



Enhancing Preschool Educators' Self-Efficacy in Designing Subject-Development Environments: Evaluating a Structured Training Program

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ABSTRACT

Subject-development environments play a crucial role in early childhood education by fostering cognitive, social, and emotional growth. This study investigates the effectiveness of a structured training program in enhancing preschool educators' self-efficacy in designing such environments. A quasi-experimental design was employed, incorporating both a control group and an intervention group. The study involved 160 participants from Abai Kazakh National Pedagogical University who engaged in a targeted structured training program combining theoretical instruction with hands-on activities. Findings indicate that the structured training program significantly improved educators' self-efficacy, with experimental group participants demonstrating significantly higher post-test scores across all measured areas compared to the control group. Based on these results, integrating the structured training program into preschool teacher preparation and existing curricula is recommended to enhance early childhood education practices.

KEYWORDS

Educator self-efficacy; pedagogical strategies; preschool education; professional development; structured training program; subject-development environment.

INTRODUCTION

In modern conditions, the study of the subject-developing environment (SDE) in preschool educational institutions (PEI) has gained new momentum. The renewal and expansion of methods for interaction between teachers and preschoolers, as well as among children themselves, naturally influence the criteria for assessing the design of the SDE (Ahn et al., 2021; Vasconcelos et al., 2020). Researchers have found that an effective SDE should be designed with consideration of children's age, individual characteristics, interests, and zone of proximal development while also allowing them the opportunity to choose activities (Gao & Hew, 2023; Farmer et al., 2022). The effective organization of an SDE supports the holistic development of children as active participants in activities that are appropriate for their developmental stage (Vitiello et al., 2022; Burchinal et al., 2023). The free activity of children within a well-structured SDE, created by educators, enables each child to engage in activities aligned with their interests. Consequently, the demand for well-prepared educators capable of addressing these challenges is also increasing (Nand et al., 2019; Rafiyya et al., 2024).

Characterizing the modern system of Kazakhstani preschool education, it is essential to highlight its focus on the harmonious development of the child (Nurgaliyeva et al., 2025; Nagima et al., 2022). The new model of early childhood education emphasizes raising children from kindergarten while fostering communication skills, self-confidence, endurance, openness, creativity, diligence, and a passion for learning (Izat et al., 2024; Nurgaliyeva et al., 2024). However, the traditional educational model still dominates preschool education practices. This model follows a subject-oriented approach, where the curriculum is divided into distinct subjects such as mathematics, drawing, speech development, and modeling. In this context, preschool educators often face uncertainty and challenges in organizing, updating, and optimizing the learning environment to foster children's development.

Within the traditional model, learning is structured around lessons with a fixed format, typically employing a question-and-answer method between teachers and children. A defining characteristic of this approach is the rigid organization of the educational space, where designated study zones are established within preschool groups. Additionally, preschool teacher education programs emphasize theoretical over practical components, which partially meets the demand for well-qualified educators (Weisenfeld et al., 2023).

A significant contradiction exists between the theoretical concepts of a subject-developing environment and the actual conditions of preschool education (Parker et al., 2022; Rademacher & Koglin, 2019). If left unaddressed, these issues could negatively impact the quality of pre-primary education in Kazakhstan. Consequently, training future preschool teachers to develop and implement effective subject-developing environments has become a key priority in pedagogical education programs. However, it remains unclear how individualized learning programs can effectively enhance future teachers' skills in designing these environments (Polat et al., 2023; Åström et al., 2022).

Thus, in Kazakhstan, early childhood education has become a national priority, driven by the government's commitment to fostering innovative teaching methods and improving learning outcomes for young learners. Despite this emphasis, teacher training programs often lack sufficient focus on practical skills required for designing subject-development environments (Baikulova et al., 2024; Iskindirova et al., 2024; Sarsenbayeva et al., 2024; Yermekbayeva et al., 2024). Studies in the region highlight a gap in the preparedness of preschool educators, with many reporting limited hands-on training in creating engaging and developmentally appropriate learning spaces

Existing research underscores the need for targeted interventions to address this critical deficiency, aligning teacher competencies with the demands of modern educational practices (Briggs-Gowan et al., 2019; Cramer & Cappella, 2019). However, the specific challenges preschool teachers in Kazakhstan face when preparing to create subject-enriched environments, and how these challenges can be addressed in teacher training programs, remain understudied. While global research has explored the impact of teacher preparedness on SDE, there is a lack of studies focused on Kazakhstan's unique cultural and educational context. Moreover, few studies have proposed scalable models for integrating subject-development training into existing teacher education curricula.

To bridge this gap, further research is needed to explore this issue (Huang et al., 2023; Zheng et al., 2021). Specifically, it is necessary to examine how teacher preparation programs in Kazakhstan support the development of subject-enriched environments in preschool settings. In this regard, the research problem is defined as the need to develop an effective training program that enhances pre-service preschool teachers' confidence and skills in designing subject-development environments.

Due to the lack of scientifically grounded recommendations for enhancing preschool educators' self-efficacy in designing subject-development environments, state-level programs lack a comprehensive scientific approach to developing these environments. Such environments encompass both physical and interactive resources essential for fostering early childhood development. While research on subject-development environments exists in early childhood education, it often lacks a systematic approach and frequently reiterates aspects of earlier theoretical studies. To the best of the authors' knowledge, this study represents the first empirical investigation in Kazakhstan examining whether a structured training program can serve as a mechanism for improving preschool educators' self-efficacy (PESE) in designing subject-development environments.

This research is both novel and urgent, as it addresses a critical gap in empirical evidence on the effectiveness of targeted interventions for preschool educator (PE) training. Furthermore, the urgency of this study lies in its potential to inform early childhood education policy and practice in a rapidly evolving educational landscape, where improving the quality of early education remains a global priority (Klopfer et al., 2019; Storli et al., 2019).

This study investigates the impact of an STP on improving preschool educators' self-efficacy in designing SDE. The key research question guiding this study is: How can structured training programs enhance preschool educators' self-efficacy in designing SDE? Specifically, the study addresses the following sub-questions:

- Q1: What is the current level of preschool educators' self-efficacy in designing subject-development environments before participating in the STP?
- Q2: Does the STP improve preschool educators' self-efficacy in designing SDE?
- Q3: Which specific competencies are most improved through the STP?
- Q4: How does the self-efficacy of educators in the experimental group compare to that of those in the control group after completing the STP?

REVIEW OF THE LITERATURE

Designing subject-developing environments (SDEs) in preschool education is a critical component of early childhood pedagogy. These environments play a foundational role in fostering children's holistic development by offering diverse, meaningful, and developmentally appropriate experiences. The role of the teacher in this process is pivotal: educators not only structure the physical space but also facilitate activities that promote exploration, creativity, and self-regulation.

Maria Montessori believed that a child's self-development process takes place most intensely in a didactically prepared environment because young children learn primarily through their actions, through the world of their feelings, lived in action (Guttek et al., 2020). This belief is the root cause of the issues with child development in a subject environment (Knauf, 2019).

Recent studies have emphasized that the SDE is not merely a background setting, but an active participant in the learning process. Research in preschool pedagogy has accumulated around the analysis of the content, creation process, functional features, and significance of the SDE in a child's development (Dittert et al., 2021). According to Marsh et al. (2019), a well-organized SDE can support a preschooler's sociocultural development, meet immediate and emergent creative needs, and help children develop essential cognitive and social skills. An enriched environment requires the integration of social and natural resources in a cohesive manner to support varied activities. Hatzigianni et al. (2020) found that an effective SDE should include both familiar components and items, which provide comfort and security, as well as unfamiliar elements that stimulate curiosity and encourage further exploration. The thoughtful inclusion of such elements by educators is crucial to the success of the learning environment.

A well-designed subject environment is a prerequisite for the intellectual, personal, and creative development of a preschooler (Bers, 2018). To foster this development, teachers must not only engage in regular interaction with children and organize activities in various forms but also create an environment that stimulates exploration, creativity, and active engagement.

In the context of implementation, a teacher's ability to organize the group room in a way that naturally encourages children to play, explore, and create is of particular importance, as it

directly contributes to their self-development. Numerous researchers have studied the developing subject environment in preschool institutions, leading to a key challenge—the ambiguity in interpretations and definitions (Undheim, 2022). The same concept is often referred to by different names, or conversely, a single term may be interpreted differently by various scholars.

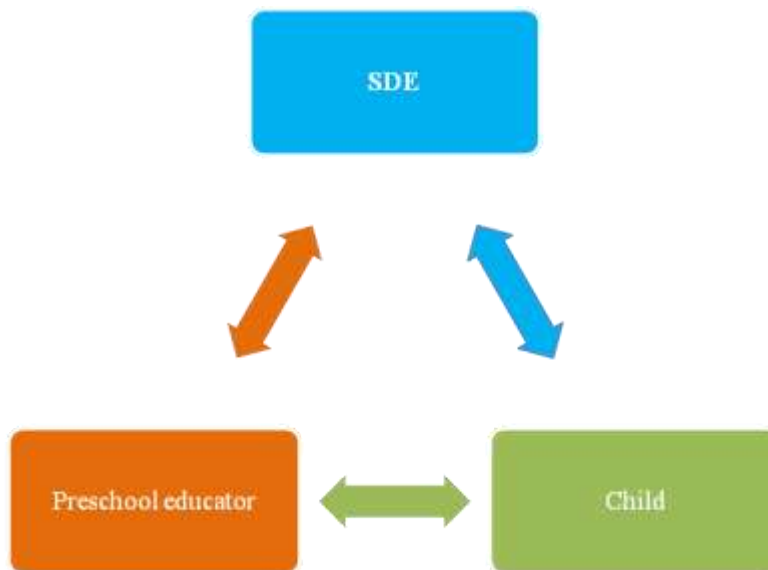
When designing such an environment, it is essential to consider multiple factors, with age-specific characteristics of each preschool group being a key priority. This environment must be safe, comfortable, and conducive to children's personal growth and development (Lindeman et al., 2021).

A well-organized subject-spatial developmental environment ensures the simultaneous engagement of all children in various activities while considering their age-related psychological characteristics, needs, and interests. A competently designed environment fosters children's confidence in their abilities, independence, initiative, goal-setting, and creativity (Murcia et al., 2018). For this environment to be effective, it must primarily be equipped with age-appropriate play materials that support developmental needs. Researchers identify two key groups of characteristics that define the subject-developing environment (SDE) of a preschool educational institution (PEI). Structural characteristics refer to the physical and organizational qualities of the environment, including its richness, transformability, multifunctionality, variability, accessibility, and safety (Yan et al., 2022). These features create the foundational layout of the learning space, allowing it to be adapted to different educational purposes and individual children's needs. Functional characteristics describe how each component of the subject-developmental environment aligns with different types of children's activities and educational domains, corresponding to designated activity zones (centers) for each age group (Gui, 2022). Together, these structural and functional aspects of the environment enable educators to create dynamic and responsive learning spaces. A well-structured and resource-rich SDE not only provides the conditions for safety and comfort but also promotes exploration, social interaction, and cognitive development. Thus, it forms the foundation for an engaging and meaningful preschool experience that supports the holistic development of every child. The interplay between the developing environment, the teacher, and the child is schematically illustrated in Figure 1.

In this process, the professional competence of preschool educators plays a critical role in ensuring the effective implementation of a SDE. It is both an expression of the teacher's creativity—as they design and organize the space—and a catalyst for their professional growth. Simultaneously, it fosters children's creativity, encouraging them to explore and engage with new elements of their environment through play. Additionally, it acts as a motivating factor for interaction between the teacher and the child, reinforcing a dynamic learning process.

Figure 1.

The interplay between the developing environment, the teacher, and the child



METHOD

Study Design

This study employed a quasi-experimental design, which, similar to a true experiment, seeks to determine a causal relationship between an independent and a dependent variable. However, unlike true experimental designs, quasi-experiments do not use random assignment. Instead, participants are allocated to groups based on predetermined, non-random criteria (Ballance, 2024). Quasi-experimental designs are often used in educational research when random assignment is impractical or unethical, particularly in real-world settings such as schools and universities (Taber, 2019). This design allows researchers to examine the effects of the intervention while accounting for the natural constraints of the educational setting, making it suitable for examining practical improvements in teacher training (Hamed et al., 2025).

Research Participants

A sample of 160 students was selected from Abai Kazakh National Pedagogical University. The participants were enrolled in the following programs: 6B01201: Preschool Education and Upbringing; 6B01204: Preschool Education (PE); 6B01801: Social Pedagogy and Self-Cognition; 6B01801: Social Pedagogy; and 6B01306: Primary Education in English. Of these, 80 students were assigned to the EG, and another 80 students formed the CG. The experimental group participated in a STP over seven weeks. In contrast, participants in the control group received only instructions on creating SDE without engaging in any structured training. Table 1 presents the descriptive statistics of both the EG and CG.

Table 1.*Descriptive statistics of EG and CG*

Category	Frequency (EG)	Percentage (EG)	Frequency (CG)	Percentage (CG)
Age				
18-22 years	28	35.0%	31	38.75%
23-27 years	27	33.75%	23	28.75%
28-32 years	14	17.5%	13	16.25%
33+ years	11	13.75%	13	16.25%
Total	80	100%	80	100%
Gender				
Female	80	100%	80	100%
Male	0	0.0	0	0.0
Total	80	100%	80	100%
Program/Course				
Preschool education and Upbringing	23	28,75%	22	27,5%
Preschool Education	21	26,25%	20	25,0%
Social Pedagogy and Self-cognition	15	18,75%	19	23,75%
Social Pedagogy	10	12.5%	11	13,75%
Primary education in English	11	13.75%	8	10,0%
Total	80	100%	80	100%

Program Design and Implementation

A structured training program (STP) was designed to enhance the self-efficacy of preschool teachers in creating high-quality SDEs. The program's design is based on evidence-based pedagogical strategies and aimed to provide participants in the experimental group with practical tools to design engaging and developmentally appropriate learning spaces. The program follows a structured approach that incorporates both theoretical knowledge and hands-on activities, as well as opportunities for reflection and feedback.

The training was implemented over a period of 8 weeks, with weekly sessions lasting 2 hours each. This format allowed for a balance between theory and practice, with ample time for participants to integrate the new knowledge into their work. The experimental group, which participated in the structured training program, received both face-to-face instruction and practical workshops.

For the control group, no special training program was implemented during the study period. Instead, participants in the control group followed the regular curriculum, which did not include specific content focused on designing subject-development environments. This enabled a comparison between the impact of the structured program on the experimental group and the baseline practices of the control group.

Table 2 presents an overview of the training program, detailing its modules, objectives, key components, and instructional methods.

Table 2.

Structured training program

Module	Objective	Key Components	Instructional Methods
Module 1: Foundations of subject-development environments	Understanding the principles of effective learning spaces	Theoretical foundations, developmental appropriateness, impact on learning	Lectures, group discussions
Module 2: Designing engaging learning spaces	Developing skills in organizing materials and spatial arrangements	Layout planning, accessibility, aesthetics, flexible learning zones	Hands-on workshops, case studies
Module 3: Selecting and using educational materials	Enhancing knowledge of developmentally appropriate materials	Criteria for selection, sensory engagement, interactive materials	Practical demonstrations, guided practice
Module 4: Instructional strategies for active learning	Implementing effective teaching methods within designed environments	Play-based learning, inquiry-based strategies, scaffolding	Role-playing, collaborative learning
Module 5: Assessment and continuous improvement	Evaluating and refining learning environments for effectiveness	Observational techniques, feedback mechanisms, adaptive design	Peer review, reflection exercises

To further clarify, the experimental group participated in the full program outlined in Table 2, engaging in weekly sessions that included both theoretical learning and practical application. The training emphasized active learning methods and provided real-world examples to foster the creation of engaging, developmentally appropriate environments.

Meanwhile, the control group continued their regular coursework without exposure to the structured program. The comparison between these two groups allowed the research team to assess the effectiveness of the STP in enhancing self-efficacy in designing subject-development environments.

Instruments

The questionnaire used in this study was developed by the research team to assess preschool educators' self-efficacy before and after participation in the STP classes. Item development was guided by Bandura's theory of self-efficacy (Warner & Schwarzer, 2024), as well as literature on developmentally appropriate practices and the design of learning environments in early

childhood education. The instrument consists of Likert-scale items (Parts 1 and 2) and open-ended questions (Part 3), as outlined in Appendix A. Content validity was established through expert review by three specialists in early childhood education and instructional design. A pilot test involving 10 preschool educators was conducted to refine item clarity and relevance prior to the main study. The questionnaire assessed participants' confidence in selecting and organizing materials, creating developmentally appropriate learning spaces, applying instructional strategies, and adapting environments based on children's needs for continuous improvement. A five-point Likert scale was used for the self-efficacy items, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). Reliability analysis confirmed the instrument's internal consistency, with Cronbach's alpha coefficients ranging from 0.940 to 0.944 for self-efficacy and from 0.746 to 0.762 for outcome expectancy.

Data Collection

Data were collected using a validated self-efficacy questionnaire designed to measure preschool educators' perceived competencies in designing SDE. The instrument included multiple items grouped into six key domains:

1. Selecting appropriate materials
2. Creating developmentally appropriate environments
3. Organizing classroom space
4. Using instructional strategies
5. Implementing play-based learning
6. Assessing and adapting environments

The instrument was pilot-tested for reliability, yielding a high Cronbach's alpha ($\alpha = 0.89$), confirming internal consistency.

To answer the research questions:

- Q1 (baseline levels): All participants completed the pre-test self-efficacy questionnaire before the intervention.
- Q2 and Q3 (effectiveness and competencies improved): The EG participated in a 4-week structured training program. Both EG and CG completed the post-test immediately after the intervention.
- Q4 (comparative effectiveness): Post-test results from the EG were compared with those of the CG using statistical methods.

Data collection was conducted under standardized conditions. Participation was voluntary, and ethical approval was obtained. To ensure accurate matching of pre- and post-test data, anonymous unique identifiers were assigned to each participant.

Data Analysis

This study employed a quasi-experimental design, which, similar to a true experiment, seeks to determine a causal relationship between an independent and a dependent variable. However, unlike true experimental designs, quasi-experiments do not use random assignment. Instead, participants are allocated to groups based on predetermined, non-random criteria (Ballance,

2024). Quasi-experimental designs are often used in educational research when random assignment is impractical or unethical, particularly in real-world settings such as schools and universities (Taber, 2019). This design allows researchers to examine the effects of the intervention while accounting for the natural constraints of the educational setting, making it suitable for examining practical improvements in teacher training (Hamed et al., 2025).

RESULTS

Table 3 displays the results of the paired samples t-test conducted on the experimental group to assess the impact of the STP on preschool teachers' ability to create effective SDE. All measures showed statistically significant improvement from pre-test to post-test ($p < .05$). Effect sizes (Cohen's d) exceeded 1.2 in all domains, indicating a strong impact of the training program. The most substantial improvement was observed in the use of instructional strategies ($d = 1.81$), although other areas also demonstrated meaningful gains.

Table 3.

Results of Paired samples t-test

Measure		Pre-Test Mean (M)	Post-Test Mean (M)	SD (Pre)	SD (Post)	t-value	df	p-value	Effect Size (Cohen's d)
Selecting appropriate materials		3.2	4.1	0.6	0.5	-11.72	79	5.77e-19	1.63
Creating developmentally appropriate environments		3.1	4.0	0.7	0.6	-7.85	79	1.70e-11	1.38
Organizing classroom space		3.0	3.9	0.8	0.6	-7.52	79	7.45e-11	1.27
Using instructional strategies		2.9	4.0	0.7	0.5	-13.26	79	8.71e-22	1.81
Implementing play-based learning		3.3	4.2	0.6	0.5	-10.11	79	6.87e-16	1.63
Assessing and adapting environments		3.0	4.1	0.7	0.6	-11.42	79	2.12e-18	1.69
Overall self-efficacy score		3.1	4.0	0.8	0.6	-7.54	79	6.77e-11	1.27

Table 4 presents the findings of the independent samples t-test comparing post-test scores between the experimental group and the control group. The EG showed significantly higher post-test scores across all areas, with p-values well below .05, indicating strong statistical significance. Cohen's d values were all above 1.0, suggesting large effect sizes. The strongest effects were noted in using instructional strategies ($d = 1.65$) and implementing play-based learning ($d = 1.53$), emphasizing the effectiveness of the STP in these domains.

Table 4.*Results of independent samples t-test*

Measure		Experimental Group (M ± SD)	Control Group (M ± SD)	t-value	df	p-value	Effect Size (Cohen's d)
Selecting appropriate materials		4.1 ± 0.5	3.3 ± 0.6	8.92	158	3.14e-15	1.42
Creating developmentally appropriate environments		4.0 ± 0.6	3.2 ± 0.7	7.61	158	2.23e-12	1.26
Organizing classroom space		3.9 ± 0.6	3.1 ± 0.8	7.25	158	1.04e-11	1.19
Using instructional strategies		4.0 ± 0.5	3.0 ± 0.7	10.42	158	1.82e-18	1.65
Implementing play-based learning		4.2 ± 0.5	3.3 ± 0.6	9.85	158	5.44e-17	1.53
Assessing and adapting environments		4.1 ± 0.6	3.2 ± 0.7	8.76	158	6.92e-15	1.40
Overall self-efficacy score		4.0 ± 0.6	3.1 ± 0.8	7.89	158	5.78e-13	1.29

Table 5 summarizes the results of the ANCOVA, which analyzed post-test scores while controlling for pre-test differences. The results indicate statistically significant differences between the EG and CG in all measured areas ($p < .001$). The Partial η^2 values ranged from 0.13 to 0.18, representing moderate to large effect sizes. Again, the largest effects were observed in the use of instructional strategies ($\eta^2 = 0.18$) and implementation of play-based learning ($\eta^2 = 0.17$), reinforcing the STP's efficacy in enhancing educators' instructional practices.

Table 5.*Results of ANCOVA analysis for post-measurement scores*

Measure		SS	df	MS	F-value	p-value	Partial η^2
Selecting appropriate materials		12.45	1	12.45	29.32	< .001	0.16
Creating developmentally appropriate environments		10.87	1	10.87	26.74	< .001	0.14
Organizing classroom space		9.78	1	9.78	24.56	< .001	0.13
Using instructional strategies		15.34	1	15.34	35.87	< .001	0.18
Implementing play-based learning		14.67	1	14.67	33.12	< .001	0.17
Assessing and adapting environments		11.92	1	11.92	28.01	< .001	0.15
Overall self-efficacy score		13.21	1	13.21	30.76	< .001	0.16

DISCUSSION and CONCLUSIONS

This study investigated the impact of an STP on preschool educators' self-efficacy in designing SDE. The findings demonstrate that the STP significantly improved educators' abilities across multiple dimensions. Below, each research question is addressed in turn.

Q1: What is the current level of preschool educators' self-efficacy in designing subject-development environments before the STP?

Descriptive statistics showed that both experimental and control groups initially demonstrated moderate levels of self-efficacy in designing SDEs. This suggests that while educators had foundational knowledge, there was room for development, particularly in areas such as using instructional strategies and adapting learning environments. These baseline scores confirmed the need for a structured intervention to enhance educators' competencies.

Q2: Does the STP improve preschool educators' self-efficacy in designing SDE?

Findings from the paired samples t-test and ANCOVA confirmed that participation in the STP significantly enhanced educators' self-efficacy. Educators in the experimental group showed statistically significant improvements across all measured domains, including selecting materials, organizing space, and applying instructional strategies. The Cohen's *d* values exceeded 1.0 in all categories, indicating large effect sizes.

The most notable improvements were observed in:

- Using instructional strategies ($d = 1.65$; $\eta^2 = 0.18$)
- Implementing play-based learning ($d = 1.53$; $\eta^2 = 0.17$)

These results highlight that educators who received structured training were significantly better at applying effective instructional methods and incorporating play-based learning strategies compared to those in the control group (Laranjeiro, 2021; Madanipour & Cohrsen, 2020;).

Furthermore, these findings suggest that structured, targeted training has a strong impact on educators' confidence and competence in implementing best practices for early childhood education. This aligns with previous studies that also emphasize the effectiveness of structured training programs in improving self-efficacy in designing subject-development environments (Behnamnia et al., 2020; Kim et al., 2021; Lin et al., 2020; Xiong et al., 2022; Yeh et al., 2019).

Q3: What specific competencies are most improved through the STP?

The ANCOVA analysis showed that all improvements were statistically significant ($p < .001$), with Partial η^2 values ranging from 0.13 to 0.18, indicating moderate to strong effects. The most improved competencies included:

- Selecting developmentally appropriate materials ($F = 29.32$, $\eta^2 = 0.16$)
- Creating effective learning environments ($F = 26.74$, $\eta^2 = 0.14$)
- Organizing classroom space ($F = 24.56$, $\eta^2 = 0.13$)
- Assessing and adapting environments ($F = 28.01$, $\eta^2 = 0.15$)

This suggests the STP helped educators better align physical and pedagogical elements of the learning environment with children's cognitive and emotional needs.

Q 4: How does the self-efficacy of educators in the experimental group compare to those in the control group after the STP?

Independent samples t-tests showed that the experimental group scored significantly higher than the control group across all domains after the STP. This confirms that the improvements were not due to natural development or outside influences but were directly associated with the structured training intervention. The large effect sizes reinforce the practical significance of these differences. To conclude, this study contributes to the growing body of evidence supporting structured professional development for early childhood educators. The STP was highly effective in enhancing preschool educators' self-efficacy in designing subject-development environments, particularly in applying instructional strategies and play-based learning. These findings emphasize the value of systematic, evidence-based training in improving teaching quality and creating enriching learning environments for young children.

Limitations and Future Directions

While this study provides compelling evidence of the STP's effectiveness, several limitations must be acknowledged. The study was conducted with a specific group of preschool educators in Almaty, which may limit the generalizability of the findings to broader populations, such as educators in rural areas or different educational settings. Another limitation is that the study assessed the impact of the structured training program shortly after implementation, without examining long-term retention and application of skills. Future research should incorporate direct classroom observations, peer evaluations, and child outcome assessments to validate self-reported data. While this study demonstrated improvements in teachers' competencies, it did not directly measure the impact on preschool children's learning outcomes. Future studies should investigate whether enhanced teaching practices contribute to children's cognitive, social, and emotional development.

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APPENDIX A.

Questionnaire

Part 1: Pre-training self-efficacy assessment

1. I am confident in selecting appropriate materials for preschool learning.
2. I can create a subject-development environment that is developmentally appropriate for preschool children.

3. I feel capable of organizing classroom space to support different learning activities.
4. I can effectively use a variety of instructional strategies in a well-organized subject-development environment.
5. I am confident in using play-based learning strategies within the subject-development environment.
6. I can assess and adapt the subject-development environment based on children's needs and interests.
7. I feel prepared to reflect on my design and improve the subject-development environment for better educational outcomes.

Part 2: Post-training self-efficacy assessment

8. I am confident in selecting appropriate materials for preschool learning.
9. I am able to create a subject-development environment that is developmentally appropriate for preschool children.
10. I feel capable of organizing classroom space to support different learning activities.
11. I can effectively use a variety of instructional strategies in a well-organized subject-development environment.
12. I am confident in using play-based learning strategies within the subject-development environment.
13. I can assess and adapt the subject-development environment based on children's needs and interests.
14. I feel prepared to reflect on my design and improve the subject-development environment for better educational outcomes.

Part 3: Open-Ended Questions (Post-Training)

15. What aspects of the training program helped you most in improving your ability to design a subject-development environment?
16. What challenges did you face in applying what you learned from the training to your classroom environment?
17. In what areas do you feel further support or training is needed to enhance your self-efficacy in designing a subject-development environment?