A Study on Reflective Teaching in Early Childhood Inclusive Education among Preschool Caregivers

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Abstract—This study investigated the effect of reflective teaching on the inclusive professional competence of in-service preschool educators. Utilizing a quasi-experimental design, 44 participants enrolled in a "Preschool Inclusive Education" course at a private university in northern Taiwan were examined. Reflective teaching was implemented as the primary instructional approach throughout the course. Data was collected through structured questionnaires and semi-structured interviews to assess changes in participants' professional competencies. The results indicated statistically significant improvements across six dimensions: attitudes toward inclusion, curriculum and instructional design, classroom management, work-related stress, access to teaching resources, and self-efficacy. These findings suggest that reflective teaching serves as an effective pedagogical strategy for enhancing preschool caregivers' competence in inclusive education. The study underscores the value of integrating reflective practice into professional development programs to support the ongoing transformation of beliefs and practices necessary for inclusive early childhood settings.

Keywords—reflective teaching, preschool inclusive education, preschool caregivers, attitude toward inclusion, knowledge of preschool education, professional development

I. INTRODUCTION

In Taiwan, the successful implementation of inclusive education in early childhood settings is challenged by a shortage of professionally trained preschool special education teachers. According to the 2024 Special Education Annual Report published by the Ministry of Education, there are approximately 30,700 children with disabilities at the preschool level nationwide, yet only 1,414 special education teachers are available to serve this population. Among them, more than half (836) are itinerant teachers [1], which means that direct and consistent support for children with disabilities in inclusive classrooms remains insufficient.

In response to this gap, Taiwan's teacher education system has incorporated special education and early

intervention content into early childhood teacher preparation programs. However, it remains unclear whether such coursework meaningfully enhances preschool caregivers' knowledge, attitudes, or teaching practices regarding inclusion. As the demands of inclusive education continue to grow, there is a pressing need for professional development approaches that not only inform but also transform the beliefs and practices of caregivers working in early childhood settings.

Reflective teaching has been recognized as an effective strategy for fostering professional growth, promoting deeper understanding [2], and encouraging critical thinking about inclusive practices. By engaging caregivers in self-examination and practical application, reflective teaching may serve as a powerful tool for bridging the gap between theory and practice in inclusive education.

This study aims to examine the impact of reflective teaching on preschool caregivers' competencies in inclusive education. Specifically, the following research question is addressed: How does reflective teaching influence preschool caregivers' scores on the Inclusive Education Competency Scale before and after training?

II. LITERATURE REVIEW

Dickens-Smith [3] conducted a study on special education and general education teachers in Chicago public schools, examining changes before and after in-service training in special education. The results showed that both groups developed more positive attitudes toward inclusion following the training.

In Taiwan, Chung [4] used stratified sampling to survey general kindergarten teachers and daycare caregivers who had experience working with children with special needs. Her study found that the number of special education credits completed was significantly associated with various dimensions of professional competence, indicating that formal coursework contributed to the development of special education knowledge. Furthermore, background factors such as teaching location and years of experience were found to influence professional knowledge related to inclusive education.

Dignath *et al.* [5] conducted a comprehensive meta-analysis involving 40,000 teachers across 40 countries. They found that teachers' beliefs about inclusion—cognitive, emotional, and self-efficacy-related—were generally at a moderate level, suggesting substantial room for growth. Notably, pre-service teachers reported higher self-efficacy, and teachers who had received special education training held more positive attitudes toward inclusion. Training programs that integrated reflective practice with real-world experience were particularly effective in transforming beliefs and enhancing professional confidence.

Leatherman and Niemeyer [6] further explored the connection between teacher attitudes and classroom behaviors through a qualitative study of pre-service and in-service preschool caregivers. Their findings revealed that although teachers often expressed positive attitudes toward inclusive education, actual implementation of inclusive practices depended heavily on prior classroom experiences and the presence of adequate support systems. Teachers emphasized the need for appropriate training, administrative backing, and assistance from resource personnel to create and sustain successful inclusive environments.

In contrast, Wilkins and Nietfeld [7] examined the effects of a school-wide inclusion training initiative—Project WINS—and found that teachers who participated did not report significantly different attitudes toward inclusion compared to those who had not. Surprisingly, teachers with no involvement in the program showed a slightly greater preference for inclusion in terms of classroom climate. However, teachers across both groups who self-identified as having more expertise in special education demonstrated more positive attitudes overall. These findings suggest that while formal inclusion training is necessary, its effectiveness depends on content quality, depth of engagement, and the existing confidence of educators. The study calls for a re-examination of how training programs are structured to effectively influence teachers' mindsets and classroom practices.

Complementing these findings, Kamstra [8] explored how inadequate training in inclusive and reflective teaching practices contributed to teacher demotivation—particularly among English as a Foreign Language (EFL) teachers in secondary schools in Spain. Her qualitative research revealed that the absence of inclusive and reflective training left teachers feeling unprepared and disheartened in their classrooms. The study argued that by improving teacher education programs to embed both inclusivity and reflection, teacher motivation and classroom effectiveness can be significantly enriched. This reinforces the idea that reflective practices are not only tools for instructional improvement but also essential for sustaining teacher engagement and professional well-being.

These findings collectively underscore the importance of not only fostering positive beliefs and attitudes toward inclusion but also ensuring the quality and structure of teacher training programs. As such, the method of training is just as vital as its content.

Minott [9] emphasizes that in inclusive classrooms, teachers should prioritize what and how to teach, rather than focusing solely on who is learning. Inclusive curriculum design must address the learning needs of all students, not only those with special needs. Teachers are encouraged to continuously reflect on and revise their own beliefs, avoid deterministic or biased thinking, and adopt innovative strategies to support diverse learners. Reflection, collaboration with colleagues, and journaling are all essential to ongoing professional growth.

This perspective aligns with Dignath *et al.*'s [5] findings that reflective teaching—when paired with practical experience—not only boosts teacher self-efficacy but also facilitates belief transformation. Reflective teaching, therefore, is not merely a technique but a core process in cultivating inclusive teaching competence.

Table I is the literature review, summarizing authors, participants, methodology, and key findings.

TABLE I. LITERATURE REVIEW

No.	Author(s)	Participants	Methodology	Key Findings
1	Dickens-Smith (1995) [3]	Special and general education teachers in Chicago	In-service training in special education	Improved attitudes toward inclusion after training
2	Chung (2011) [4]	Kindergarten teachers and daycare caregivers in Taiwan	Stratified sampling survey; examined SPED credits and background variables	More SPED credits linked to higher professional competence; background factors (location, experience) also influential
3	Dignath *et al.* (2022) [5]	40,000 teachers across 40 countries	Meta-analysis of inclusive beliefs and training impact	Training improved attitudes and self-efficacy, especially when combined with reflective practice and real-world experience
4	Leatherman & Niemeyer (2005) [6]	Pre-service and in-service preschool caregivers	Qualitative study on attitudes vs. actual classroom behavior	Positive attitudes often not implemented without prior experience and support systems
5	Wilkins & Nietfeld (2004) [7]	Teachers involved in Project WINS (school-wide inclusion training)	Evaluation of inclusion training effectiveness	No significant attitude change; effectiveness linked to training quality, teacher confidence
6	Kamstra (2021) [8]	EFL secondary teachers in Spain	Qualitative study on teacher motivation and training gaps	Lack of inclusive/reflective training reduced teacher motivation and classroom confidence
7	Minott (2019) [9]	Inclusive classroom teachers	Conceptual and reflective perspective on curriculum design	Teachers should reflect on methods and curriculum, not just student types; avoid deterministic thinking

In conclusion, the literature suggests that while teachers' attitudes toward inclusion are critical, they are significantly influenced by the nature and quality of the training they receive. Reflective, experience-based training programs appear particularly effective in shaping inclusive mindsets, strengthening motivation, and building professional competence. This study aims to build upon these insights by examining whether a reflective teaching-based course can effectively enhance preschool caregivers' attitudes and knowledge related to inclusive education.

III. MATERIALS AND METHODS

This study involved 44 in-service students enrolled in a "Preschool Inclusive Education" course offered by the Department of Infant and Child Care at a private university in northern Taiwan. A pretest was conducted prior to the course to assess participants' baseline professional competence in preschool inclusive education. The course was structured as an 18-week training program, meeting for two hours per week, and was designed around curriculum planning for inclusive education, incorporating core principles of reflective teaching. Participants engaged in a variety of structured reflective activities—including analyzing case studies, and participating in peer discussions—to deepen their understanding and critically examine their beliefs regarding inclusive practices.

Following the completion of the course, a posttest was administered to evaluate participants' professional growth. A paired-sample t-test was used to determine whether there were statistically significant differences in competence scores before and after the course.

To further investigate the impact of the training on participants' professional development, the researcher analyzed both quantitative and qualitative data. The professional growth outcomes were examined across six key dimensions: (1) attitudes and beliefs toward inclusive education, (2) curriculum and instructional strategies, (3) classroom management in inclusive settings, (4) stress related to inclusive teaching, (5) access to teaching resources, and (6) self-efficacy in implementing inclusive education. In addition to statistical analysis, qualitative data, including students' reflection reports and in-class assignments—were coded and categorized using qualitative analysis software. These findings were integrated and discussed to evaluate the effectiveness of the reflective teaching-based course in fostering professional development among preschool caregivers.
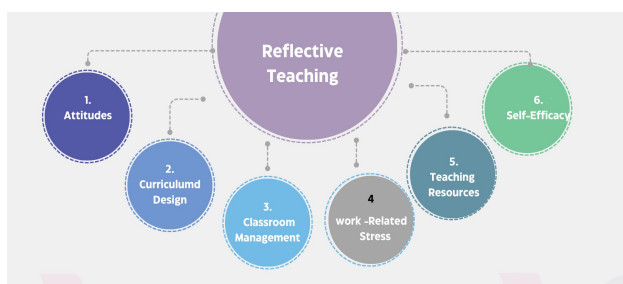

Fig. 1. The framework of the research.

The framework integrates these variables to explore how reflective pedagogical practices may enhance competencies across attitudinal, curricular, managerial, stress-related, resource-driven, and self-efficacy domains within inclusive education contexts, as shown in Fig. 1.

IV. RESULT AND DISCUSSION

A. Research Result

The researcher analyzed the collected data to examine how the preschool inclusive education process influenced the professional development of preschool caregivers. This analysis was divided into six key dimensions: (1) attitudes and beliefs toward inclusive education, (2) curriculum and instruction for inclusion, (3) classroom management in inclusive settings, (4) work-related stress in inclusive teaching, (5) access to and use of inclusive teaching resources, and (6) self-efficacy in implementing inclusive education. A paired-sample t-test was conducted to examine differences between pretest and posttest scores in these six areas of professional growth.

(1) Attitudes and Beliefs

A paired-sample t-test was conducted to analyze the impact of preschool inclusive education on preschool caregivers' "attitudes and beliefs" dimension. The results showed a significant difference after the professional development course in preschool inclusive education ($t = 4.159$, $p < 0.001$). The posttest mean score (3.4672) on attitudes and beliefs was significantly higher than the pretest mean score (2.9747).

(2) Curriculum and Instruction

A paired-sample t-test was conducted to analyze the impact of preschool inclusive education on preschool caregivers in the dimension of "curriculum and instruction". The results showed a statistically significant difference after the professional development training ($t = 6.580$, $p < 0.001$). The posttest mean score (4.0398) was significantly higher than the pretest mean score (2.9640).

(3) Classroom Management

A paired sample t-test was conducted to analyze the impact of preschool inclusive education on preschool caregivers in the dimension of "classroom management". The test results revealed a statistically significant difference after the professional development training ($t = 4.913$, $p < 0.001$). The posttest mean score (4.1057) was significantly higher than the pretest mean score (3.2664).

(4) Work-Related Stress

A paired-sample t-test was conducted to analyze the impact of preschool inclusive education on preschool caregivers in the dimension of "work-related stress". The results showed a statistically significant difference after the professional development training ($t = 3.327$, $p < 0.001$). The posttest mean score (3.2424) was significantly lower than the pretest mean score (3.8030), indicating a reduction in perceived work-related stress.

(5) Teaching Resources

A paired-sample t-test was conducted to analyze the impact of preschool inclusive education on preschool

caregivers in the dimension of "teaching resources". The results indicated a statistically significant difference after the professional development training (t = 6.087, $p < 0.001$). The posttest mean score (3.9747) was significantly higher than the pretest mean score (2.7904), suggesting an improved awareness and perceived access to teaching resources for inclusion.

(6) Self-Efficacy in Implementing

A paired-sample t-test was conducted to analyze the impact of preschool inclusive education on preschool caregivers' self-efficacy in implementing inclusive practices. The results revealed a statistically significant difference following the professional development course (t = 4.579, $p < 0.001$). The posttest mean score (4.1338) was significantly higher than the pretest mean score (3.2955), indicating an improvement in self-efficacy, as shown in Table II.

TABLE II. PAIRED-SAMPLE t-TEST RESULTS (N = 44)

Variable	Pretest M (SD)	Posttest M (SD)	t	p
Attitudes and Beliefs	2.97 (0.60)	3.47 (0.49)	4.16	***
Curriculum and Instruction	2.96 (0.85)	4.04 (0.65)	6.58	***
Classroom Management	3.27 (0.89)	4.11 (0.63)	4.91	***
Work-Related Stress	3.80 (0.71)	3.24 (0.95)	3.33	***
Teaching Resources	2.79 (0.99)	3.97 (0.77)	6.09	***
Self-Efficacy	2.79 (0.99)	3.97 (0.77)	6.09	***

Note. M = Mean; SD = Standard Deviation. ***$p < 0.001$.

B. Research Discussion

The findings of this study confirm that a reflective teaching-based Preschool Inclusive Education course can significantly enhance the professional development of in-service preschool caregivers in Taiwan. The significant improvements observed in attitudes and beliefs, instructional practices, classroom management, teaching resources, and self-efficacy, as well as the reduction in work-related stress, suggest that the course fostered not only knowledge acquisition but also cognitive and emotional transformation. These results echo the conclusions of Dickens-Smith [3], who found that in-service training in special education led to more positive attitudes toward inclusion among both general and special education teachers. Similarly, Chung [4] emphasized the role of formal coursework in advancing teachers' special education competence, particularly when combined with contextual factors such as teaching location and years of experience. Our findings extend these insights by highlighting the transformative effect of reflective pedagogical methods, especially in early childhood settings where inclusive practices are foundational yet often underemphasized.

Building on international perspectives, Dignath *et al.*'s [5] large-scale meta-analysis underscores the effectiveness of reflective practice integrated with real-world experience in promoting inclusive attitudes and self-efficacy. This aligns closely with our study, in which a reflective teaching model—characterized by

opportunities for self-inquiry, peer dialogue, and practical application—resulted in statistically significant improvements across all measured domains. The increase in self-efficacy and the concurrent decline in stress observed in our participants mirror the findings that reflective, experience-based training is especially effective in empowering educators. Furthermore, Minott's [9] assertion that teachers must prioritize how and what they teach over who they teach resonates strongly with the current study's emphasis on inclusive curriculum design as a flexible, evolving process grounded in teacher reflection. Thus, this research contributes to a growing body of evidence that reflective teaching is not only a methodological preference but a necessary framework for cultivating inclusive, responsive, and professionally confident educators in early childhood education.

V. CONCLUSION

This study provides compelling empirical evidence that a reflective teaching-based Preschool Inclusive Education course significantly promotes the professional development of in-service preschool caregivers in Taiwan. Quantitative analyses using paired-sample t-tests revealed statistically significant improvements across all six key dimensions: Attitudes and Beliefs, Curriculum and Instruction, Classroom Management, Teaching Resources, Self-Efficacy, and a notable reduction in Work-Related Stress (t = 3.33, $p < 0.001$; all other domains $p < 0.001$). These results suggest that participants not only developed more inclusive mindsets but also enhanced their instructional practices and classroom management skills in alignment with inclusive education principles.

The integration of reflective teaching strategies—such as journal writing, case analysis, and peer dialogue—encouraged participants to critically examine their assumptions, teaching practices, and responses to diversity. This process fostered greater professional insight and adaptability, empowering educators to better address the varied needs of learners in inclusive settings. The observed reduction in occupational stress further suggests that increased competence and confidence contributed to improved emotional resilience in the classroom.

Overall, the findings underscore the value of reflective teaching as an effective pedagogical framework within professional development programs aimed at fostering inclusive education. By enhancing both knowledge and practice, reflective teaching cultivates early childhood practitioners who are more intentional, empathetic, and capable of supporting all learners.

Future research is recommended to examine the long-term effects of such training and to explore its scalability and adaptability in varied early childhood education contexts, including different cultural and institutional settings. Continued investigation will help strengthen evidence-based approaches for preparing educators to meet the growing demands of inclusive education worldwide.

VI. IMPLICATIONS

This study offers valuable implications for enhancing the inclusive professional competence of preschool caregivers in Taiwan. Within the current teacher preparation and in-service training system, professional development often emphasizes theoretical knowledge and certification requirements, with limited structured opportunities for reflective engagement. The significant gains observed across multiple dimensions in this study—particularly in attitudes, instructional practices, classroom management, and self-efficacy—underscore the transformative potential of reflective teaching approaches for strengthening inclusive teaching capacities.

To better support the development of inclusive professional competence, teacher education institutions in Taiwan should integrate reflective practice as a foundational component of both pre-service and in-service curricula. Practical strategies such as reflective journals, peer collaboration, guided case analysis, and observation-based feedback can help educators critically examine their beliefs and adapt their pedagogical approaches to meet the diverse needs of all learners. In particular, preschool caregivers working in inclusive settings would benefit from continuous, structured reflection that enables them to make sense of complex classroom realities and refine their inclusive strategies over time.

At the policy level, the Ministry of Education is encouraged to align inclusive education initiatives with reflective, experience-based training standards. This alignment would not only improve teacher quality but also support long-term goals of educational equity. By shifting the focus from compliance-based training to developmental, inquiry-driven learning, Taiwan's early childhood education system can cultivate educators who are not only knowledgeable, but also confident, responsive, and professionally committed to inclusion. Reflective teaching, therefore, is not a supplementary tool—it is essential for building a sustainable and inclusive early education workforce.

CONFLICT OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this paper.

AUTHOR CONTRIBUTIONS

Chen was responsible for the study design, questionnaire development, data collection, and statistical analysis; Yang contributed to the literature review and the synthesis of research findings; both authors reviewed and approved the final version of the manuscript.

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