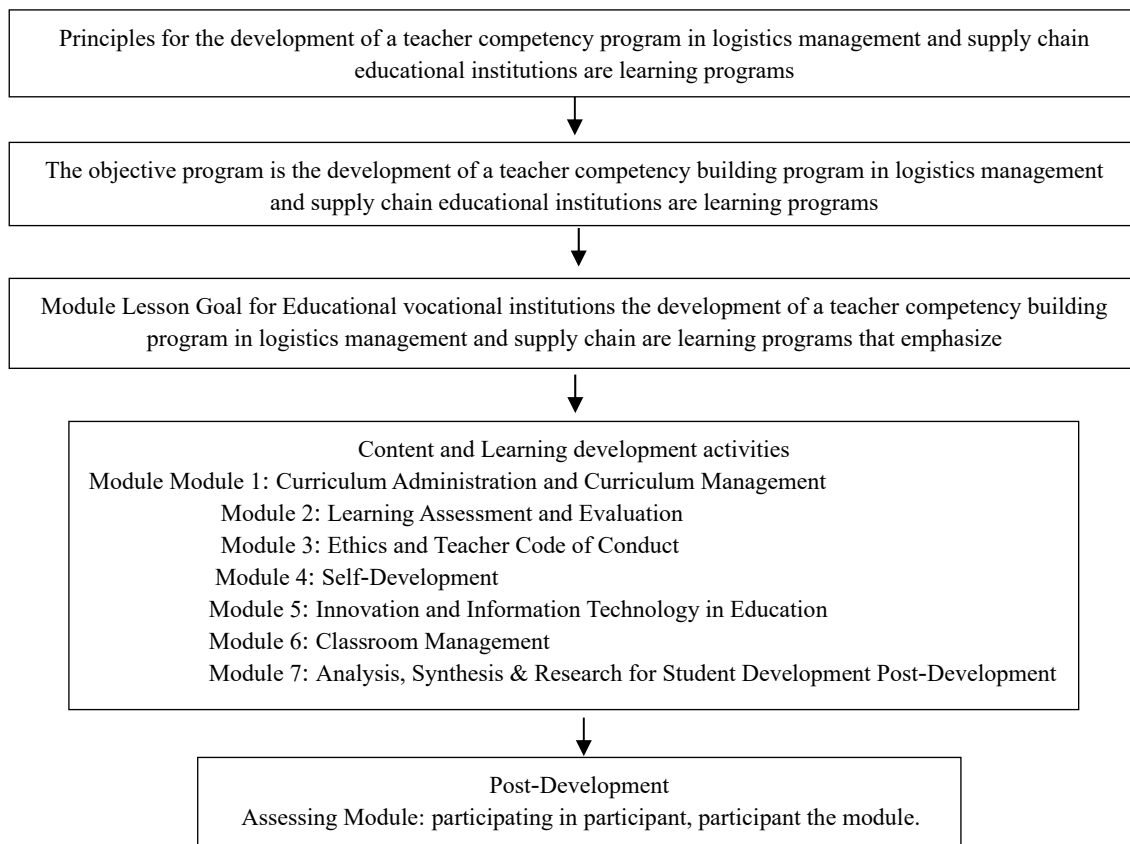
Principles for the development of a teacher competency program in logistics management and supply chain educational institutions are learning programs

↓

The objective program is the development of a teacher competency building program in logistics management and supply chain educational institutions are learning programs

↓

Module Lesson Goal for Educational vocational institutions the development of a teacher competency building program in logistics management and supply chain are learning programs that emphasize

↓

Content and Learning development activities
Module Module 1: Curriculum Administration and Curriculum Management
Module 2: Learning Assessment and Evaluation
Module 3: Ethics and Teacher Code of Conduct
Module 4: Self-Development
Module 5: Innovation and Information Technology in Education
Module 6: Classroom Management
Module 7: Analysis, Synthesis & Research for Student Development Post-Development

↓

Post-Development
Assessing Module: participating in participant, participant the module.

Figure 2. The Learning Programs that Emphasize Learning by Allowing Users Learning by Themselves

From this research the researcher discovered new the development of a teacher competency building program in and

supply chain educational institutions were the learning programs by allowing users learning by themselves as in Figure 2.

From figure 2, the researchers exposed a new body of knowledge, the development of a teacher competency program in logistics management and supply chain educational institutions are learning programs that emphasize Components of the management teacher competency building program consist of contents, methods, evaluations.

7. Discussion

7.1 Study Teacher Competency Enhancement from the Synthesis Relevant Documents and Research

There were 7 elements and 23 indicators of teacher competency; 1) 4 indicators of the curriculum administration and learning management, 2) 3 indicators of measurement and evaluation of learning outcomes, 3) 4 indicators of ethics and professional ethics of teachers, 4) 3 indicators of self-development, 5) 3 indicators of innovation and information technology in education, 6) Classroom Management. There were 3 indicators and 7) Synthesis Analysis. There were 3 indicators. And for enhancing teacher competency in Logistics and Supply Chain Management by qualified experts, appropriate result this study may be due to the researcher having studied and analyzed, synthesized, systematic elements, starting from the literature review which related both domestically and internationally. In addition, there were interviews and studies from educational institutions, which have an excellent practice method, making all 7 elements important and necessary for enhancing teachers' competencies to organize learning processes and learner development with maximum efficiency and effectiveness. Chanokphon Juthasang (2016) conducted research regarding teachers' competencies under Office for it was found that it components, 30 confirmed by was inconsistent with research results of Thanasak Charoentham (2018) has studied a science promote critical among secondary school. It was found that comprising 6 components, 38 indicators, was appropriate.

7.2 Current Conditions, to Develop Teachers' Competencies Components of Management Teacher Competency Building Program in Logistics and Supply Chain the Consist Contents, Methods, Evaluations

7.2.1 The Current Condition of Teacher Competency in Logistics and Supply Chain Management as a Whole was at a Moderate Level

1) The current condition of teacher competency whole was at a moderate level in 1) measuring and evaluating, 2) planning, designing, building, and developing tools, 3) systematic data collection and evaluation results. The lowest average is analysis, synthesis, and research to develop learners, this may be due to the different curriculum. This can be seen that when the era changes, the curriculum used to develop students will be improved, including the old curriculum that has been developed and new courses shaped and there are many other factors. These will have a direct effect on the specialist, especially, when teachers are disorganized. They do not understand and still observe to former teaching methods, so it was hard to lead the procedure of developing learners to accomplish success. Consequently, teacher development is the heart of education quality development. Accordingly, the results of the study of the current situation, teacher competency in Logistics and Supply Chain management temperately consistent with the research of Kanjana Chantayotha (2018) which showed research on teacher development program by applying the idea of a specialized learning community for teachers in inquiry-based science learning management for educational institutions. The results showed that the current condition of science learning management by searching for knowledge for educational institutions as a whole was at a moderate level.   Chalermpol Supanyabutr (2019) has studied the development of a teacher competency-building program for proactive learning management under the office of the Secondary Education Service Area Office 24. It was found that the current state of proactive learning management overall was at a moderate level.

7.2.2 For Teacher Competencies overall, it Found that Aspect with the Average was Ethics and Professional Ethics, Consisting of 4 Aspects

The desirable circumstances for teacher competencies in Logistics and Supply Chain management generally, it was at the highest level. It was found that the feature with the highest average was morals and professional ethics, containing of 4 aspects; 1) behavior, 2) religious principles behaviors, and 3) having love, mercy, and goodwill toward people learning, discipline and responsibility and 4) creating unity among the faculty. This may be due to management teachers in Logistics and Supply Chain demonstrating the importance and need to develop teaching competencies. The results of the study of the desirable conditions for teachers in Logistics and Supply Chain Management are at the highest level, related to Chavalit Paranan (2017) who conducted research on the development of teacher development programs by applying the concept of a professional learning community. The learning design encourages analytical thinking was at the highest level.

7.2.3 The Teacher Competency Needs in Logistics and Supply Chain Management

It was found that the highest needs index was curriculum management and learning management. This may be due to teachers who may see that the teaching and learning process having knowledge and understanding of curriculum administration and learning management. Learning does not only allow learners to see the concreteness of what the teacher teaches, enhancing the knowledge and understanding of the learners to be clearer and easier, and also increase the atmosphere of organizing interesting learning activities, encouraging students to participate in activities. In addition, the students have fun in learning. Donchit Phuchomphol (2020) investigated a teacher in academic matters. The Kalasin Elementary School Region 2. The results showed that the index of needs necessary for enhancing teacher competency in academics is classroom research, learning management and classroom management. Regarding curriculum administration and learning management, found that the most necessary aspect is the use of media, innovation, and technology for learning management, followed by curriculum creation and development, learning design Measurement and evaluation of learning outcomes.

7.3 The Results of Creating and Developing a Teacher Competency-building Program in Logistics and Supply Chain Management the Structure Program Consisted Development Methods, Contents of Competency Development Activities are 7 Modules, 70 Hours.

The results of making and developing a teacher competency-building program in Logistics and Supply Chain Management of the educational institutions. The construction of the program consisted of 5 components; 1) Principles, 2) Objectives, 3) Contents, 4) Development Methods, and 5) Evaluation. The contents of competency development activities are 7 modules, 70 hours; 1) Module 1 Curriculum Management and curriculum development, 2) Module 2 Measurement and Evaluation of learning outcomes, 3) Module 3 Ethics and Code of Conduct for Teachers, 4) Module 4 Self-Development, 5) Module 5 Innovation and Information Technology in Education, 6) Module 6 Classroom Management, and 7) Module 7 Analysis, Synthesis and Research for Learner Development. The results from the program evaluation section were found that the generally program was suitable to have an opportunity and was valuable at the highest level. This was because the researcher has considered the concept and principles, related documents and research to obtain a program with activities. It was an applied self-improvement training until the efficiency and efficiency in line with the concept of Fulen and Hargreaves (1992), who gave the meaning of how to develop teachers as an activity personnel development or personal development (Individual Development) can be done by 1) Training, 2) Education, and 3) Self-development in line with political science research Panich Pongsaphak (2016). The development of a competency building program for curriculum administration and learning management of teachers in private elementary schools was studied. The results of the research showed that the results of the evaluation by specialists were supportive possibility and suitability at the highest level related to Sunet Thongpho and others, who conducted on the development of innovative leadership enhancement programs for school administrators under the Office of Primary Educational Service Area found that the development of innovative leadership development programs for school administrators from the experts overall is an appropriate possibility and useful. The program consisted of 1) principles, 2) objectives, 3) goals, 4) contents of development activities, and 5) program evaluation. The Innovative Leadership Program has 5 modules; 1) Innovative Creativity, 2) Innovative Learning, 3) Innovative Change Vision, 4) Innovative Participatory Teamwork, and 5) Continuous Supervision. Nueang (Sunet Thongpho et al. 2022).

7.4 The Teacher Competency-Building Program Logistics and Supply Chain Management the Institutions Found that, Teacher Competency Enhancement Program in Efficiency (E1/E2) of the Operational Process/efficiency of Knowledge Outcomes with an Average Percentage of 93.01/92.83 Meeting the Established 80/80 Criterion

This is probably the result of the researcher studying the curriculum of relevant research papers in creating the learning module and reviewing it with expert advice. According to the research results, the learning module on fostering innovative the service office that was developed and assessed, the overall quality. When it was appropriateness usefulness at conditions while performing observing, making advantages and limitations to be developed periodically, making the created learning modules more complete when used with the study sample resulting in effective innovation. Suchitra Inruangsri, investigated on students at the diploma level of the technical results showed lesson modules principles, reasons, aims, and basic knowledge, preliminary Evaluation of learning activities, post-school assessment, and remedial learning effective according to criteria (83.88/85.96) (Sujitra Inruengsri, 2011). In this regard, the index of the effectiveness of the program development of Area was equal to 0.9014 or 90.10 percent, which Chalard and others had researched regular raise the level academic achievement of Northeast. Under Basic who is regular teacher school northeast a total 122 people. Roles and responsibilities of the primary investigator research assistant was a memorandum of cooperation of the network team at the school level

following the needs, learning reform for students of full-time as a whole implementation of results were 90.70/84.58, (2) percent average: The training has effectiveness index knowledge the equal to knowledge increasing by (Chalard Chantarasombat et al., 2018).

7.4.1 The Teacher Competency Enhancement Behaviors in Logistics and Supply Chain Management after Receiving the Program Development Was Higher

The findings of this research may be because some parts of the teacher competency development were not realized or less attention to the development of teaching competency and has not been implemented in a systematic way that can develop teachers' competencies because there is no clear development program when implementing a teacher competency program, according newly developed manual. The evaluation results after using the program are higher than before using the program, Wasan Sornkeaw studied the professional competency of digital process technicians to develop professional competencies of digital prepress technicians and developed a training package of professional standard competencies for digital pre-printing technicians. That the sub-competencies with the level of need needed to develop were ranked from the highest to the lowest; 1) production of double-color printmaking or more than that, 2) basic image color adjustments, and 3) image content adjustments, then designing 12 digital prepress technician professional standard competency training modules. The results and evaluation of digital prepress technician professional competency training modules of participants training. It was found that the scores from the test after the performance training were significantly higher than the test scores before the performance training. Kotchaphat Sanguankrua (2019) has conducted on the teacher competency building program research findings were as follows: there was before the development, representing 57.22 percent, and an average score after the development of 25.47, representing 84.89 percent.

7.4.2 The Teachers' Satisfaction with Teacher Competency Programs in Overall

The teachers' satisfaction with teacher competency programs in Logistics and Supply Chain management. It was highest level. This may be because the program is implemented in a systematic, step-by-step, manner and the teachers have cooperated well. Related to Boyle (1981), and Boone (1992) stated that the outcomes of cooperation between program participants and program developers in the implementation of various activities are requirements analysis, planning, plan creation, organizing activities, public relations operations, evaluation, reporting, and responsibility for the program are in line with the research results. Thananan Deeying (2015) stated that the teacher competency development program at the basic education level in terms of measurement and assessment. The results found that teachers' satisfaction with the teacher competency development program at the basic education level in terms of measurement and evaluation in the classroom was at the highest level. In addition, Chalard Chantarasombat, Nothai Udomboonyanuphap and Naruchai Kenchaiwong have regular in the Innovation Elevate regular in the Innovation Elevate region, the basic regular teachers who participated in the project training were satisfied with project and who studied modules school Master of Education Thailand. It was using institutes master's degree to experiment with the target group with module also (Chantarasombat and Rooyuenyong, 2020).

8. Suggestion

8.1 General Recommendations

- The school administrators or those involved in teacher development of the lead teacher competency-building programs can be used adapting to for efficiency.

- The school administrators or those involved in implementing teacher competency-building programs develop teachers in educational institutions. The teacher competency program should be consulted in detail and complete all activities in the case of a group activity. The users can practice individually but must follow the activities in the order of steps in the user manual to achieve full efficiency. In addition, user's creators.

8.2 Suggestions Further

- Should be research and development on teacher competency-building programs in other fields, Vocational should add details measurement and evaluation to be comprehensive.

- There should be a comparison of teacher competency programs in Logistics and Supply Chain management between educational office.

Acknowledgement

References

Barr, M. J., & Keating, L. A. (1990). Introduction: Elements of Program Development. In M.J. Barr, Keating and Associates. *Developing effective Students Service program*. San Francisco: Jessey L.A.-Bass.

Boone, M. (1992). *The Impact of Leadership Behavior of the Superintendent on Restructuring Rural*. Texas: Abstracts from: ERIC Database: ERIC NO: 354115. Boyle, P.G. 1981. Planning better programs. New York: Mc Graw-Hill.

Boonkear, P., Chantarasombat, C., & Prasertphorn, V. (2023). The development of a creative leadership program for school administrators. Primary Educational Service Area Office**.** *Journal of Social Sciences and Culture*, *7*(3), 182-199, March 2023.

Brahmawong, C. (2013). Efficiency Testing of Media or Teaching Packages. *Silpakorn Education Journal*, *5*(1), 7-19.

Chandawong, T. (2018). *The development of a science teacher development program in learning management to promote thinking*. Critical high school students. Mahasarakham University.

Chanokphon, J. (2016). *Development of a program for enhancing learning management competencies. Under the office Promote non-formal education and informal education*. Thesis Doctor of Education Department of Administration and Educational Development. https://doi.org/10.5897/ERR2016.2700

Chantarasombat, C., & Meekhamtong. P. (2019). The Development of Leader Teachers Development Program in Thai Management for Enhancing Critical Thinking of Students in Secondary research and Development for implementation of development program to develop teachers to be Scholls in Educational Administration Seminar Course for Master Degree Students Majoring in Educational Administration. *Educational Research*, *10*(1), 10-20.

Chantarasombat, C., & Rooyuenyong, W. (2020). The Development of Learning Module of Educational Administration and Educational Institute for Students in Master of Education Degree in Thailand. *World Journal of Education, 10*(3), 19-32. https://doi.org/10.5430/wje.v10n3p19

Chantarasombat, C., Udomboonyanupab, N., & Songsri, J. (2018). The Innovation development of for Enhancing the learning Performance of school under Nakhon Panom Primary Educational Service area Office 2. *Journal of Education. Mahasarakham University, 12*(3), 18-35.

Chantarasombat, C., Udomboonyanuphap, N., & Kenchaiwong, N. (2018). Potential development. Regular Teachers' Teaching: An Innovation Project Enhances Learning Achievement of Educational institutions in the Northeast region Under the Office of the Basic Education Commission. *Journal of Education*, *Mahasarakham University, 12*(2), 54-69.

Charoentham, T. (2018**)**. *The development of a science teacher development program in learning management t*o *promote critical thinking among high school students*. Doctoral Education Thesis Department of Education Administration and Development Faculty of Education. Mahasarakham University.

Deeying, T. (2015). Teacher competency development program at the basic education level in measurement and Assessment in class. *Journal of Silpakorn Education Research, 7*(1), (January-June 2015).

Houle, C. (1996). *The Design of Education*. San Francisco: Jossey-Bass Publishers.

Kaklung, C. (2014). *The Development of a Service-Oriented Leadership Program for Administrators of Degree Education Institutions, Doctor of Education.* Department of Administration and Educational Development.

Mahasarakham University.

Lumpapiwat, S. (2016). *Has studied the development of a model for professional teacher competency development. In accordance with national skill standards*. Faculty of Industrial Education King Mongkut's University of Technology North Bangkok.

Maha Sarakham: Mahasarakham University. Donchi Phuchomphol. (2020). The development of a program to enhance academic teacher competency. Under the office of the Educational Service Area Office Kalasin Khet Primary Education 2. *Mahamakut Buddhist University Journal Roi Et Campus*, *9*(2), 154-157.

Meesuk, P. (2009). *Research on professional development of Ph.D*. Bangkok: Chulalongkorn University.

Nuammano, C. (2019). The Development of an Internal Supervision Model for Teacher Competency Development in English Learning Management for Secondary Schools in the Northeastern Region. *Saeng Isaan Academic Journal*, *1*(2), 10-14. https://doi.org/10.2139/ssrn.3547093

Panit, R. (2016). *The development of a competency building program for curriculum administration and learning management of private elementary school teachers*. Thesis, Ph.D. Mahasarakham University, Mahasarakham.

Parapan, C. (2017). *The development of a teacher development program by applying the concept of a professional learning community for learning design that promotes critical thinking of learners*. Doctoral Education Thesis Department of Education Administration and Development Faculty of Education Administration. Mahasarakham University.

Pettai, C. (2020). Development of Learning Management Competency Program for Primary Education Teachers under the Office of the Basic Education Commission. *Journal of Buddhist Social Sciences and Anthropology*, *5*(11), 178-183.

Phiphat, Y. (2010). *The development of a teacher-leader development program for learning management according to Guidelines for basic education reform*. Thesis for Doctor of Education in the field of Leadership in Educational Administration, Graduate School Sakon Nakhon Rajabhat University**.**

Pilaiwan, M. (2022). The Development of Teacher Competency Building Program for Curriculum Administration and Learning Management in Educational Institutions. *Under the Maha Sarakham Provincial Vocational Education Office*, *16*(3), 55-61.

Raha, A. (2017). *The development of a teacher development program for learning management*. Using the brain as the base (BBL) of schools under the Office of Roi Et Primary Educational Service Area. Education Administration Faculty of Education. Mahasarakham University.

Sanguankrua, K. (2019). *Program for enhancing teacher competency in proactive learning management according to the STEM approach*. Under the Office of the Basic Education Commission. Doctoral Education Thesis Department of Education Administration and Development. Faculty of Education, Mahasarakham University.

Srisa-ard, B. (2011). *Preliminary research* (9th ed.). Bangkok: Suwiriyasan Company Limited. Education Mahasarakham University.

Supanyabutr, C. (2019). The Development of Teacher Competency Building Program in Proactive Learning Management. Under the Office of the Secondary Education Service Area. *Saeng Isaan Journal Mahamongkutklao. University Northeast Campus, 16*(2), 273-277.

Thongpho, S., Chantarasombat, C., & Prasertphorn, V. (2023). Development of an innovative leadership enhancement program for school administrators. Primary Educational Service Area Office. *Journal of Social Sciences and Culture*, *7*(3), 82-102.

Vongvanich, S. (2015). *Classroom Action Research*. Bangkok: Chulalongkorn University Press.