

Developing Using Knowledge Skills of The First Year Students' Early Childhood Education of Faculty of Education Rajabhat Rajanagarindra University by A Training Curriculum for Promote Using Knowledge Skills

¹Prakobkul Narkpitak ²Phibun Tanyabut and ³Pannarai Subseandee

¹Rajabhat Rajanagarindra University, ²Rangsit University, ³Rajabhat Chandrakasem University, Thailand

¹ Email: prakobkul.04@gmail.com, ^{2,3} Email: tagadanew2@gmail.com

Received January 2, 2024 **Revised** February 10, 2024; **Accepted** March 26, 2024

Abstract

The purposes of this research were 1) to develop the training curriculum to enhance using knowledge skills for the first-year students those major in Early Childhood Education study at Rajabhat Rajanagarindra University 2) to study its effectiveness. The subjects were 17 the first-year students those major in Early Childhood Education of Faculty of Education, Rajabhat Rajanagarindra University, they were purposively selected. The research instruments comprised of 1) a training curriculum of using knowledge skills for the first-year students those major in Early Childhood Education of Faculty of Education, Rajabhat Rajanagarindra University, 2) A knowledge skills test. The data was statistically analyzed by mean, standard deviation, and t-test (t-test for Dependent Means). The research findings were:

1) The training curriculum of using knowledge skills for the first-year students studying in Early Childhood Education major of Faculty of Education, Rajabhat Rajanagarindra University, consisted of rationale, principles, curriculum objectives, training periods, contents, training activities, learning materials, assessment and evaluation, and curriculum documents, such as training manuals for instructors, and training manual for trainees. The evaluation of curriculum quality in terms of the appropriateness of the curriculum elements showed that the appropriateness of the curriculum was at a high level.

2) The training curriculum effectiveness on subjects' using knowledge skills after training was higher than before training. Differences were statistically significant at .05, and subjects' using knowledge skills after training was higher than 80 percent of defined criteria. Differences were statistically significant at .05.

Keyword: Training Curriculum; Using Knowledge Skills; The students those major in Early Childhood Education.

Introduction

The rapid and dynamic changes in the global landscape, encompassing economic, social, demographic, energy, environmental, scientific, and technological dimensions, have profoundly impacted nations worldwide. Amidst the intensifying forces of globalization, characterized by the unfettered movement of people, capital, technology, information, news, and knowledge, countries face heightened economic competition and the unregulated exploitation of natural resources, leading to environmental degradation and a decline in overall human well-being. Moreover, a plethora of complex social issues have emerged, further exacerbating the challenges faced by nations. Thailand, like many other countries, is grappling with the consequences of these profound transformations, both internally and externally. The pace of change is accelerating, becoming increasingly intricate and difficult to predict. While Thai society has demonstrated a growing resilience, it remains insufficient to effectively manage the impending challenges of the future.

The National Economic and Social Development Plan No. 12 (2017-2021) emphasizes the imperative of enhancing Thailand's competitiveness amidst intensifying global competition. However, the nation faces several formidable challenges, including a relatively low level of human capital. A significant portion of the workforce lacks adequate knowledge, skills, and positive attitudes. Moreover, the prevalence of social inequities and a lack of overall social quality hinder Thailand's developmental potential.

An analysis of the changing landscape and development trajectories of Thailand reveals that the nation's progress and ability to compete on the global stage hinge upon its citizens' thinking capabilities. Recognizing this pivotal role, Thailand's educational frameworks, including the Early Childhood Education Curriculum BE 2560, the Basic Education Core Curriculum BE 2551, and the National Higher Education Qualifications Framework, all emphasize fostering thinking skills and equipping learners with the cognitive competencies essential for success in the 21st century.

As aptly articulated by Prapansiri Suthasaraj (2556: 5), "thinking skills are indispensable for human existence, enabling individuals to effectively navigate the complexities of life, make sound decisions, and thrive in an era of rapid technological advancements and heightened global competition." Cultivating a foundation in thinking skills and nurturing critical thinking among children and youth is of paramount importance. Thinking skills serve as a robust shield against the challenges of an intricate and ever-evolving society, empowering individuals to become lifelong learners, adept problem solvers, capable decision-makers, and effective competitors in a dynamic world.

Thailand's educational frameworks recognize the transformative power of thinking skills and place a strong emphasis on their development throughout the learning journey. The Early Childhood Education Curriculum BE 2560 cultivates curiosity, creativity, and critical thinking from an early age, laying the groundwork for future cognitive growth. The Basic Education Core

Curriculum BE 2551 further develops these essential skills, equipping students with the ability to analyze, synthesize, and evaluate information, as well as to formulate and communicate their thoughts effectively. The National Higher Education Qualifications Framework builds upon this foundation, preparing graduates with the advanced thinking skills necessary to excel in their chosen fields and contribute meaningfully to society.

The dynamic and ever-evolving nature of the education landscape necessitates a paradigm shift in the preparation of future educators. In this regard, the cultivation of critical thinking skills among pre-service teachers emerges as an indispensable component of their professional development. This aligns with the National Higher Education Standards Framework, which emphasizes the graduates' ability to analyze situations and apply their knowledge, understanding of concepts, principles, theories, and various thinking and problem-solving processes when confronted with unexpected new situations. Critical thinking, in its essence, represents a complex cognitive skill that empowers individuals to engage in reasoned judgment, evaluation, and interpretation of information. The cultivation of thinking skills is paramount to fostering intellectual growth and empowering individuals to navigate the complexities of modern society. In this regard, the categorization of thinking skills proposed by Tisanai Kaemmani and colleagues (2004) provides a valuable framework for understanding and promoting effective instruction. Their comprehensive model identifies three distinct categories of thinking skills. The ability to apply knowledge (using knowledge skill) is the culminating skill of core thinking skills, serving as a foundation for the development of more complex thinking abilities. Recognizing the importance of this skill, the present study aimed to explore the status of knowledge application skills among early childhood education freshmen at Rajabhat Rajanagarindra University. To achieve this objective, the researchers surveyed both faculty members and students, gathering their perspectives on the matter. The findings revealed that both groups identified summarizing, categorizing, comparing, and identifying as skills that require significant improvement among freshmen. These results underscore the need to address the shortcomings in knowledge application skills and provide students with the necessary support to enhance their abilities.

Research objectives

1. To develop a Training Curriculum for enhancing knowledge application skills for first-year early childhood education students in the Faculty of Education, Rajabhat Ratchaburi University.
2. To evaluate the effectiveness of the Training Curriculum for enhancing knowledge application skills for first-year early childhood education students in the Faculty of Education, Rajabhat Ratchaburi University.

Literature review

The development of effective training programs for early childhood education (ECE) students is crucial to equip them with the necessary skills to apply their theoretical knowledge to real-world classroom settings. This requires a comprehensive understanding of the existing body of knowledge related to curriculum development, thinking skills, knowledge application skills, learning theories, and training methodologies. This literature review aims to synthesize and analyze relevant research findings to identify the knowledge gap and demonstrate the significance of the proposed study in addressing this gap.

1. Curriculum Development

Curriculum development is a complex and dynamic process that involves the selection, organization, and presentation of learning experiences to achieve specific educational goals (Taba, 1976; Tyler, 1950). Oliva (2007) highlights the importance of considering various factors, such as student needs, societal demands, and subject matter content, in the curriculum development process. Skilbeck (1986) emphasizes the role of curriculum as a means to promote social change and prepare students for the future. Saylor and Alexander (1981) discuss the significance of aligning curriculum with learning objectives and assessment measures. Lewis (2006) underscores the need for a balanced curriculum that addresses both academic and personal development.

2. Thinking Skills and Knowledge Application Skills

Thinking skills are essential for ECE students to effectively process information, solve problems, and make informed decisions (Marzano et al., 1999). De Bono (1996) advocates for fostering lateral thinking skills to encourage creative and unconventional approaches to problem-solving. Fisher (2001) emphasizes the importance of teaching critical thinking skills to enable students to evaluate information and arguments effectively. Thithana Kaemmani and colleagues (2012) highlight the role of metacognitive skills in self-monitoring and regulating one's learning process. Thupthong Kwangswasdi (2013) discusses the significance of developing problem-solving and decision-making skills for effective knowledge application.

3. Learning Theories and Theories of Mind

Learning theories provide valuable frameworks for understanding how individuals acquire and retain knowledge. Information processing theory suggests that learning involves encoding, storing, and retrieving information (Reigeluth & Dismukes, 2009). Constructivist theory emphasizes the active role of learners in constructing their own understanding through interactions with the environment (Fosnot & Goodman, 2009). Gardner's theory of multiple intelligences (1983) proposes that individuals possess different cognitive strengths and intelligences that should be considered in teaching and learning. Cooperative learning theory highlights the benefits of collaborative learning environments in promoting knowledge acquisition and social development (Johnson & Johnson, 1989).

4. Training Methodologies

Effective training methodologies play a crucial role in enhancing knowledge application skills among ECE students. Training should be based on clear objectives and aligned with the specific needs of the target audience (Burke & Reardon, 1997). A variety of training techniques can be employed, including lectures, discussions, case studies, simulations, and hands-on activities (Kirschner, Sweller, & Clark, 2006). The selection of appropriate techniques should consider factors such as the learning style of the participants and the complexity of the content being taught (Tripp & Bichelmeyer, 1990).

5. Knowledge Gap and Significance of the Study

The existing literature provides a rich foundation for understanding curriculum development, thinking skills, knowledge application skills, learning theories, and training methodologies. However, there is a lack of research that specifically examines the effectiveness of training programs for enhancing knowledge application skills among ECE students in the Thai context. This study aims to address this knowledge gap by investigating the impact of a Training Curriculum designed to develop students' ability to translate theoretical concepts into practical teaching strategies, design and implement developmentally appropriate learning experiences, and create a supportive and responsive learning environment. The findings of this study have the potential to contribute to the improvement of ECE teacher training programs in Thailand, leading to better prepared and more effective early childhood educators.

Summary of Literature Review

The literature review has demonstrated a comprehensive understanding of the key concepts related to curriculum development, thinking skills, knowledge application skills, learning theories, and training methodologies. It has also identified a knowledge gap in the area of training programs for enhancing knowledge application skills among ECE students in Thailand. This study aims to address this gap by investigating the effectiveness of a Training Curriculum designed to develop students' ability to apply their theoretical knowledge to real-world classroom settings. The findings of this study have the potential to make significant contributions to the field of ECE teacher education.

Conceptual Framework

This research study aims to develop a training curriculum to promote the knowledge application skills of first-year early childhood education students at Rajabhat Rajanagarindra University. The conceptual framework draws inspiration from several key theories and concepts. The details are as follows.

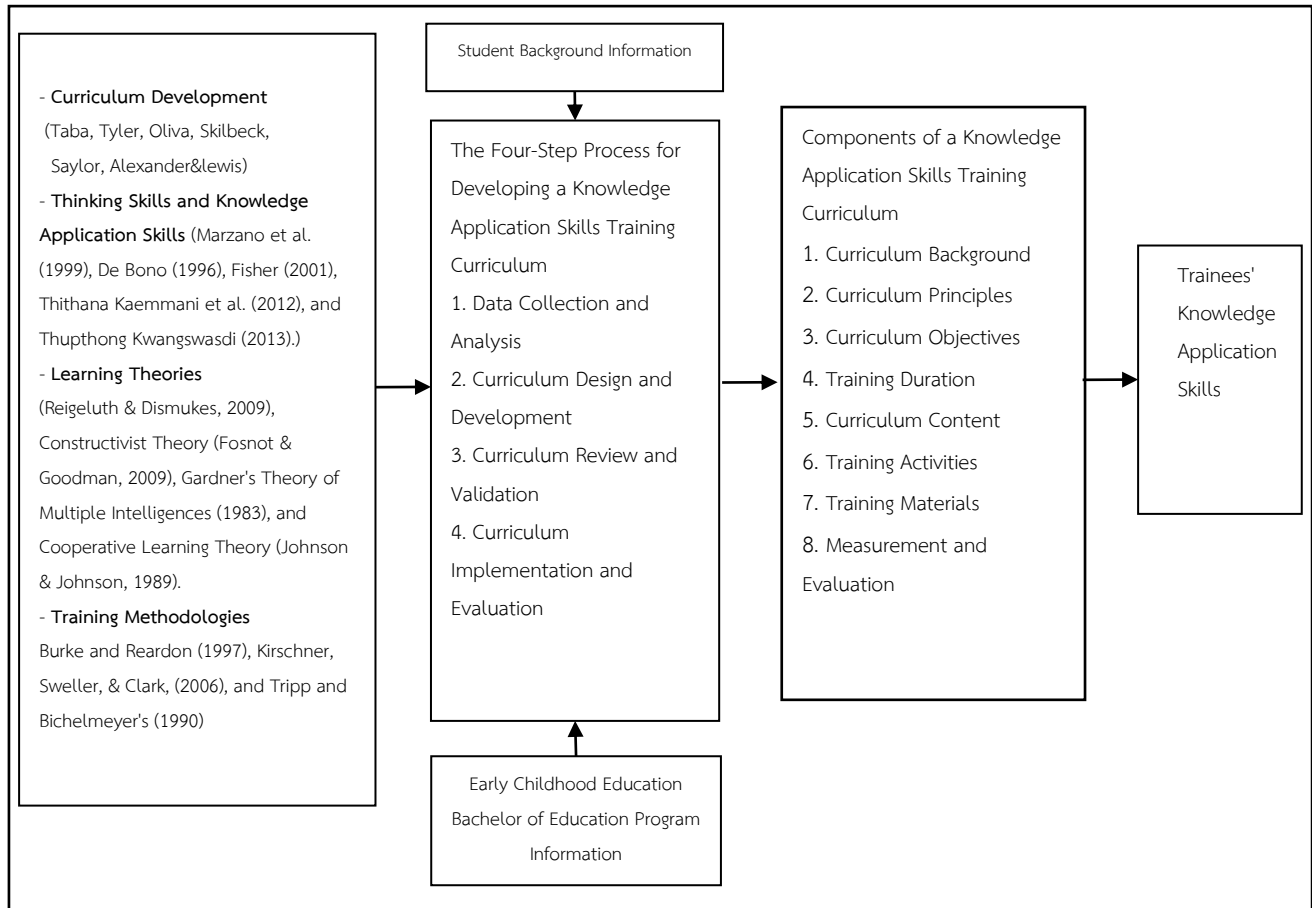


Fig.1 Conceptual Framework

Research Methodology

Population and Sample

The population of this study is first-year early childhood education students at Rajabhat Rajanagarindra University in the academic year 2021. The total population is 26 students.

Sample

The sample of this study is first-year mathematics students at Rajabhat Rajanagarindra University in the academic year 2021 who have a high level of the skills necessary for developing knowledge application skills (the difference between the current state and expectations is higher than the average of the total difference). The sample size is 20 students, selected using a specific sampling method.

Research Instruments

1. Knowledge Application Skills Training Curriculum for First-Year Early Childhood Education Students at Rajabhat Rajanagarindra University

2. Knowledge Application Skills Test

Instrument Development and Quality Assurance

1. Curriculum Development and Quality Assurance for Knowledge Application Skills Training for First-Year Early Childhood Education Students at Rajabhat Rajanagarindra University

The knowledge application skills training curriculum was developed through a rigorous process that involved the following steps:

1.1) Defining Curriculum Objectives: Two primary objectives were established for the curriculum: Enhance participants' knowledge and understanding of thinking skills and knowledge application skills. Equip participants with effective knowledge application skills.

1.2) Content Selection and Organization: The curriculum content was carefully selected and organized based on the findings from the data analysis phase of the study. The content was aligned with the curriculum objectives and focused on developing participants' thinking skills and knowledge application abilities. The curriculum was divided into 10 units, each incorporating activities designed to foster effective thinking skills as outlined by Blagg, Ballinger, Gardner, Petty, and William (1988) (cited in Thupthong & Kwangswasdi, 2011).

1.3) Selection and Organization of Learning Experiences: Diverse learning experiences were carefully selected and organized to enhance participants' engagement and understanding of the curriculum content. These experiences included a variety of instructional activities, such as lectures, discussions, case studies, simulations, and hands-on activities.

1.4) Assessment and Evaluation Methods: Appropriate assessment and evaluation methods were developed to measure participants' learning progress and the effectiveness of the curriculum. These methods included pre- and post-tests, formative assessments, and summative assessments.

1.5) Curriculum Documentation: The curriculum was comprehensively documented, including detailed descriptions of the curriculum objectives, content, learning experiences, assessment methods, and instructional materials. This documentation ensured the consistency and quality of the curriculum implementation.

Validation of Draft Curriculum and Course Documents The researcher conducted a thorough validation process to ensure the suitability of the draft curriculum and accompanying course documents. Here's a breakdown of the procedures: **Appropriateness Assessment.** **Expert Review:** A panel of five experts reviewed the draft materials. This panel included two experts in curriculum and instruction, two experts in analytical thinking, and one expert in educational research or assessment and evaluation. **Assessment Form:** Experts used an appropriateness assessment form with a 5-point Likert scale (most appropriate, very appropriate, moderately appropriate, slightly appropriate, least appropriate) to evaluate the materials. Scoring criteria were weighted as follows: 5 (most appropriate), 4, 3, 2, 1 (least appropriate). The assessment form demonstrated a high level of consistency, with item scores ranging between .80 and 1.00.

2. Knowledge Application Skills Test

Test Development and Validation the Knowledge Application Skills Test was developed using a rigorous process to ensure its validity and reliability. Here's an overview of the development and validation procedures: **Test Format:** The test is a multiple-choice format with

five answer choices for each of the 30 questions. It was designed to measure participants' knowledge application skills before (pre-test) and after (post-test) the training intervention.

Content Validity: Expert Review: Five experts (2 curriculum and instruction specialists, 2 analytical thinking specialists, and 1 educational research/assessment specialist) assessed the alignment between the test items and the curriculum objectives using an appropriateness assessment form. Their feedback and suggestions were used to refine the test content. **Index of Item Objective Congruence (IOC):** The IOC value was calculated, and all items achieved a value of 1.00, demonstrating a high level of content validity.

Trial Administration: The test was administered to a pilot group of 20 first-year Thai language teaching students who were not part of the experimental sample group.

Reliability and Item Analysis: Kuder-Richardson Formula 20 (KR-20): The KR-20 formula was used to calculate the internal consistency (reliability) of the test.

Item Difficulty (p): The difficulty level of each item was analyzed.

Discriminatory Power (r): The ability of each item to differentiate between high-performing and low-performing students was examined.

Expert Review: Experts provided additional feedback and suggestions to further improve the test.

Finalization: Based on the results of the item analysis and expert feedback, the test was revised and finalized for use in the study.

Data Collection

The experimental procedure consisted of the following steps:

1. **Pre-test:** Participants' knowledge application skills were assessed before the training intervention using the Knowledge Application Skills Test developed for the study.
2. **Training Intervention:** The Training Curriculum was implemented as per the developed curriculum.
3. **Post-test:** Participants' knowledge application skills were assessed again after the training intervention using the same Knowledge Application Skills Test as the pre-test.

Data Analysis

The data collected from the pre-test, post-test, and post-test comparison with the 80% criterion were analyzed using the following steps: **Descriptive Statistics:** The mean (\bar{x}) and standard deviation (S.D.) were calculated for the pre-test and post-test scores. **Inferential Statistics: Paired-Samples t-test:** The paired-samples t-test was used to compare the pre-test and post-test scores to determine if there was a significant difference in participants' knowledge application skills after the training intervention. **Significance Level:** The significance level was set at .05.

Research Results

1. Development of a Knowledge Application Skills Enhancement Training Curriculum for Early Childhood Education Students the Developed Training Curriculum for early childhood education students at Rajabhat Rajanagarindra University comprises the following curriculum components: Background of the Curriculum: Introduces the rationale and context for the training program. Principles of the Curriculum: Outlines the guiding principles that underpin the training program. Curriculum Objectives: Clearly defines the specific learning outcomes that the Training Curriculum aims to achieve. Duration of the Curriculum: Specifies the total training time and how it is distributed across sessions. Curriculum Content: Outlines the detailed topics and concepts to be covered in the training program. Training Activities: Describes the various interactive learning experiences that will engage participants during the training. Training Materials: Lists the specific resources and materials that will be used to support the training sessions. Assessment and Evaluation: Explains the methods and procedures for measuring participants' learning progress and evaluating the overall effectiveness of the training program. Training Schedule: Provides a detailed timetable outlining the sequence and duration of each training session. Curriculum Documents: Includes additional supporting documents such as a training manual for facilitators and a participant handbook. Curriculum Evaluation: The developed curriculum underwent a thorough evaluation process to ensure its suitability and effectiveness. A panel of experts assessed the various components of the curriculum, including the curriculum outline, training materials, and assessment methods. The evaluation results indicated that the curriculum components were deemed highly appropriate, with average scores ranging from 4.15 to 4.36. The evaluation also highlighted the positive feedback received for both the facilitator and participant training manuals.

2. Knowledge Application Skills of Early Childhood Education Students Pre- and Post-Training Comparison The knowledge application skills of early childhood education students at Rajabhat Rajanagarindra University were assessed before and after the training intervention using a paired-samples t-test. The results indicated that the participants' knowledge and application skills significantly improved after the training, with a mean score increase from 11.17 before training to 24.82 after training. This statistically significant difference ($p < 0.05$) supports the research hypothesis. Comparison with the 80% Criterion The post-training knowledge application skills of the participants were further compared to the 80% criterion using a paired-samples t-test. The results revealed that the participants' skills significantly exceeded the 80% criterion, with an average score of 24.82 and a standard deviation of 0.87. This statistically significant difference ($p < 0.05$) again supports the research hypothesis.

Discussion

Discussion of Curriculum Development Curriculum Components and Evaluation The developed Training Curriculum for early childhood education students at Rajabhat Rajanagarindra University encompasses the following curriculum components: Background of the Curriculum Principles of the Curriculum Objectives Curriculum Structure Training Duration Curriculum Content Training Activities Learning Materials Training Assessment and Evaluation Training Schedule Supporting Curriculum Documents: Trainer's Manual Participant Handbook The curriculum underwent a rigorous evaluation process to ensure its alignment and suitability. Experts assessed the curriculum components and found a high degree of consistency (Index of Consistency = 1.00) and overall quality (rated as "High"). This positive evaluation stems from the systematic development approach employed by the researcher, incorporating four key stages: Data Analysis and Needs Assessment: A thorough analysis of existing information and stakeholder needs was conducted to inform the curriculum design. Design and Development: The curriculum framework was carefully crafted, incorporating relevant content, learning activities, and assessment strategies. Suitability Evaluation: Subject matter experts reviewed the curriculum to ensure its appropriateness and effectiveness. Pilot Testing: The curriculum was implemented with a pilot group to gather feedback and refine its implementation strategies. Alignment with Curriculum Development Frameworks The curriculum development process adhered to established frameworks proposed by renowned educational theorists: Taba (1962): This framework emphasizes a cyclical process of curriculum development, encompassing diagnosis, design, implementation, and evaluation. Tyler (1949): This framework focuses on defining clear educational objectives, selecting appropriate learning experiences, organizing content effectively, and assessing student outcomes. Oliva (1982): This framework highlights the importance of considering learner needs, societal demands, and available resources in curriculum development. Seyler, Alexander, and Lewis (1981): This framework emphasizes a systematic approach to curriculum development, incorporating needs assessment, goal setting, content selection, organization, and evaluation. Malcolm Skilbeck (1981): This framework emphasizes the importance of curriculum design that promotes critical thinking and problem-solving skills. Alignment with Previous Research The curriculum development process also aligns with prior research findings: Chalinie Ketsaphikul (2012): This study developed a Training Curriculum for Thai language teachers to enhance their analytical thinking skills, following Taba's (1962) curriculum development framework. Wipha Thantulpong (2017): This study developed a Training Curriculum for teachers to enhance their creative writing instruction skills, integrating Taba's (1962) curriculum development framework with Chuchart Smitthikai's (2011) training curriculum development guidelines.

2. Effectiveness of the Training Curriculum Knowledge and Application Skills The effectiveness of the Training Curriculum in enhancing participants' knowledge and application skills was evaluated using a paired-samples t-test. The results indicated that the participants'

application skills significantly improved after the training compared to before the training ($p < 0.05$), supporting the research hypothesis. Additionally, the participants' application skills after the training exceeded the 80% criterion, demonstrating significant improvement ($p < 0.05$), which further supports the research hypothesis. Factors Contributing to Effectiveness The effectiveness of the Training Curriculum can be attributed to several factors: Aligned Curriculum Objectives: The curriculum objectives were carefully defined based on a thorough analysis of data and stakeholder needs, ensuring alignment with participants' learning goals. Relevant Content: The curriculum content was meticulously selected and organized to align with the defined objectives, ensuring that participants gained the necessary knowledge and skills for successful application. Appropriate Sequencing: The curriculum content was sequenced in a logical and progressive manner, ensuring that participants built upon their existing knowledge and gradually developed their application skills. Engaging Activities: The training employed a variety of engaging activities, providing opportunities for participants to actively practice and apply the acquired knowledge and skills. Alignment with Educational Theories and Research The effectiveness of the Training Curriculum aligns with the principles of renowned educational theorists: Tyler (1949): The emphasis on sequencing learning experiences to facilitate success aligns with Tyler's concept of organizing content effectively. Chuchart Smittthikai (2011): The systematic approach to training personnel development resonates with Smittthikai's emphasis on structured training processes. Consistency with Previous Research The findings of this study are consistent with previous research on Training Curriculum effectiveness: Narin Suthisak (2007): A study on developing a creative physical education Training Curriculum found significant improvement in participants' creativity scores after training ($p < 0.05$). Wipha Thantulpong (2017): A study on developing a creative writing Training Curriculum for teachers revealed significant improvement in teachers' knowledge, attitude, and writing skills after training ($p < 0.01$).

Knowledge from Research

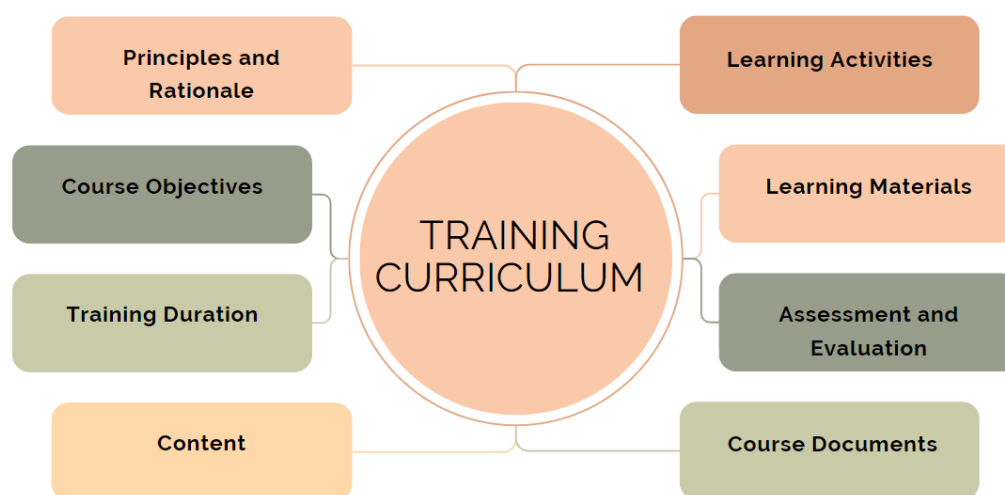


Fig.2 Knowledge from Research

Training Curriculum to Promote Knowledge and Skill Utilization for First-Year Students in Early Childhood Education

1. Program Components

This Training Curriculum consists of several important components:

Principles and Rationale: This section outlines the underlying principles and justifications for the training program. It should clearly explain the rationale behind the program's design and implementation.

Course Objectives: Clearly defined objectives should be presented, outlining the specific knowledge and skills that participants are expected to gain upon completion of the training program. These objectives should be measurable and aligned with the overall goals of the program.

Training Duration: The total duration of the Training Curriculum should be specified, including the number of hours, days, or weeks dedicated to the training activities.

Content: A detailed outline of the training content should be provided, breaking down the topics and subtopics to be covered. The content should be relevant to the objectives and aligned with the principles of early childhood education.

Learning Activities: A variety of engaging and interactive learning activities should be designed to facilitate the acquisition of knowledge and skills. These activities should cater to different learning styles and promote active participation among participants.

Learning Materials: A comprehensive list of learning materials should be provided, including textbooks, handouts, audio-visual aids, and any other resources that will be used during the training program.

Assessment and Evaluation: A clear assessment and evaluation plan should be outlined, describing the methods and tools that will be used to measure participants' progress and achievement of the learning objectives.

Course Documents: All relevant course documents, such as the training syllabus, participant handouts, and assessment rubrics, should be compiled and made available to participants.

Conclusion

The development and implementation of a training program focused on knowledge utilization in Early Childhood Education can effectively enhance students' ability to apply the knowledge gained from their studies to real-world situations. Moreover, involving students in the assessment and development of the curriculum further facilitates their ability to connect theoretical knowledge with practice.

Suggestions

1. Academic Recommendations

Align Curriculum Content with Target Group: It is recommended to carefully examine the learning objectives of each Training Curriculum and tailor the content, activities, and materials to align with the specific characteristics of the target audience. This recommendation stems from the fact that the current study involved analyzing the background information of early childhood education students in their first year at Rajabhat Rajanagarindra University. This information was then utilized in developing the training curriculum.

Incorporate Diverse Thinking Skills: It is suggested to explore the development of training programs that focus on nurturing a variety of thinking skills among participants. These skills may include questioning skills, interpretation skills, and connection-making skills. By equipping participants with these foundational higher-order thinking skills, they will be better prepared to engage in effective learning and knowledge acquisition throughout their educational journey.

2. Policy Recommendations

Expand Research on Diverse Thinking Skills Training: It is recommended to encourage further research and development of training programs that specifically target the enhancement of diverse thinking skills. This includes skills such as questioning, interpretation, and connection-making. By providing participants with these foundational higher order thinking skills, they will be better equipped for future learning and knowledge acquisition.

Conduct Long-Term Follow-Up Studies: It is suggested to conduct long-term follow-up studies to assess the impact of the Training Curriculum participants' application of the acquired skills in their professional practice. This will provide valuable insights into the effectiveness of the Training Curriculum and inform potential revisions or enhancements.

3. Practical Recommendations

Modernize Learning Materials: It is recommended to update and modernize the learning materials used in the Training Curriculum to ensure they are engaging and relevant to contemporary contexts. This may involve incorporating multimedia elements, interactive activities, and real-world examples.

Leverage Technology for Enhanced Learning: It is suggested to actively utilize technology in the development and delivery of training materials. This may include using online platforms, interactive simulations, and digital tools to enhance the learning experience and cater to diverse learning styles.

References

- Burke, J. A., & Reardon, R. C. (1997). *How to design and deliver training*. San Francisco. CA: Jossey-Bass.
- Chalinee Ketsaphikul. (2012). *Development of a Training Curriculum to Enhance Thai Language Teachers' Thinking Skills*. Ph.D. Dissertation, Bangkok: Sripatum University.
- Chanathip Prokul. (2011). *Teaching Thinking Skills: Theory and Application (2nd ed.)*. Bangkok: Chulalongkorn University.
- Chuchart Smitthikai. (2011). *Training in Organizations*. Bangkok: Chulalongkorn University.
- De Bono, E. (1996). *Six thinking hats*. New York. NY: HarperCollins.
- Fisher, R. (2001). *Critical thinking: What every student needs to know*. Upper Saddle River. NJ: Prentice Hall.
- Fosnot, C. H., & Goodman, K. W. (2009). *Constructivism: Learning from the learner*. Portsmouth. NH: Heinemann.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York. NY: Basic Books.
- Johnson, D. W., & Johnson, R. T. (1989). *Cooperation and conflict in the classroom*. Minneapolis. MN: Edina Publishing Company.
- Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist*, 41(2), 75-86.
- Lewis, C. (2006). *Curriculum development: A guide for practitioners*. Belmont. CA: Wadsworth Publishing Company.
- Marzano, R. J., Pickering, D. J., & McTighe, J. (1999). *A framework for understanding thinking skills*. Alexandria. VA: ASCD.
- Narin Suthisak. (2007). *Development of a Training Curriculum to Enhance Creativity in Physical Education among Students in Physical Education Institutions* (Ph.D. Dissertation). Bangkok: Srinakharinwirot University.
- National Council for Higher Education. (2009). *National Higher Education Qualifications Framework B.E. 2552: Guidelines for Implementation*. [Online] (2023, February 15), Retrieved from <http://www.mue.go.th/users/tqf-hed/>
- National Economic and Social Development Board. (2017). *National Economic and Social Development Plan No. 12 B.E. 2560-2564*. Bangkok: Office of the National Economic and Social Development Board. Office of the Prime Minister.
- Office of the Secretary-General of the Office of the National Education Council. (2011). *Human Resource Production and Development Strategy in the Education Reform Decade 2552-2561*. Bangkok: Prikwan Graphic Co., Ltd.
- Oliva P. F. (1982). *Developing the curriculum*. Boston: Little, Brown.
- Oliva, P. (2007). *Developing the curriculum (8th ed.)*. New York. NY: McGraw-Hill.

- Prapan Siri Suthirach. (2013). *Thinking Development (5th ed.)*. Bangkok: 9119 Printing Technique.
- Reigeluth, C. M., & Dismukes, C. H. (2009). *Theories of instructional design (3rd ed.)*. New York. NY: Routledge.
- Saylor, J. G., & Alexander, W. M. (1981). *Curriculum development: Separate and comprehensive (2nd ed.)*. New York. NY: Holt, Rinehart and Winston.
- Saylor, J. G., Alexander, W. M., & Lewis, A. J. (1981). *Curriculum planning for better teaching and learning (4th ed.)*. New York: Holt. Rinehart, & Winston.
- Skilbeck, J. (1986). *School curriculum as a social construct*. London. UK: Tavistock Publications.
- Taba, H. (1962). *Curriculum development theory and practice*. New York: Harcourt. Brace and World.
- Taba, I. S. (1976). *Curriculum development*. Englewood Cliffs. NJ: Prentice-Hall.
- Thithana Kaemmani et al. (2006). *Presentation of a Model for Enhancing Higher-Order Thinking Skills among Undergraduate Teacher Education Students*. Bangkok: Chulalongkorn University.
- Thithana Kaemmani, P., Ratanaporn, P. & Boonyarit, A. (2012). The effects of metacognitive strategy instruction on early childhood students' reading comprehension skills. *Journal of Education and Learning*, 11(1), 78-89.
- Thupthong Kwangwasdi, T. (2013). The impact of problem-solving and decision-making instruction on early childhood students' critical thinking skills. *Journal of Educational Research*, 56(4), 347-357.
- Thupthong Kwangwasdi. (2011). *Teaching Thinking*. Bangkok: Khao Fang.
- Tripp, T. M., & Bichelmeyer, B. A. (1990). *Learning and development in adulthood*. San Francisco. CA: Jossey-Bass.
- Tyler, R. W. (1949). *Basic principle of curriculum and instruction*. Chicago: The University of Chicago Press.
- Tyler, R. W. (1950). *Basic principles of curriculum and instruction*. Chicago, IL: University of Chicago Press.
- Wipa Thantulpong. (2017). Development of a Training Curriculum to Enhance Creative Writing Teaching Ability and Writing Skills for Teachers. *Journal of Suthipattana*. 31(99): 54-66.