Interdisciplinary Research Review
Volume 18, Number 3, Pages 1 – 7

Develop a roving team network process supporting competency-based production for quality teachers in the early childhood education program: A case study of Chiang Mai Rajabhat University

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Abstract

The first objective of this research was to investigate the process of the roving team supporting competency-based production of quality teachers. The key informants were 10 administrators and eight faculty lecturers from Rajabhat Universities. Data collection was conducted based on the design thinking (DT) methodology using a meeting record form. The obtained data were analyzed through content analysis and the self-assessment of 64 pre-service teachers by a self-assessment questionnaire. The statistics used were mean and standard deviation. The second objective was to study the competency-based production process of quality teachers. The key informants were three faculties, five in-service teachers as mentors, and five representatives of pre-service. The data were collected based on the Deming Cycle (PDCA) and analyzed by analytic induction and content analysis. The third objective was to develop the network of the roving team supporting the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University. Data were collected based on lessons learned. The instruments used were a meeting record form, a record form for the research field, a self-evaluation form, and a meeting record form for lessons learned. Data were analyzed by mean, standard deviation, analytic induction, and content analysis. The results were as follows: 1) the process of the roving team network supporting the competency-based production of quality teachers consisted of empathy, ideation, implementation, and evaluation; 2) the competency-based production process of quality teachers consisted of plan, do, check, and act; and 3) the network development of the roving team supporting the competency-based production process of quality teachers in the early childhood education program was able to extend the knowledge based on CCR for the design learning management of the competency-based production process to develop pre-service teachers.

Keywords: roving team network, competency-based production, quality teachers, early childhood education program, Chiang Mai Rajabhat University

Article history: Received 22 August 2022, Revised 02 April 2023, Accepted 07 April 2023

1. Introduction

W. Sudsomboon [1] studied the utilization of competency-based education in the context of differences and change. The study pointed to giving learners the knowledge, abilities, and attitudes to empower them to realize and solve complicated problems in their major of research or future work and proposed that CBE was interesting to learn and how it could be utilized in tackling the difficult issues, which were considered vital. Competency-Based Education (CBE) emphasized knowledge application, problem-solving, and stimulation. Additionally, the effective realization of CBE intensely depended on the instructors, who were anticipated to give up their part as "knowledge transmitters" and embrace the modern parts of "coach" and "instructional designer."

In line with the report studying the status of production and development of teachers in Thailand, the Office of the Education Council (ONEC) [2] revealed that the uninterrupted improvement and development of teachers' knowledge and competence were essential issues because the instructors' knowledge and instructors' teaching abilities would influence learners' learning results as a social expectation. The educational qualification systems in countries such as Finland, Singapore, and Japan focused on practicing and studying continuously after accessing professional teaching. Active and improved studying applied knowledge and skills appropriate to the real instructing condition. Practicing and studying continuously after accessing an occupation were becoming increasingly significant. In the context of the global changes towards the new era, modern students' abilities expectations and teachers were also required to improve their knowledge and teaching approaches to studying towards modern stu-

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dents' abilities expectations.

Previously, Casey [3] distinguished features of competency-based education in terms of pedagogy. In the study, academic knowledge was prioritized with a focus on deep understanding as well as mathematical and language proficiency. Transferable skills allowed people to apply learning to problem-solving, complex reasoning, meaningful goals, and lifelong learning, which was meant to prepare students to be independent, self-directed learners for the rest of their lives. Competency-based systems went beyond the confines of the academically focused criteria of student achievement.

It is believed that a "Competency-Based Curriculum" is one way to improve the quality of national education, help the country pass the middle-income trap, and create graduates who can work to meet the requirements of the manufacturing and service sectors with a focus on learning results driven by labor market needs. Therefore, the instructional administration of educational institutions had to be connected to the market for labor through curriculum development, instructional management, measurement, and evaluation by collaborating among the educational institutions and network schools. Therefore, competency-based production of quality teachers was used for changing the 5-year production of teacher students to a 4-year production of teachers so far in 2019. In conclusion, the development of pre-service teachers' characteristics should have three skills: knowledge, profession, and spirit, through the concept of contemplative education that leads to a truly self-understanding, intellectual, and spiritual knowledge.

For the implementation of competency-based production of quality teachers to achieve the bachelor's degree qualifications and professional learning standards set by the Teachers Council of Thailand. Integrated learning based on Contemplative education (C), Coaching and Mentoring (C), and Research-based Leaning (R) was a collaborative network agreement of the Deans of the Faculty of Education, Rajabhat Universities, and Teachers' Colleges. Therefore, Rajabhat Universities had agreed with the Research Fund Office to launch the research and development project of the competency-based production process of quality teachers at the Faculty of Education, Rajabhat Universities.

The early childhood education program a the Faculty of Education, Chiang Mai Rajabhat University, had a duty to play an essential role in organizing the roving team to assist the competency-based production process of the instructors' qualification using the CCR according to the Rajabhat University Act B.E. 2547 (2004) [4], which determined the purposes of giving instruction, improving comprehensive and skills, giving lessons, investigating, giving academic administrations to society, making advancement, exchanging, and creating innovation, keeping up expressions and culture, producing instructors, and improving the academic standing of instructors in the 7th. student section. Therefore, the university was required to strengthen the instructional profession, produce, and develop teachers and educational personnel for the particular quality and standard of progressed professions, and facilitate, participate in, and assist universities to achieve the objectives.

2. Research Questions

2.1 What is the process of the roving team supporting the competency-based production of quality teachers in the early childhood education program at the Faculty of Education, Rajabhat University?

2.2 What is the process of competency-based production of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University?

2.3 What is the development network of the roving team supporting the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University?

3. Research Objectives

3.1 To investigate the process of the roving team supporting the competency-based production of quality teachers in the early childhood education program at the Faculty of Education, Rajabhat Universities.

3.2 To study the process of competency-based production of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University.

3.3 To develop the network of the roving team supporting the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University

4. Materials and Methods

The research process was divided into three phases as follows:

Phase 1: Investigate the process of the roving team supporting the competency-based production of quality teachers in the early childhood education program at the Faculty of Education, Rajabhat Universities.

The roving team consisted of 30 university administrators and eight faculty lecturers in the early childhood education program at the Faculty of Education of eight Rajabhat Universities, namely, Phra Nakhon Si Ayutthaya, Chiang Mai, Suan Sunandha, Udon Thani, Sisaket, Nakhon Si Thammarat, Nakhon Ratchasima, and Nakhon Pathom, for a total of 38 participants. This research project studied the competency-based

production process of quality teachers based on CCR guidelines during the academic year 2019–2020.

The research instrument used was a record of the research field visit of the roving team supporting the competency-based production of quality teachers.

The data collection was conducted based on the design thinking (DT) methodology. Data were analyzed by content analysis to generate and develop ideas divided into four sections as follows:

Section 1 Empathy: The roving team supporting competency-based production framed the problem statement in the research field.

Section 2 Ideation: The roving team organized a meeting on the process of supporting competency-based quality teachers in the early childhood education program according to integrated learning based on the CCR. Data were collected by observing, meeting, discussing, and sharing ideas, as well as brainstorming on all issues.

Section 3 Implementation: The roving team shared the story by describing the situation to the appropriate relevant parties and launching the ultimate solution to the project by providing integrated learning based on the CCR of the early childhood education program.

Section 4 Evaluation: The roving team provided a self-assessment questionnaire to inquire about the understanding based on the CCR and the reflection concerning teachers' learning management.

The self-assessment questionnaire and the reflection form were distributed to the 64 first-year pre-service teachers of the early childhood education program, at Chiang Mai Rajabhat University who enrolled in the course EC 1303: Development of Health and Safety for Early Childhood Children in the first semester of the academic year 2021 to inquire about their understanding of the CCR.

The collected data were analyzed by mean, standard deviation, and content analysis.

Phase 2: Study the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University.

Key informants were three faculty lecturers, five in-service teachers as mentors, and five representatives of pre-service students in the network schools in the early childhood education program, for a total of 13 informants.

The research instrument used was a meeting record form of a workshop according to Deming Cycle (PDCA).

The data collection was conducted based on the Deming Cycle (PDCA) to study the competency-based production process.

Data were analyzed and classified into the PDCA system.

Phase 3: Develop the network of the roving team supporting the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University.

The key informants were three lecturers on the roving team supporting the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University, and faculty lecturers in the early childhood education program at the Faculty of Education or Teachers' College.

The research instrument used was a meeting record form for lessons learned from a roving team network supporting the competency-based production process of quality teachers according to integrated learning based on the CCR in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University.

The data collection was conducted via a meeting with the Zoom application to inquire about the results of the development and lessons learned from the roving team based on CCR.

The collected data were analyzed using analytic induction and content analysis.

The research framework was shown in Figure 1 below.

5. Results and Discussion

The research process was divided into three phases, as follows:

Phase 1: Results of investigating the roving team process supporting the competency-based production of quality teachers in the early childhood education program at the Faculty of Education, Rajabhat Universities, according to the design thinking (DT) methodology, consisted of 4 steps as follows:

1.1 Regarding the step of empathy, the roving team framed the problem statement in the research field by observing three faculty lecturers who had experience in the field of early childhood education and the CCR research project since the first year. It was found that they understood the context, roles, and duties with experience and knowledge in the early childhood education program, including the actual CCR research project. In addition, the two faculty lecturers also had the role of researchers in the CCR research project of the Rajabhat universities. Therefore, the process of roving team network support was not only practical but also provided access to the "mind" of the practitioners. This showed the principle of building relationships that were truly academic friendships.

1.2 In the step of ideation, the roving team used the obtained data from observing supporting academics who played a role in collaborative thinking by attending to the collaborative discussion and research design according to CCR and analyzing the context of each Rajabhat University.

1.3 Regarding the step of implementation, the roving team shared the story by describing the situation

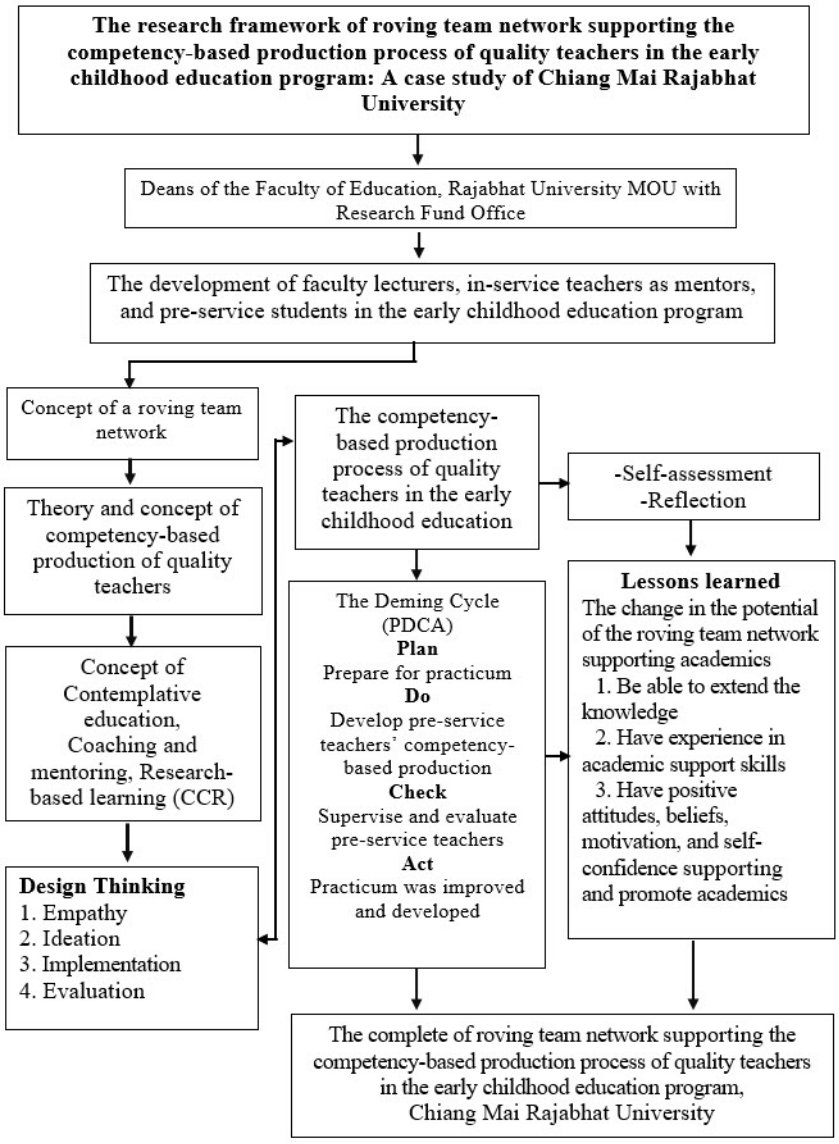

Figure 1: The research framework

to the appropriate relevant parties and launching the ultimate solution to the project and provided the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University, for the 64 first-year pre-service teachers who enrolled in the course EC 1303: Development of Health and Safety for Early Childhood Children in the first semester of the academic year 2021, according to the Learning Management Plan (TQA.3).

1.4 In the step of evaluation, after 64 first-year pre-service teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University, finished the program, the roving team distributed a self-assessment questionnaire to 64 pre-service teachers to investigate their understanding of integrated learning based on CCR before, during, and after the development of CCR, as shown in Table 1.

From Table 1, the results of the self-assessment of pre-service teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University, concerning the understanding of integrated learning based on CCR were indicated as follows:

Before the development of integrated learning based on the CCR, the understanding of pre-service teachers was overall at a low level ($\bar{X}$ = 1.97, S.D. = 0.40). When considering each aspect, it was found that contemplative education, research-based learning, and coaching and mentoring were at a low level, respectively.

During the development of integrated learning based on the CCR, the understanding of pre-service teachers was at a high level ($\bar{X}$ = 2.57, S.D. = 0.38) overall in specific aspects.

After the development of integrated learning based on the CCR, the understanding of pre-service teachers

Table 1. Results of investigating self-assessment before, during, and after the development of CCR

Self-assessment	Before development			During development			After development		
lists	$\bar{X}$	S.D.	Level	$\bar{X}$	S.D.	Level	$\bar{X}$	S.D.	Level
Contemplative education (C)	1.96	0.40	Low	2.57	0.38	High	2.94	0.38	High
Coaching and Mentoring (C)	1.96	0.39	Low	2.57	0.38	High	2.87	0.38	High
Research-based Learning (R)	1.98	0.40	Low	2.57	0.38	High	2.82	0.38	High
Average	**1.97**	**0.40**	**Low**	**2.57**	**0.38**	**High**	**2.89**	**0.38**	**High**

was overall at a high level ($\bar{X}$ = 2.86, S.D. = 0.38). When considering each aspect, it was found that the CCR was at a high level.

Moreover, the 64 pre-service teachers reflected on the teachers' learning management as follows:

1.4.1 In terms of Contemplative Education (C), pre-service teachers were eager to know and to learn through inquiry-based learning, enthusiastic working, taking responsibility for the tasks assigned to them, as well as developing a positive attitude towards themselves and learning. In addition, pre-service teachers accepted others' opinions, trusted them, and were confident in themselves. The suggestion was that there should be video clips to create an understanding of contemplative listening through a conversational aesthetic method before attending the course.

1.4.2 In terms of Coaching and Mentoring (C), pre-service teachers gain knowledge and understanding concerning the teaching and learning process. With this knowledge gained in the course, pre-service teachers could consult with lecturers when they encountered problems during teaching and learning management activities and work assignments. Moreover, pre-service teachers had a variety of channels through which to receive advice. It was suggested that additional clarifications were needed to build mutual understanding.

1.4.3 In terms of Research-Based Learning (R), pre-service teachers understood the study and the learning process according to the Contemplative Education, Coaching and Mentoring, and Research-based Learning (CCR) learning management model. The suggestion was that the early childhood education program should have documents that can be used as a source for further study.

Concerning the investigating results of the roving team process supporting the competency-based production of quality teachers in the early childhood education program at the Faculty of Education, Rajabhat University, according to the design thinking (DT) methodology, consisted of 4 steps as follows: 1) empathy, 2) ideation, 3) implementation, and 4) evaluation. This is similar to the research and development of teacher preparation process and enhancement by integrating CCR learning in Rajabhat Universities' Faculties of Education in the Eastern Part of Central Thailand: A second-year project of Toontong, et al. [5]. This research revealed that: 1. the teacher preparation process and enhancement consisted of: 1.1) the creation of awareness, 1.2) development of knowledge, 1.3) mentoring, 1.4) knowledge sharing, and 1.5) lessons learned. 2. The outcomes of the study were that: 2.1) the instructors managed to learn activities, and supervised learning by using coaching, 2.2) the student teachers' learning achievement was over 80%, which means they had the qualities of being teachers and were able to do classroom action research at a high level, and 2.3) the teacher mentors' learning achievement was 79.17%, which means they were able to supervise student teachers by using coaching at a very high level.

Similarly, Lomarak Nuansai [6] studied the professional development process integrated with CCR for in-service teachers at Buriram Rajabhat University, and the research findings revealed that in-service teachers could study by collaborating in the professional improvement seminar. They also understood their roles as supervisors, and the role of teachers as learners in a professional learning community, and in-service teachers understood how to combine the professional improvement process with CCR to improve their expertise and ability in instructional management.

Phase 2: Results of studying the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University, according to the Deming Cycle (PDCA) concept, consisted of:

2.1 Plan: Have a meeting among lecturers as supervisors, in-service teachers as mentors, and pre-service teachers to prepare for practicum.

2.2 Do: Develop teachers' competency-based production by dividing them into 3 phases as follows:

2.2.1 Faculty as supervisors, in-service teachers as mentors, and pre-service teachers registered for practicum in the competency-based production process of quality teachers based on CCR.

2.2.2 Have a workshop to clarify and understand before a practicum participate in the research field.

2.2.3 Pre-service teachers did practicum according to the competency-based production process of quality teachers based on CCR.

2.3 Check: Faculty lecturers as supervisors, and in-service teachers as mentors supervised and evaluated

pre-service teachers.

2.4 Act: Results were used to improve and develop the practicum.

Furthermore, the results of studying the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University based on the Deming Cycle (PDCA) concept were consistent with Supising, et al. [7], who studied the practicum model development for professional educational administration in the digital era, the process of studying concerning problems, guidelines for the solution, and supporting factors. The practicum for professional educational administration consisted of: 1) Plan (P) referred to the readiness preparation, building knowledge and understanding, explanation of objectives, consulting, work planning, the cooperation in guidelines of working, and plan to check, 2) Do (D) referred to the coordination and creating a friendship with practicum sectors, performing duties as assigned, team working, volunteering, and working to achieving objectives/goals, 3) Check (C) referred to the summary of work, supervision, follow-up, and evaluation by faculty supervisors, mentors, or assigned persons, and 4) Act (A) referred to the operational improvement, correction, work improvement, achievement analysis, and the use of digital technology to help in supervision, monitoring, evaluation, and extension.

However, this research result was different from the finding of Lemtrakul, et al. [8], which claimed that goals, concepts and theories, principles, procedures, output, outcome, and impact of academic reinforcement were guidelines to improve procedures to develop teacher education.

Phase 3: Regarding the results of network development of the roving team supporting the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University, the changes in the potential of the roving team network supporting the competency-based production process were as follows:

3.1 The roving team network was able to extend the knowledge of integrated learning based on CCR for the design learning management of the competency-based production process to develop pre-service teachers.

3.2 The roving team network had experiences in academic support skills such as being a lecturer as a resource person in training, being a mentor, being a coach, organizing learning exchange activities, providing lessons learned process, as well as the supervision and follow-up of the operations based on the competency-based production process.

3.3 The roving team network had positive attitudes, beliefs, motivation, and self-confidence to support and promote academics for the development based on the competency-based production process.

3.4 The roving team network was able to apply the CCR to the development based on the competency-based production process.

In conclusion, concerning the results of network development of the roving team supporting the competency-based production process of quality teachers in the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University, the changes in the potential of the roving team network supporting the competency-based production process were able to extend the knowledge based on CCR for the design learning management of the competency-based production process to develop pre-service teachers.

Similarly, Thaitae [9] defined the roving team as a group of knowledgeable persons, who have skills and expertise in supervision as well as being ready to help those who required supervision quickly and keep up with the demand.

In addition, Bhiromrat, Wairup, Chongcharoen [10] found that the supervisors, mentors, and students all had the highest level of teaching qualifications and knowledge in learning management based on CCR approaches. Moreover, the supervisors and mentors had the highest level of CCR coaching capacity, and the students had the highest level of CCR learning management.

6. Conclusion

Since the implementation of the roving team network supporting the competency-based production process of quality teachers in the early childhood education program, Faculty of Education, Chiang Mai Rajabhat University, faculty lecturers as supervisors have had a fundamental change in themselves through knowledge and understanding of their own consistent with reality and a positive attitude towards oneself and others. The derived experience in academic support skills makes them a resource person in the complete teachers' training process and able to provide lessons learned. In-service teachers as mentors can have the ability to coach and influence changes in knowledge and understanding. Therefore, pre-service teachers can organize learning exchange activities using integrated learning based on CCR and self-development.

7. Recommendations

7.1 There should be the same understanding and operation of the roving team in each university.

7.2 There should be collaboration in each region to reflect similar teaching and learning contexts.

7.3 There should be support for CCR to develop soft skills for pre-service teachers.

8. Recommendation for Further Research

8.1 In the other programs, there should be research on the competency-based production process of quality teachers.

8.2 There should be follow-up research on the continuity of the roving team, lecturers as supervisors, in-service teachers as mentors, and pre-service teachers using integrated learning activities based on CCR.

Acknowledgment

Thank you to the early childhood education program at the Faculty of Education, Chiang Mai Rajabhat University, Rajabhat University's network, and the Research Fund Office for supporting this research.

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