

A STUDY ON IMPROVING THE QUALITY OF EARLY CHILDHOOD TEACHERS' MAP—READING SKILLS IN THE CONTEXT OF THE "DOUBLE REDUCTION" POLICY

Xiong Can¹, Wang Xiang²

¹ Institute of Science, Innovation and Culture (ISIC) Rajamangala University of Technology Krungthep, Thailand

² Institute of Science, Innovation and Culture (ISIC) Rajamangala University of Technology Krungthep, Thailand

ARTICLE INFO

Keywords:

"Double Reduction"
Policy;
Early Childhood Teachers;
Map Reading

ABSTRACT

With the implementation of the "Double Reduction" policy, the focus of the curriculum has gradually shifted from the traditional recitation of knowledge points and test-taking training to the cultivation of disciplinary competence and literacy. Through reviewing relevant literature, it is found that the understanding and application of diagrams and charts are an important part of cultivating subject competence and literacy. As a common tool in teaching, charts and diagrams play an important role in early childhood education, and the improvement of early childhood teachers' ability to read charts and diagrams has become a greater concern. Therefore, this study adopts questionnaires and in-depth interviews to comprehensively assess the chart-reading ability of early childhood teachers, and then proposes corresponding improvement strategies. By improving the map-reading ability of kindergarten teachers, this study aims to support primary and secondary school teachers in using maps and charts effectively in classroom teaching, so as to ensure the continued effectiveness of the "Double Reduction" policy and to promote the all-round development of students.

Corresponding Author:

WANG Xiang

Institute of Science, Innovation and Culture (ISIC) Rajamangala University of Technology Krungthep, Thailand, wongshawn@aliyun.com

INTRODUCTION

In the context of the current education reform policy, the implementation of the "double reduction" has become an important task in the field of education. As part of the "double reduction", early childhood education also needs to focus on improving the professional competence of early childhood teachers to ensure that they are able to provide children with high-quality, low-burden teaching (WANG, 2023). In this context, the map-reading skills of early childhood teachers have become an important aspect of improving the quality of teaching and learning. As one of the important skills in the process of early childhood education, good map-reading ability can help early childhood teachers better implement teaching and effectively control the curriculum content and teaching progress (Ooms et al., 2016). By deepening the development of early childhood teachers' map-reading skills, their professionalism can be enhanced to provide a better educational experience for children. However, in the context of the "Double Reduction" policy, ECE teachers still face challenges and problems in improving their map-reading skills (Pinter, 2017). Some ECE teachers may lack the ability to understand and apply different types of diagrams and charts, making it impossible for them to teach related subjects effectively (Moore, 2014). In addition, due to the limitations of professional development and other factors, early childhood teachers have a certain degree of needs and confusion in the development of chart-reading skills. In response to these problems, this study aims to explore how to effectively improve the map-reading ability of early childhood teachers in the

context of the "double reduction" policy. Through questionnaire surveys and in-depth interviews with kindergarten teachers, we analyzed and discussed the results of the research data to reveal the current situation and training needs of kindergarten teachers' map-reading ability. The results of the study are then summarized and corresponding suggestions are made to promote the improvement of early childhood teachers' map-reading ability and further enhance the quality of education.

Literature Review

Past studies have shown that map-reading skills are one of the important skills that early childhood teachers cannot ignore in their teaching. Many studies have focused on the assessment and cognitive level studies of chart reading skills of early childhood teachers. According to the review of the results of the studies conducted on the organization of early childhood teachers, it can be seen that teachers' chart reading skills vary in different areas and types of charts. According to Lopatovska et al. (2016), they found that early childhood teachers were relatively strong in interpreting bar charts, but relatively weak in interpreting line charts.

Other studies have focused on teaching strategies and methods for developing map-reading skills among early childhood teachers. In response to teachers' professional development, educational institutions can provide a range of professional training to help teachers improve their map-reading skills. A combination of teacher training and support has been identified in the literature as an effective way to help early childhood teachers improve their map-reading skills. In one study, Piasta et al. (2015) analyzed teacher training and educational resources provided by colleges of education and found that these resources had a positive effect on early childhood teachers' map-reading skills.

In addition, a number of studies have looked at the factors affecting early childhood teachers' map-reading skills and the need for their development. The findings suggest that educational background, work experience, and individual factors have an impact on early childhood teachers' map-reading competence. For example, according to Thomas et al. (2007), the educational background and training experiences of early childhood teachers play an important role in contributing to their map-reading ability.

To summarize, we conclude from the literature review that the improvement of early childhood teachers' map-reading competence is a research area of great significance. From the existing literature, it can be seen that there are differences and problems in early childhood teachers' map-reading competence in terms of their perceptions, teaching strategies and developmental needs. Therefore, this study will focus on these issues in conjunction with research and practice needs by investigating the current status of early childhood teachers' map-reading competence and proposing effective cultivation tools and support measures to improve early childhood teachers' map-reading competence and further enhance the quality of teaching and learning.

Research Method

Design

In order to gain an in-depth understanding of the current situation, needs and problems of early childhood teachers' map-reading competence, this study used a combination of quantitative and qualitative research methods. We collected data through questionnaires and in-depth interviews to gain a comprehensive understanding of the map-reading competence of early childhood teachers.

The questionnaire was the first stage of this study, which aimed to collect basic information and self-assessed map-reading skills of early childhood teachers. In designing the questionnaire, existing research findings and measurement tools were combined to ensure the validity and reliability of the questionnaire. The questionnaire covered early childhood teachers' educational background, work experience, perceived map-reading competence, and needs for teacher training and resources.

After the questionnaire survey, we will conduct in-depth interviews with some of the early childhood teachers whose questionnaire results are more prominent. The in-depth interviews will be conducted face-to-face or through video conferencing in order to better understand the current situation and training needs of early childhood teachers. The interviews will cover ECE teachers' understanding of their own map-reading competence, the confusion and challenges they encounter in teaching, and their needs for training and resource support. Interview data will be recorded in the form of voice recordings and notes for subsequent analysis and discussion.

After the data collection is completed, we will organize and analyze the questionnaire and interview data. The questionnaire data will be analyzed by spss statistical analysis software in order to understand the current situation and cognitive level of map-reading ability of early childhood teachers. The interview data will be analyzed by content analysis to extract key ideas and themes in order to explore in depth the current situation and cultivation needs of map-reading ability of early childhood teachers.

Finally, we will synthesize the discussion and interpretation based on the results of the data analysis. We will summarize the current situation, needs and problems of early childhood teachers' map-reading competence,

and make corresponding suggestions for improvement and development. The results of the study will provide useful references for practitioners of early childhood education, educational administrators and teacher training organizations in order to enhance the map-reading ability of early childhood teachers and at the same time promote the improvement of teaching quality.

Through the design and implementation of this study, we expect to gain a comprehensive understanding of the status of early childhood teachers' map-reading ability and provide scientific basis and strategic guidance for improving their map-reading ability and teaching effectiveness.

Participants and context

The subjects of this study were kindergarten teachers from 12 public and private kindergartens in the urban area of G city. Most of the teachers came from public kindergartens and were young teachers, most of them had college or bachelor's degree, and most of the classes they taught were concentrated in intermediate and older classes.

Table 1 Research Participants and Context

Method	Participants	Context
Questionnaires	Public preschool teacher	1. Educational teaching qualification
	Private kindergarten teacher	2. Engaged in kindergarten work
	Public preschool teacher	3. In-depth understanding and experience accumulation of
Interview	Private kindergarten teacher	preschool education and preschool pedagogy

Research instrument

Questionnaire

This study will construct an evaluation index system with the teachers' map-reading ability, and conduct a targeted questionnaire survey by focusing on the topic of the current status of teachers' map-reading ability. The survey targets are mainly 12 kindergartens in the urban area of G city, both public and private. The questionnaire includes questions about the personal information of kindergarten teachers, their perceptions of the importance of map-reading ability, and their own assessment of map-reading ability. The questionnaire was administered by mail, email, or an online platform (Questionstar) to better reach the early childhood teacher population. It was ensured that the return rate of the questionnaire was high to get enough valid sample data.

Interview

This study will combine an online questionnaire survey with an unstructured interview form designed according to the evaluation indicators to select a portion of public and private early childhood teachers who participated in the survey to be interviewed. We will gain an in-depth understanding of the implementation of teachers' map-reading ability and the effectiveness of their work among different personnel, collect data and conduct a comparative analysis and research to provide data support for this study to further explore the difficulties, needs and effective ways to improve teachers' map-reading ability, to improve the depth and height of the study, and to enrich the existing data and put forward more targeted countermeasures and suggestions.

Data collection and analysis.

Questionnaire

The questionnaires were distributed by mail, email or online platform (Questionstar) to collect opinions and feedbacks from early childhood teachers. Quantitative data from the questionnaires were statistically analyzed using spss, so as to understand the level of knowledge, self-assessment, and the distribution of developmental needs of early childhood teachers regarding map-reading skills.

Interview

Interviews may be recorded in transcript, audio or video form. The interviews were listened to, organized and sorted out repeatedly. Through thematic analysis, coding and categorization, the interview data were organized into major themes of opinions, needs and confusion, thus revealing the specific situations and problems of early childhood teachers in terms of map-reading skills enhancement.

The results of the questionnaire and interview data are then finally integrated and cross-validated and comparatively analyzed. By integrating and analyzing the results from different data sources, a comprehensive explanation and interpretation of the improvement of early childhood teachers' map-reading skills is developed.

Findings

Research Question (RQ1): What is the current status of early childhood teachers' map reading skills? Is there any room for improvement?

The results of the study showed that most of the early childhood teachers had some mastery in interpreting and applying basic diagrams, but still had some difficulties in analyzing complex diagrams and data. Also up to 90% of the teachers reported very frequent use of diagrams for teaching. This indicates that most of the teachers use graphs occasionally or frequently in their activities and only some rarely or never use graphs. Thus it can be seen that there is still room for improvement in teachers' ability to read graphs and charts.

Research Question (RQ2): In the context of the "Double Reduction policy, how can the map-reading skills of early childhood teachers be effectively enhanced to improve the quality of teaching in primary and secondary schools?

The results of the study show that early childhood teachers have a certain demand for the development of map-reading skills, but they are also confused because they do not know their own abilities. Therefore, in the context of the "Double Reduction" policy, professional training should be organized for them to learn relevant educational and teaching methods and theoretical knowledge. Training courses can include image interpretation, image teaching design and other content, to help teachers fully understand the use of images and the realization of teaching goals. This will improve the image-reading ability of early childhood teachers and cultivate the observation, thinking and creativity of young children. This will in turn promote the improvement of teaching quality in primary and secondary schools. At the same time, schools and education departments should also provide appropriate support and resources, and make joint efforts to improve the teaching environment and cultivate an excellent teaching force.

Discussion

In this study, the current situation, needs and problems of early childhood teachers' map-reading ability are discussed in depth through questionnaires and in-depth interviews. In the context of the "Double Reduction" policy, the improvement of early childhood teachers' map-reading ability is an important direction to improve the quality of education and reduce the burden of education. The results of the study are discussed and analyzed below:

1.The current situation of early childhood teachers' ability to read diagrams: Through the questionnaire survey and data analysis, we found that there are some differences among early childhood teachers in terms of interpreting and applying different types of diagrams. Some teachers have a good understanding and ability to apply simple forms of diagrams, but when faced with more complex and abstract diagrams, they may be confused and deficient (Gowin & Alvarez, 2005; Harrison & Treagust, 1996). This suggests that early childhood teachers' chart reading skills still need to be improved to cope with the changing and complex demands of teaching and learning.

2.Early childhood teachers' needs for map-reading skills: Through in-depth interviews, we found that early childhood teachers have certain needs and confusion about the development of map-reading skills (Muir, 1985; Ooms et al., 2016). On the one hand, they expressed their wish to receive more systematic training to improve their map-reading ability and integrate it into their teaching practice (Beitlova et al., 2020). On the other hand, they also called for more teaching resources and support from the education administration and related organizations in order to better teach early childhood science, mathematics and other related subjects.

Conclusion

In the context of implementing the "Double Reduction" policy, improving the map-reading ability of early childhood teachers is of great significance in realizing the improvement of education quality and the reduction of education burden. Through the design and implementation of this study, we provide the following four useful references for early childhood education practitioners, education administrators, and teacher training organizations to promote the development of early childhood teachers' map-reading ability and the improvement of teaching standards.

1.Improvement of the training mechanism: The education administration and education and training institutions will further improve the training mechanism by providing more targeted and specialized training courses aimed at helping early childhood teachers to comprehensively improve their skills in reading charts. The training content will emphasize the interpretation and application of different types of charts and the enhancement of teaching practice skills.

2.Strengthening teachers' professional development: Provide more professional development opportunities

for early childhood teachers and encourage them to participate in educational research, write educational papers and engage in academic exchanges, so as to enhance their reading and teaching skills. At the same time, the education administration will set up relevant incentive mechanisms to motivate teachers to actively participate in professional development.

3.Promoting the sharing of educational resources: The education administration will promote the sharing of resources among early childhood teachers by creating online education platforms and communities to provide a platform for teachers to share their teaching experience and exchange their teaching results. Through sharing and learning from each other, early childhood teachers can further enhance their map-reading skills and integrate them into their own teaching practices.

4.Continued research and innovation: Educational research organizations and scholars will continue to conduct in-depth studies on the enhancement of the map-reading ability of kindergarten teachers and explore more effective training modes and teaching methods. Through research and innovation, the professionalism and map-reading ability of kindergarten teachers will be continuously enhanced, further promoting the improvement of the quality of kindergarten teaching and the reduction of homework burden.

To summarize, under the guidance of the "Double Reduction" policy in the future, the map-reading ability of kindergarten teachers will be emphasized and improved, which will provide strong support for the improvement of teaching quality. At the same time, continuous research and innovation will further expand the field of map-reading ability enhancement and make more positive contributions to the development of education.

References

- Beitlova, M., Popelka, S., & Vozenilek, V. (2020). Differences in thematic map reading by students and their geography teacher. *ISPRS International Journal of Geo-Information*, 9(9), 492.
- Gowin, D. B., & Alvarez, M. C. (2005). *The art of educating with V diagrams*. Cambridge University Press.
- Harrison, A. G., & Treagust, D. F. (1996). Secondary students' mental models of atoms and molecules: Implications for teaching chemistry. *Science education*, 80(5), 509-534.
- Lopatovska, I., Hatoum, S., Waterstraut, S., Novak, L., & Sheer, S. (2016). Not just a pretty picture: visual literacy education through art for young children. *Journal of Documentation*, 72(6), 1197-1227.
- Moore, K. D. (2014). *Effective instructional strategies: From theory to practice*. Sage Publications.
- Muir, S. P. (1985). Understanding and improving students' map reading skills. *The Elementary School Journal*, 86(2), 207-216.
- Ooms, K., De Maeyer, P., Dupont, L., Van der Veken, N., Van de Weghe, N., & Verplaetse, S. (2016). Education in cartography: what is the status of young people's map-reading skills? *Cartography and Geographic Information Science*, 43(2), 134-153.
- Piasta, S. B., Logan, J. A., Pelatti, C. Y., Capps, J. L., & Petrill, S. A. (2015). Professional development for early childhood educators: Efforts to improve math and science learning opportunities in early childhood classrooms. *Journal of educational psychology*, 107(2), 407.
- Pinter, A. (2017). *Teaching young language learners*. Oxford University Press.
- Thomas, L. A., De Bellis, M. D., Graham, R., & LaBar, K. S. (2007). Development of emotional facial recognition in late childhood and adolescence. *Developmental science*, 10(5), 547-558.
- WANG, H. Y. (2023). A comparative analysis of double reduction policy in China.