

Mastering preschool activity spaces: the essential guide with 3PD eManual

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ABSTRACT

This study investigated the developmental needs of the 3PD eManual, a resource designed to enhance preschool teachers’ understanding of activity space management. Employing a quantitative methodology, the research utilized a survey design with a simple random sample of 100 preschool teachers from the Ministry of Education. The questionnaire, validated by 12 experts in early childhood education, demonstrated high reliability (Cronbach’s $\alpha=0.851$). Findings revealed moderate levels of teacher understanding (mean=3.2, SD=0.8), with only 25% exhibiting high comprehension. Additionally, 60% of respondents reported inadequate training programs (mean=2.8, SD=0.9), and 80% expressed dissatisfaction with current learning resources (mean=2.5, SD=1.0). Significantly, 85% of teachers advocated developing more interactive and accessible materials (mean=4.0, SD=0.7). The study underscores the necessity for the 3PD eManual, which integrates furniture, learning space, displays, and interior design to provide a comprehensive resource for preschool activity space management. The eManual aims to improve teacher understanding, enhance training effectiveness, and increase satisfaction with learning resources, ultimately fostering improved management of preschool environments. This research highlights the critical role of continuous professional development and accessible resources in early childhood education.

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1. INTRODUCTION

Preschool activity space management centers on creating a responsive environment that adheres to the principles of developmentally appropriate practice (DAP) and effective classroom space management [1], [2]. The 3PD eManual serves as a resource designed to enhance educators’ understanding of preschool activity space management. The acronym 3PD refers to the key components integral to this management approach: 3P (furniture, learning space, and display related to children) and D (displays), which denotes the element of the preschool classroom interior. Consequently, the researcher identifies four critical aspects: interior space, furniture, learning space, and display related to children.

Mastery in managing the physical environment of the classroom remains a significant challenge for teachers despite the application of learned techniques and theories. This difficulty arises from classroom settings’ complex and dynamic nature, which requires teachers to balance instructional delivery with maintaining order. The multifaceted responsibilities of teachers, including addressing diverse student needs and managing disruptions, contribute to the complexity of classroom management.

Poor classroom management can lead to teacher stress, burnout, and job dissatisfaction, highlighting the significance of effective management skills [3]. Thus, continuous professional development through workshops and training sessions is essential for teachers to cultivate adaptive management strategies [4]. Effective management of preschool activity spaces is crucial for fostering experiential learning and physical activity among young children. This involves a strategic approach to designing and administering both indoor and outdoor environments that cater to the developmental needs of preschoolers. Notably, the integration of experiential activities and movement into daily routines can significantly enhance children's learning experiences and physical health.

Managing children's activity spaces necessitates compliance with a range of laws and regulations, including the Environmental Health Act and the Safety Supervision Law of Children's Play Facilities, which are designed to ensure the safety and quality of these environments. Hence, rationalizing these regulations could alleviate administrative burdens and streamline the management of activity spaces, facilitating more efficient operations [5].

Interventions such as staff training and the incorporation of play equipment have been demonstrated to increase physical activity levels among preschoolers. These measures promote healthier lifestyles and enhance motor skills and social interactions among young children. Furthermore, establishing a stimulating and engaging environment encourages preschoolers to participate more actively in physical activities, contributing to their overall development and well-being [6].

Upgrades to outdoor spaces, including incorporating portable play equipment, have been linked with elevated levels of moderate to vigorous physical activity, underscoring the significance of well-equipped environments [7]. Although the primary emphasis is frequently placed on promoting physical activity and facilitating experiential learning, it is also essential to acknowledge the potential challenges, such as reconciling safety regulations with the necessity for dynamic and engaging play environments. Accordingly, tackling these challenges necessitates a comprehensive approach that considers both regulatory compliance and the developmental needs of children. The objective of this study is to identify the need for the development of the 3PD eManual in enhancing teachers' comprehension of preschool activity space management.

2. METHOD

The initial phase entails a needs analysis to identify the developmental requirements of the 3PD eManual in enhancing educators' comprehension of preschool activity space management. Therefore, to address the objectives of this study, a survey research design employing a questionnaire instrument was implemented. The sampling method utilized for this phase was based on a probability sampling approach, specifically a simple random sampling technique. Random sampling is a procedure used in quantitative research to select participants. It indicates that each individual has an equal probability of being selected from the population, thus ensuring that the sample will represent the population [8], [9]. In essence, this method helps to minimize selection bias and enhances the generalizability of the research findings. A total of 100 preschool teachers from the Ministry of Education were selected to participate in the survey. Quantitative data were gathered through the questionnaire instrument and subsequently analyzed using the Statistical Package for the Social Sciences (SPSS) version 29. The data obtained from the survey study were then examined to derive answers to the research questions.

2.1. Validity and reliability of questionnaire

The validity of a questionnaire pertains to its accuracy in measuring the specific constructs it is designed to assess. Within the realm of allergy research, validity represents a fundamental psychometric characteristic evaluated under classical test theory. It guarantees that the questionnaire effectively reflects the prevalence, impact, and management of allergies. Furthermore, validity is interconnected with other psychometric attributes, such as reliability and responsiveness, which collectively enhance the overall efficacy of the questionnaire in yielding valuable insights into allergy-related issues [10]. Note that measuring the validity of a questionnaire involves several steps to ensure that it accurately measures what it is intended to measure. First is face validity, this involves having experts review the questionnaire to ensure it appears to measure what it should. This is a subjective assessment with an initial check. Second is content validity, this method ensures the questionnaire covers all aspects of the measured construct. Experts in the field review the questions to confirm that they are comprehensive and relevant. The third is construct validity, this involves statistical tests to determine whether the questionnaire measures the theoretical construct it is intended to measure. Techniques such as factor analysis can be used to assess construct validity [11]. Last is pilot testing, conducting a pilot test with a small subset of the target population can help identify any issues with the questionnaire. The data collected from the pilot test can be analyzed to refine the questionnaire prior to being used in the main study.

While expert panels are essential for ensuring content validity, challenges such as arbitrary selection and imprecise questioning can undermine their effectiveness. Furthermore, it is crucial to establish clear guidelines and standardized procedures for expert selection and consultation to maximize the utility of their contributions [12]. The number of experts may vary. However, it is common practice to utilize a minimum of three experts to ensure diverse perspectives whilst maintaining manageability. For instance, the governance instrument study conducted by Iriyadi *et al.* [13] employed a panel of three experts. In contrast, other studies have utilized larger panels, such as 12 experts, in validating items [14]. Accordingly, the questionnaire for this study underwent rigorous validation by 12 experts, all of whom have extensive backgrounds in early childhood education. These experts were selected based on their qualifications and experience in fields directly related to early childhood education. The validation process aimed to ensure that the questions were clear, relevant, and aligned with the research objectives while also ensuring that the language used was appropriate for the target respondents. Table 1 explains in detail the findings of face validity, content validity, and construct validity.

Based on the pilot study involving 35 samples, the reliability of this questionnaire is reported to be 0.851, which indicates a high level of internal consistency. This suggests that the items within the questionnaire are measuring the same underlying construct effectively. Note that high reliability is crucial for ensuring the accuracy and dependability of the data collected, enhancing the overall validity of the research findings. Moreover, this value indicates a high level of reliability and consistency, as noted by Bond and Fox [15] and Cohen *et al.* [16]. Table 2 provides further details regarding the reliability of the questionnaire.

Table 1. Findings of face validity, content validity, and construct validity

Validity	Item	Percentage
Face validity	15	92
Content validity	32	90
Construct validity	4	93

Table 2. Findings of questionnaire reliability analysis

Cronbach's alpha	Cronbach's alpha based on standardized item	N of items
.851	.857	35

2.2. Data collection procedure

The data collection process encompassed several critical steps designed to ensure the accuracy and relevance of the obtained data. Initially, a questionnaire validated by experts in the field of early childhood education was distributed to 100 preschool teachers affiliated with the Ministry of Education. The sample selection was conducted using a simple random sampling method to ensure that each teacher had an equal opportunity to be selected.

Subsequently, the questionnaire was disseminated via an online platform to facilitate the data collection process. Teachers were allocated a period of two weeks to complete the questionnaire. Throughout the data collection period, which extended over one month, the researchers ensured that all received questionnaires were complete and suitable for analysis. The gathered data were subsequently analyzed using SPSS 27.0 software to provide a comprehensive understanding of the necessity for developing the 3PD eManual in enhancing teachers' comprehension of preschool activity space management.

Ethical considerations in this study encompassed the imperative to uphold participants' rights to privacy, confidentiality, and voluntary participation throughout the data collection process. Prior to the distribution of the questionnaire, informed consent was obtained from all participants, who were thoroughly informed about the study's purpose, the intended use of the data, and their right to withdraw from participation at any point. Furthermore, the researchers implemented measures to ensure that all collected data were securely stored and utilized exclusively for academic purposes, thereby preventing any potential misuse or identification of individual respondents.

3. RESULTS AND DISCUSSION

The subsequent study findings indicate the necessity for the development of a 3PD eManual aimed at enhancing teachers' comprehension of preschool activity space management.

3.1. Teacher understanding of activity space management

An analysis of SPSS 27.0 based on questionnaire responses revealed that the average level of teacher understanding was 3.2, with a standard deviation of 0.8. Notably, only 25% of the teachers demonstrated a high

level of understanding, while 50% exhibited a moderate level, and the remaining 25% displayed a low level of understanding. These findings indicate a significant opportunity for improvement in this area.

Understanding activity space management in preschool necessitates examining how educators perceive and utilize the physical environment to enhance learning and development. That is, educators play a pivotal role in shaping these environments to support children's educational experiences. Hence, it is essential for teachers to comprehend how children interact with various spaces, such as playgrounds and classrooms, in order to facilitate effective learning experiences [17], [18]. Zotova [19] mentioned that teachers evaluate the quality of the subject-space environment, with a particular emphasis on safety, accessibility, and the availability of resources for diverse activities. At the same time, a well-managed environment fosters a range of activities, including play, cognitive engagement, and artistic pursuits, all of which are crucial for the holistic development of children.

The development of the 3PD eManual is expected to enhance teacher understanding by offering a comprehensive and easily accessible resource. This eManual will enable teachers to consult more detailed and specific materials related to activity space management. Furthermore, the eManual's design allows for access at any time and from any location, facilitating self-directed learning for teachers. Lastly, the eManual can be periodically updated to ensure that its content remains relevant and aligned with the latest advancements in the field of early childhood education.

3.2. Effectiveness of existing training

The study's findings indicated that the average effectiveness of existing training was 2.8, with a standard deviation of 0.9. Only 40% of teachers perceived the existing training as sufficient, while 60% felt inadequate for effectively managing the activity space. This suggests a need to enhance current training programs to better address the requirements of preschool teachers. The 3PD eManual offers access to additional training materials that are more specific and relevant, enabling teachers to apply theoretical concepts more effectively in practice. Furthermore, this eManual provides interactive and situation-based training modules, which can enhance the overall effectiveness of learning. Additionally, the eManual is accessible online, allowing teachers to engage with the material at their own convenience. Consequently, this facilitates continuous improvement in their skills and knowledge, ultimately benefiting the management of preschool activity spaces.

3.3. Teacher satisfaction with learning resources

Data analysis indicates that the average teacher satisfaction with the current learning resources is 2.5, with a standard deviation of 1.0. Only 20% of teachers report satisfaction with the existing learning resources, whereas 80% express dissatisfaction.

Preschool teacher satisfaction with learning resources is influenced by various factors, including the adequacy and effectiveness of the resources provided, the support for professional development, and the alignment of resources with educational goals. For instance, teachers' satisfaction is often linked to how these resources enhance their teaching practices and contribute to their professional growth. Bolat and Koyuncu [20] explained that preschool teachers value learning centers to support children's development. While many teachers find these centers sufficient, there is a need for more diverse materials and support in organizing and utilizing these centers effectively. Consequently, teachers also benefit from in-service training to enhance their interaction with children in these settings.

This underscores the necessity for higher quality and more targeted learning resources. The 3PD eManual can address this need by offering comprehensive information and practical examples that teachers can utilize in managing activity spaces. The eManual can encompass a range of topics pertinent to activity space management, including space arrangement strategies, the utilization of teaching aids, and effective classroom management techniques. Through practical examples, teachers can observe the application of theory in real-world contexts, enhancing their understanding and application of concepts. Furthermore, the eManual can also incorporate interactive learning resources, such as video tutorials and quizzes, which may enhance teachers' interest and motivation to learn. In this manner, the 3PD eManual has the potential to serve as an effective tool for increasing teacher satisfaction with learning resources and, consequently, improving the quality of preschool activity space management.

3.4. Teacher suggestions for improvement

A substantial 85% of educators recommended the provision of more interactive and accessible learning materials to aid in the management of activity spaces. The mean score for this suggestion was 4.0, with a standard deviation of 0.7, indicating a strong consensus among teachers. Effective classroom management is crucial for establishing an environment that fosters learning and promotes student development. For that reason, various strategies can be implemented to enhance classroom management, each possessing distinct focuses and

advantages. These strategies encompass establishing clear expectations and integrating social-emotional learning, which can substantially influence student behavior and academic performance.

Teachers should prepare comprehensively for their classes, encompassing lesson planning and the systematic organization of materials to facilitate seamless transitions and minimize downtime. In addition, establishing and maintaining consistent routines are essential for helping students comprehend expectations and alleviating uncertainty, thus fostering a more orderly classroom environment. On top of that, through meticulous preparation and adherence to established routines, educators can cultivate a structured and predictable learning atmosphere that enhances student engagement and promotes effective classroom management [21], [22].

The design of the 3PD eManual is supported by previous studies highlighting the effectiveness of interactive multimedia and online professional learning environments. Research indicates that multimedia elements such as videos, animations, and simulations enhance users' understanding and engagement [23], [24]. Online professional development platforms incorporating video demonstrations, discussion forums, and collaborative activities improve teachers' professional knowledge and instructional practices [25], [26].

The 3PD eManual, featuring interactive elements and online accessibility, is positioned to meet this recommendation, enhancing teachers' understanding and practices in managing preschool activity spaces. This eManual can offer a variety of interactive learning resources, including videos, animations, and simulations, which can facilitate a deeper comprehension of relevant concepts among educators. Furthermore, it can provide an online discussion forum, allowing teachers to share experiences and exchange ideas regarding the management of activity spaces. The online accessibility of these resources ensures that educators can engage with the materials at their convenience, thus promoting flexibility and accessibility. As a result, the 3PD eManual is an effective instrument for enhancing teachers' understanding and practices while addressing their requests for more interactive and accessible learning materials.

3.5. Limitation and future research

This study offers significant insights into the developmental needs of the 3PD eManual through a quantitative survey of 100 preschool teachers; however, several limitations must be acknowledged. The reliance on self-reported questionnaire data, without the inclusion of classroom observations or qualitative insights, may constrain the depth of understanding regarding teachers' actual practices and challenges in managing preschool activity spaces. Additionally, the sample was restricted to Ministry of Education preschool teachers, which limits the generalizability of the findings to private preschools or other educational contexts characterized by differing resources and infrastructure. Future research should employ mixed-methods designs that incorporate surveys, classroom observations, and teacher interviews, as well as conduct longitudinal studies to assess the effectiveness of the 3PD eManual post-implementation across diverse preschool settings, thereby enhancing the validity and applicability of the findings.

4. CONCLUSION

The conclusions drawn from the findings of this study indicate an urgent need for the development of a 3PD eManual aimed at enhancing teachers' comprehension of preschool activity space management. Analysis of the questionnaire data using SPSS 27.0 revealed that teachers' average level of understanding was moderate, with only a small proportion demonstrating a high level of understanding. This suggests significant potential for improvement in this area. Notably, the proposed 3PD eManual could serve as a comprehensive and easily accessible resource, facilitating improved teacher understanding. Furthermore, the study revealed that the effectiveness of existing training programs was deemed inadequate, with most teachers expressing that current training does not sufficiently equip them to manage activity spaces effectively. In addition, the introduction of the 3PD eManual would provide teachers with additional training materials that are more specific and relevant, assisting them in better applying theoretical knowledge to practice. This enhancement is anticipated to increase the overall training effectiveness and subsequently improve the quality of preschool activity space management.

Additionally, teacher satisfaction with the current learning resources was low, with only a small percentage of teachers expressing satisfaction with the available resources. This underscores the necessity for higher-quality and more focused learning materials. The 3PD eManual has the potential to fulfil this requirement by offering detailed information and practical examples that teachers can utilize in the management of activity spaces. Moreover, enhanced learning resources are likely to contribute to improved teacher understanding and practices in this domain. Finally, the suggestions made by teachers for improvement reflect a strong demand for more interactive and accessible learning materials. The 3PD eManual, characterized by its interactive features and online accessibility, is well-positioned to address this recommendation and further enhance teachers' understanding and practices in managing preschool activity

spaces. In conclusion, developing the 3PD eManual represents a significant and pertinent initiative to improve teachers' understanding of preschool activity space management.

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AUTHOR CONTRIBUTIONS STATEMENT

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C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

CONFLICT OF INTEREST STATEMENT

Author state no conflict of interest.

DATA AVAILABILITY

Data availability is not applicable to this paper as no new data were created or analyzed in this study.

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