Assessing the Impact of Institutional Support, Teacher Technology Attitude, and Teachers Collaboration on Preschool Teacher Professional Development in China

Dai Shi Qin, Lily Muliana Binti Mustafa
[1] City University Malaysia, [2] Guangxi College for Preschool Education
Corresponding Author: 176416103@qq.com

Information of Article

Article history:
Received: June 2024
Revised: Nov 2024
Accepted: Jan 2025
Available online: Feb 2025

Keywords:
Preschool Teacher
Professional Development
Institutional Support

ABSTRACT

The professional development (PD) of preschool teachers is pivotal to enhancing the quality of early childhood education. In China, disparities in institutional support, teacher technology attitudes, and teacher collaboration significantly influence PD outcomes, particularly across urban and rural contexts. This conceptual paper examines the interplay of these three factors and their collective impact on preschool teacher PD in China. Drawing on theoretical frameworks such as Social Learning Theory, the Technology Acceptance Model, and Communities of Practice, the study identifies key challenges, including uneven resource allocation, digital divides, and limited collaborative practices. By synthesizing existing literature and proposing hypotheses, this paper underscores the need for targeted interventions to address these disparities. The findings aim to inform policymakers, educational leaders, and stakeholders in designing effective, context-specific PD programs that support equitable teacher development, ultimately improving the quality of preschool education in China and providing insights for similar educational contexts worldwide.

Introduction

In recent years, the field of early childhood education (ECE) in China has undergone significant transformations, with a growing emphasis on enhancing the quality of preschool education. This shift in focus is driven by the realization that early childhood education plays a crucial role in shaping the future cognitive and social development of young children (Yang & Rao, 2020). Central to this development is the continuous professional growth of preschool teachers, which is essential to improving the quality of education and child outcomes (Wan, 2023). Professional development (PD) is a critical factor in fostering teacher competence, yet the way this development occurs in the Chinese context is influenced by a variety of factors. Among these, institutional support, teacher technology attitudes, and collaboration between teachers are believed to play pivotal roles in enhancing the effectiveness of professional development initiatives (Bautista et al., 2023). Despite the growing recognition of these factors, little empirical research has been conducted in China to explore how they interact and contribute to the professional growth of preschool teachers (Zhong, 2024). This paper seeks to address this gap by assessing the impact of institutional support, teacher technology attitudes, and teacher collaboration on preschool teacher professional development in China.

,

The quality of preschool education in China has been under the spotlight due to the significant disparity in teacher qualifications, teaching quality, and access to resources between urban and rural areas (Wan, 2023). The Chinese government has made strides in improving preschool education by implementing new policies aimed at increasing funding, enhancing teacher training programs, and integrating modern technologies into the curriculum (Luo et al., 2020). However, these initiatives have had mixed results, and many preschool teachers still face substantial challenges in terms of professional development. For instance, while institutional support, such as funding and professional training programs, has been a key aspect of these reforms, teachers often struggle with the lack of tailored PD opportunities that address the specific needs of preschool education (Peng, 2017). Moreover, the attitudes of teachers toward technology integration in their pedagogical practices and their collaborative efforts with colleagues are also influencing factors that are yet to be fully understood in the Chinese context (Pan & Gan, 2020).

One of the key barriers to effective professional development is the limited institutional support for teachers' ongoing growth (Chen & Peng, 2018). Institutional support can take many forms, such as providing professional development workshops, allocating time for teacher collaboration, and offering access to technological tools and resources. Research has shown that institutional support plays a crucial role in enhancing teachers' professional development (Scott et al., 2023). However, in China, there is a significant variation in the level of institutional support across regions and institutions, with rural areas often receiving fewer resources and less structured support for teachers' professional growth (Philipsen et al., 2022). This disparity is a key issue in the field of preschool education and underscores the need for further research into how institutional support can be optimized to enhance professional development outcomes.

Another important factor influencing professional development is the attitude of teachers toward technology (Kao et al., 2020). In the era of digital education, the integration of technology into early childhood education has become increasingly important. However, many preschool teachers in China face challenges in adopting new technologies, often due to a lack of training, access to resources, and the perceived relevance of technology to young children's learning. Research suggests that teachers' attitudes toward technology can significantly impact their willingness and ability to integrate it into their teaching practices. Despite the government's push to incorporate technology into education, many teachers in China remain hesitant or underprepared to use these tools effectively (Li, 2023). Understanding how teacher technology attitudes affect professional development is crucial, particularly in the context of a rapidly evolving educational landscape.

Furthermore, teacher collaboration is increasingly recognized as a vital component of professional development (Khasawneh et al., 2023). Collaborative learning among teachers fosters a shared sense of responsibility for student outcomes and enhances professional growth through the exchange of knowledge and ideas. In China, however, collaboration among preschool teachers remains limited, primarily due to large class sizes, high workload, and institutional structures that do not prioritize collaborative practices (Chen, 2020). Studies have shown that when teachers engage in collaborative professional development activities, they experience improvements in teaching effectiveness and job satisfaction (Ke et al., 2019). However, teacher collaboration in Chinese preschools is often hindered by the lack of time, resources, and institutional support, making it a critical area for further exploration.

Given these challenges, it is essential to understand how institutional support, teacher technology attitudes, and teacher collaboration collectively contribute to the professional development of preschool teachers in China. By investigating these factors, this study aims to provide valuable insights into how to improve the quality of preschool teacher training and, consequently, the quality of early childhood education in the country.

Significance of Study

This study is significant for several reasons. First, it addresses a critical gap in the literature on preschool teacher professional development in China. While numerous studies have explored various aspects of teacher development in primary and secondary education, there is a limited body of research specifically focused on preschool education, particularly in the context of China. As preschool education becomes increasingly recognized as a fundamental component of the educational system, understanding the factors that influence teachers' professional growth is crucial

for ensuring the delivery of high-quality early childhood education (Xie & Liu, 2020). This study contributes to the growing body of knowledge by exploring the interplay of institutional support, teacher technology attitudes, and teacher collaboration, offering a comprehensive view of the factors that shape professional development in preschools.

Second, the findings of this study will be valuable for policymakers, educational leaders, and other stakeholders in the Chinese education system who are involved in the design and implementation of professional development programs. Understanding the impact of these key factors will enable educators and policymakers to design more effective PD programs that cater to the unique needs of preschool teachers. For example, if the study finds that teacher collaboration is a major factor in professional growth, it could encourage the development of more collaborative PD initiatives. Similarly, if institutional support is found to be insufficient in rural areas, targeted interventions could be designed to address these disparities.

Lastly, this study is significant because it contributes to the broader international discourse on teacher professional development, particularly in the context of rapidly developing countries like China. As China continues to expand its influence in global education, understanding how to enhance the professional development of its teachers will be crucial for improving the overall quality of education. The findings of this study could have implications for other countries in similar educational contexts, offering valuable lessons for improving teacher training and development globally.

Hence, the professional development of preschool teachers in China is a multifaceted issue influenced by various factors, including institutional support, teacher technology attitudes, and teacher collaboration. Despite the importance of these factors, research on their collective impact on teacher development in the Chinese context remains limited. This study aims to fill this gap by investigating how these factors influence preschool teacher professional development in China, offering valuable insights that can inform future policies and practices aimed at improving the quality of early childhood education.

Literature Review

Institutional Support in Teacher Professional Development

Institutional support plays a crucial role in shaping the effectiveness and outcomes of teacher professional development (PD). Various studies highlight that institutional policies, leadership, resources, and culture significantly influence the professional growth of educators (Adarkwah et al., 2021). In China, the policy framework guiding teacher development is integral in promoting continuous teacher improvement. Policies that prioritize in-service training, mentorship programs, and access to teaching resources are essential in creating a robust PD ecosystem. For example, the Chinese government has initiated reforms aimed at increasing educational funding and enhancing teacher training, which have been pivotal in addressing disparities between urban and rural schools (Wu, 2009).

Research shows that leadership plays a key role in facilitating or hindering PD. In China, transformational leaders who encourage innovation, provide guidance, and foster professional learning communities (PLCs) contribute to higher teacher satisfaction and professional growth (Li, 2023). Studies suggest that in rural areas, where educational resources

are often limited, strong leadership is crucial to ensuring that teachers receive adequate support. Conversely, schools with weak leadership structures may struggle to implement effective PD programs, contributing to unequal access to development opportunities (Ke et al., 2019). In addition, the culture of an institution is pivotal in creating a supportive environment for PD. When teachers are encouraged to share experiences, access professional development resources, and engage in reflective practices, they tend to feel more committed to their professional growth (Chen & Peng, 2018). In China, the increasing emphasis on collaboration and innovation in school cultures has resulted in improved teacher satisfaction and engagement with PD programs.

However, significant challenges persist in ensuring equitable access to institutional support. Disparities in access to resources, varying leadership styles, and insufficient funding can create barriers to effective PD, particularly in rural areas. These disparities have been shown to lead to uneven development across schools, where urban teachers may benefit from more structured and resource-rich PD programs, while rural teachers face obstacles such as inadequate financial backing and time for PD (Ouyang, 2005). Addressing these challenges is essential for creating a more equitable PD system in China.

Teacher Technology Attitude

Teacher attitudes toward technology have a profound effect on the adoption of new technologies and the effectiveness of professional development (PD) programs. Positive attitudes toward technology can facilitate the integration of digital tools into teaching, leading to enriched learning environments. Studies show that teachers who view technology as a valuable pedagogical tool are more likely to engage with it in their classrooms, thereby improving teaching practices and student learning outcomes (Luo, Berson & Berson, 2020). In China, teachers who embrace technology tend to be more active in PD opportunities focused on integrating new digital tools into their classrooms (Liu, Lin & Zhang, 2017).

Conversely, negative perceptions of technology can impede its adoption and limit its potential benefits. Some teachers perceive technology as difficult to use, time-consuming, or irrelevant to their teaching needs. These perceptions, often rooted in a lack of digital literacy or resistance to change, can hinder teachers' willingness to engage in PD involving technology integration. In China, where access to technology is uneven, particularly between urban and rural areas, these barriers are even more pronounced (Yang & Hong, 2023). Rural preschool teachers, in particular, may face challenges in integrating technology into their teaching due to limited access to digital devices and a lack of formal training in educational technologies (Luo, Berson & Berson, 2020).

Moreover, studies in China have shown that teachers in urban areas are more likely to participate in technology-related PD initiatives compared to their rural counterparts, where such opportunities are often limited (Yang & Hong, 2023). Government initiatives aimed at improving technology integration in schools have made strides, but more targeted interventions are needed to address the digital divide and ensure that all teachers, regardless of location, have equal access to technological resources and training.

Teacher Collaboration in Professional Development

Collaboration among teachers is an essential element of professional development. Research emphasizes that

collaborative learning environments, such as professional learning communities (PLCs), significantly enhance teachers' skills and knowledge. For instance, participation in PLCs has been shown to improve teaching skills, motivation, and self-efficacy by fostering collaborative learning, shared problem-solving, and the exchange of innovative practices (Ohayon, 2023). Additionally, PLCs provide a structure for teachers to set goals, assess student learning, and implement effective strategies collectively (Hoaglund et al., 2014). When teachers collaborate, they share experiences, ideas, and resources that enrich their professional practices, which is especially valuable in fostering reflective dialogue and combating professional isolation.

This collaborative approach fosters a sense of collective responsibility and continuous learning, benefiting both individual teachers and the broader school community (Rigelman & Ruben, 2012). In China, collaborative practices, particularly in small groups addressing shared classroom challenges, have demonstrated effectiveness in improving teaching quality (Hairon & Tan, 2017).

Peer mentoring is another effective strategy for promoting teacher collaboration in PD. Research indicates that mentoring relationships enhance the professional growth of both mentors and mentees. Mentors benefit from reflective practices, while mentees gain practical, real-world insights and support (Musanti & Pence, 2010). In China, where large class sizes and high workloads often hinder collaboration, structured peer support and mentoring are crucial for teacher development, particularly in rural areas where teachers may experience professional isolation.

Furthermore, collaborative teaching—where teachers co-plan, co-teach, and evaluate lessons together—creates an environment of mutual respect and shared expertise. This approach is particularly effective in helping teachers adapt to new methodologies, such as technology integration and differentiated instruction (Prenger et al., 2019). However, institutional constraints like large class sizes and limited time for collaboration remain challenges to the widespread adoption of such practices (Yoo & Jang, 2022).

Professional Development in China

Professional development for preschool teachers in China faces several challenges, despite the increasing recognition of its importance. China's educational reforms have prioritized teacher development, but issues such as inconsistent access to training, limited support for rural teachers, and a lack of targeted professional development for early childhood educators persist. Many PD programs in China focus on traditional, top-down methods of instruction, with limited opportunities for interactive or hands-on learning. This approach has been shown to hinder teacher engagement and reduce the long-term effectiveness of PD initiatives (Bautista et al., 2023). Additionally, rural preschool teachers report limited opportunities for high-quality PD programs, particularly those that address the unique challenges of their environments (Yang & Rao, 2020).

Furthermore, there is a gap in PD frameworks for preschool teachers, particularly in the integration of modern teaching methods such as digital technologies. The existing PD models often fail to adequately address the specific needs of early childhood educators or provide sufficient support to help them navigate the challenges of technology adoption (Zhou, 2023). For example, in rural preschools, where technology access is often limited, PD programs focusing on digital tools may not be feasible unless teachers receive targeted training and support to overcome these barriers (He & Ho, 2017).

Hypotheses

Institutional support has been widely acknowledged as a cornerstone of teacher professional development. Schools and educational institutions that provide adequate resources, mentorship opportunities, and leadership support foster greater engagement in professional development activities. However, in the Chinese context, disparities in institutional support, especially between urban and rural preschools, highlight the need to explore the varying impacts of institutional factors on teacher development.

Hypothesis 1: *Higher levels of institutional support are positively associated with increased participation in professional development activities among preschool teachers in China.*

Teachers' attitudes toward technology play a critical role in their willingness to adopt digital tools and participate in technology-related professional development initiatives. Positive perceptions of technology's ease of use and usefulness have been shown to significantly drive adoption rates. Conversely, negative attitudes, often influenced by inadequate training or a lack of technical support, hinder technology adoption and limit participation in technology-integrated professional development.

Hypothesis 2: *Teachers with more positive attitudes toward technology are more likely to participate in technology-focused professional development initiatives.*

Collaboration among teachers is highlighted as an essential component of professional development. Collaborative environments such as Professional Learning Communities (PLCs) and peer mentoring provide teachers with opportunities to exchange ideas, share experiences, and learn from each other's practices. This approach enhances teaching effectiveness and fosters a culture of collective responsibility for professional growth. The Chinese cultural emphasis on collective effort makes teacher collaboration particularly relevant in this context, as it aligns with the social and professional dynamics of preschool education.

Hypothesis 3: *Greater collaboration among teachers is positively associated with improved professional development outcomes.*

Theoretical Framework

Theoretical frameworks play a crucial role in understanding how different elements of teacher professional development (PD) interact. In the context of assessing the impact of institutional support, teacher technology attitudes, and teacher collaboration on preschool teacher professional development in China, several key theories can provide valuable insights. These include Social Learning Theory (SLT), the Technology Acceptance Model (TAM), Communities of Practice (CoP), and others that explain how teachers learn, adopt new technologies, and collaborate effectively. By integrating these theoretical frameworks, we can better understand the dynamics of PD and how various factors such as leadership, peer support, and technology attitudes influence professional growth.

Social Learning Theory (SLT)

Social Learning Theory, introduced by Albert Bandura (1977), emphasizes the role of social interaction in learning. According to SLT, learning occurs in a social context and is facilitated by observation, imitation, and modeling. This theory suggests that individuals learn from others in their social environment, which can significantly influence their behavior and skill development. In the context of teacher PD, SLT highlights how teachers' interactions with colleagues, mentors, and leaders contribute to their learning and professional growth.

SLT is particularly relevant for understanding how collaboration and peer mentoring can enhance PD. Teachers who engage in collaborative learning environments, such as Professional Learning Communities (PLCs) or co-teaching models, are exposed to different teaching strategies, feedback, and shared experiences. This exposure fosters reflective practice, where teachers can evaluate and improve their teaching methods by learning from the practices of others. Additionally, the observation of skilled teachers serves as a model for less experienced educators, enabling them to adopt and refine new techniques in a supportive environment (Bandura, 1977). In the Chinese context, SLT underscores the importance of fostering a collaborative culture in schools. For instance, rural preschools often lack structured collaborative opportunities, which can hinder reflective practice es. Addressing these gaps through institutional support can amplify the benefits of SLT.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), is widely used to understand how individuals adopt new technologies. TAM posits that two key factors influence the likelihood of adopting a technology: perceived ease of use and perceived usefulness. If teachers perceive that technology is easy to use and beneficial to their teaching practices, they are more likely to adopt and integrate it into their classrooms. Conversely, if technology is perceived as difficult to use or irrelevant, adoption rates are lower.

TAM is particularly relevant to understanding teachers' attitudes toward integrating digital tools into their teaching. For preschool teachers in China, where the adoption of educational technology is still developing, TAM can help explain why some teachers embrace new technologies while others resist them. Teachers' perceptions of the usefulness of technology, along with their confidence in using it, are critical to successful technology adoption and its integration into PD programs. For example, a study found that perceived usefulness, self-efficacy, and facilitating conditions significantly influence teachers' attitudes and intention to use technology in educational settings (Sun & Mei, 2020). Similarly, perceived usefulness and ease of use were shown to have strong direct effects on technology adoption among Chinese educators, highlighting the importance of aligning PD programs with these factors (Zhou et al., 2022).

However, TAM also highlights the barriers to technology adoption, such as teachers' perceived lack of time, digital skills, or technical support. In China, where the digital divide between urban and rural areas can be significant, these barriers may be even more pronounced. Research emphasizes that facilitating conditions, such as infrastructure and institutional support, are critical to overcoming these barriers and enhancing teachers' confidence in using technology (Liu et al., 2017). Integrating institutional support with TAM principles can mitigate these challenges by providing resources, training, and encouragement.

Communities of Practice (CoP)

The Communities of Practice (CoP) theory, developed by Etienne Wenger (1998), focuses on the importance of social learning through community engagement. According to CoP theory, learning is a collective, socially embedded process where individuals participate in a community of practice, contributing to shared knowledge and experiences. CoPs are groups of people who share a common interest, profession, or practice and who learn from each other through regular interaction and collaboration.

In the context of teacher PD, CoP theory suggests that teachers can enhance their professional growth by engaging in collaborative groups, where they share ideas, resources, and strategies. CoPs create a sense of belonging and support, which fosters teacher engagement and enhances learning. These communities can take many forms, such as formal PLCs, online teacher networks, or informal groups that meet to discuss challenges and successes. Research has shown that participation in CoPs fosters teacher development by improving reflective practices and encouraging collaborative innovation (Tang & Ye, 2023).

The CoP framework is particularly relevant for preschool teachers in China, where the professional community is often fragmented due to geographical and institutional disparities. Fostering CoPs in rural schools can help overcome isolation by creating networks where teachers collaborate and share best practices, as demonstrated in rural teacher development programs that leveraged CoPs to build supportive and transformative professional relationships (Romero & Vasilopoulos, 2020). This aligns closely with SLT, as both emphasize collective learning environments.

The Diffusion of Innovations Theory

Everett Rogers' Diffusion of Innovations (DOI) theory (2003) offers another important perspective on the adoption of new ideas, practices, or technologies. According to DOI, innovations spread through populations in a predictable pattern: innovators, early adopters, early majority, late majority, and laggards. This theory helps explain how new teaching practices, technologies, or PD models are introduced into schools and how they gain acceptance over time. In the context of teacher PD, DOI can be applied to understand how new methods of teaching or new technologies are gradually adopted by educators. Innovators and early adopters tend to be more open to experimenting with new practices, while the early and late majority adopt them once they see evidence of success and effectiveness. Teachers who are hesitant or resistant to change are often the last group to adopt innovations. By understanding these stages, PD programs can tailor their approaches to target different groups of teachers with appropriate strategies and support. For instance, showcasing successful cases of technology integration in urban schools could encourage adoption in rural areas.

The Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB), developed by Ajzen (1991), suggests that individual behavior is driven by intentions, which in turn are influenced by attitudes, subjective norms, and perceived behavioral control. In the context of teacher PD, TPB can help explain how teachers' attitudes toward professional development, their perceptions of peer support, and their confidence in their ability to engage in PD shape their behavior. TPB suggests that teachers are more likely to engage in PD if they believe that it will enhance their teaching, if they perceive support from their colleagues and leaders, and if they feel confident in their ability to participate in PD activities. For example, teachers who perceive that their participation in PD will be rewarded with improved teaching performance, recognition, or

career advancement are more likely to engage in PD activities. In China, institutional policies that highlight these rewards could leverage TPB to encourage broader participation (Kao et al., 2018).

Synthesis of Theories

The interplay of these theories provides a comprehensive understanding of how institutional support, technology attitudes, and collaboration influence PD outcomes. For example, CoPs and SLT complement TAM by creating supportive environments for technology adoption. Similarly, TPB and DOI emphasize intention and gradual change, which can guide the design of phased PD initiatives. Together, these frameworks enable a holistic approach to improving preschool teacher professional development in China, addressing barriers and leveraging opportunities within institutional and cultural contexts.

Conceptual Framework

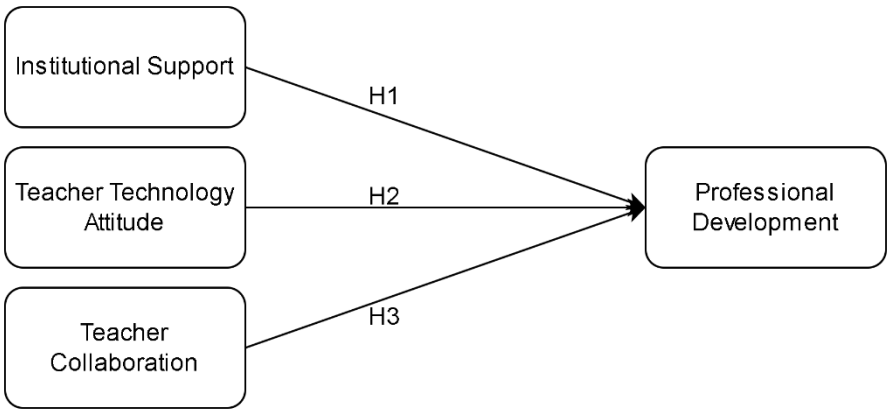

Figure 1: Conceptual Framework of Study

Discussion

Practical Implication

The findings of this study hold significant practical implications for improving the professional development of preschool teachers in China. Firstly, tailored institutional support is essential to bridge the gap between urban and rural preschools. Policymakers and educational leaders should prioritize the allocation of resources to rural areas, ensuring equitable access to professional development programs. For example, funding could be directed toward creating local training centers, offering professional workshops, and enabling participation in national-level PD programs. Additionally, mentorship opportunities that connect experienced teachers from well-resourced urban schools with less experienced rural teachers can foster knowledge transfer and build supportive teaching networks.

Secondly, fostering positive attitudes toward technology among preschool teachers is critical in the digital age. Training programs should focus on enhancing teachers' digital literacy and confidence in using technology effectively in the classroom. This can be achieved through hands-on, practical workshops that demonstrate the direct benefits of technology integration for early childhood education. Furthermore, providing affordable or subsidized access to digital tools and resources, especially in under-resourced schools, can ensure that teachers are well-equipped to adopt innovative teaching methods.

Thirdly, enhancing teacher collaboration must be a central focus of institutional reforms. Schools should establish structures that facilitate regular interaction among teachers, such as Professional Learning Communities (PLCs). Allocating dedicated time during work hours for collaborative activities, including co-planning lessons and sharing teaching strategies, can significantly enhance teacher effectiveness. In geographically isolated areas, online collaboration platforms can serve as valuable tools for fostering a sense of community and facilitating knowledge exchange.

Finally, professional development programs should be designed to accommodate the specific needs of preschool teachers. Unlike programs for primary and secondary educators, these initiatives should incorporate practical, child-centered approaches that align with early childhood education pedagogy. Introducing interactive, hands-on components to training programs can increase engagement and help teachers apply new skills directly in their classrooms. Additionally, policies should incentivize participation in PD by linking it to career advancement opportunities, such as promotions or certifications.

Theoretical Implication

This study also offers several theoretical contributions to the understanding of teacher professional development. The findings expand the application of Social Learning Theory (SLT) by demonstrating its relevance to the collaborative learning processes of preschool teachers in China. Specifically, it highlights the importance of adapting SLT to account for institutional disparities. This underscores the need for tailored interventions to facilitate reflective practices and peer-to-peer learning in under-resourced contexts.

The study further enriches the Technology Acceptance Model (TAM) by linking it to preschool education. While TAM is traditionally applied to technology adoption in broader educational settings, this research underscores its applicability to the unique challenges faced by preschool teachers, such as low digital literacy and limited access to resources. By integrating TAM with institutional and collaborative factors, this study provides a nuanced understanding of how attitudes toward technology influence professional development in early childhood education.

The concept of Communities of Practice (CoP) is also refined through this research. By emphasizing the potential of online and hybrid CoPs to connect preschool teachers across geographically dispersed areas, the study offers insights into creating sustainable professional communities. This is particularly relevant in China, where rural-urban disparities can hinder the development of cohesive teacher networks. Fostering CoPs that leverage digital platforms can bridge these divides and promote collaborative learning on a larger scale.

Moreover, the findings broaden the scope of Diffusion of Innovations Theory (DOI) by illustrating how new professional development practices gradually gain acceptance among preschool teachers. The study highlights the importance of targeted strategies to support late adopters, particularly those in rural or under-resourced schools. By showcasing successful case studies and providing evidence-based interventions, educational leaders can encourage widespread adoption of innovative teaching practices.

Lastly, the study contributes to the Theory of Planned Behavior (TPB) by demonstrating how teacher intentions and perceived behavioral control shape participation in professional development. The findings suggest that building teacher confidence through supportive policies, accessible resources, and peer encouragement can significantly enhance their engagement in PD activities. This highlights the need for policy interventions that create a positive, enabling environment for preschool teachers to pursue continuous professional growth.

Challenges and Considerations

Despite the promising implications of this study, several challenges and considerations must be addressed to ensure the effective implementation of professional development (PD) initiatives for preschool teachers in China. To begin with, resource disparities between urban and rural areas remain a significant barrier. Rural preschools often lack access to sufficient funding, digital tools, and training opportunities, which can hinder the equitable implementation of PD programs. Policymakers must address these inequalities by allocating targeted resources to under-resourced schools and regions.

In addition, the cultural and institutional norms in Chinese preschools may pose challenges to fostering teacher collaboration. High workloads, large class sizes, and rigid administrative structures often limit teachers' time and capacity for collaborative activities. Schools and educational leaders must find innovative solutions to create time and space for collaboration, such as restructuring work schedules or introducing policies that prioritize teamwork.

Another challenge is resistance to change. Teachers with long-standing practices may be hesitant to adopt new teaching methodologies or integrate technology into their classrooms. This resistance can be rooted in a lack of confidence or unfamiliarity with innovative tools and techniques. Tailored training programs that emphasize practical application and gradual adoption can help mitigate these challenges and build teacher confidence. Furthermore, the successful implementation of PD initiatives requires strong leadership and consistent support from school administrators and policymakers. Without clear guidance and sustained investment, even well-designed PD programs may fail to achieve their intended outcomes. Ensuring long-term commitment and alignment between national policies and local implementation efforts is essential for overcoming these challenges.

Future Research Recommendations

To further enhance the understanding and effectiveness of professional development for preschool teachers in China, future research should explore several key areas. One area of focus is the need for longitudinal studies to examine the long-term impacts of institutional support, technology attitudes, and teacher collaboration on professional growth. Such studies can provide deeper insights into how these factors interact over time and influence teaching practices and student outcomes. Another promising direction is developing and evaluating innovative PD models tailored to the

unique needs of preschool teachers. For instance, exploring the effectiveness of hybrid or online professional learning communities (PLCs) can shed light on how digital platforms can facilitate collaboration and knowledge sharing among geographically dispersed teachers. Comparative studies between urban and rural preschools can also offer valuable insights into addressing regional disparities in PD access and outcomes. Identifying best practices from urban settings that can be adapted to rural contexts, and vice versa, can help create more equitable professional development opportunities. Additionally, research should examine the role of teacher beliefs and attitudes in shaping their engagement with PD initiatives. Understanding the psychological and motivational factors that influence teachers' willingness to participate in PD can inform the design of more engaging and supportive programs. Finally, investigating the perspectives of other stakeholders, such as school administrators, policymakers, and parents, can provide a more comprehensive understanding of the ecosystem surrounding preschool teacher professional development. Integrating these perspectives into future research can lead to more holistic and sustainable solutions.

Conclusion

This study provides a conceptual framework for understanding the interplay of institutional support, teacher technology attitudes, and teacher collaboration in shaping the professional development of preschool teachers in China. The findings underscore the multifaceted nature of professional growth, influenced by resource availability, cultural norms, and individual attitudes. Addressing these interconnected factors is essential for creating effective PD initiatives that cater to the diverse needs of preschool educators. The study highlights the critical role of institutional support in providing the infrastructure and resources necessary for professional growth. Policies that prioritize equitable resource distribution and foster leadership development are key to bridging the gaps between urban and rural preschools. Furthermore, fostering positive attitudes toward technology and enhancing digital literacy can empower teachers to integrate innovative tools into their teaching practices, ultimately benefiting student learning outcomes.

Collaboration among teachers emerges as a vital component of professional development. Creating opportunities for shared learning and collective problem-solving can enhance teaching effectiveness and build a sense of professional community. However, the challenges of resistance to change, resource disparities, and institutional constraints must be addressed to realize the full potential of collaborative and technology-driven PD programs. By integrating theoretical insights with practical recommendations, this study contributes to the ongoing discourse on improving early childhood education in China. Future efforts must focus on overcoming the identified challenges, advancing research, and implementing innovative solutions that empower preschool teachers to achieve their professional potential. Ultimately, these initiatives will enhance the quality of preschool education, laying a strong foundation for the cognitive and social development of young children in China.

References

Adarkwah, M., Mekonen, Y., & Kalim, U. (2021). Teacher Professional Development as a Catalyst for Faculty Development: The Case of a University in China. *Journal of education and training studies*, 9, 1-15. https://doi.org/10.11114/JETS.V9I5.5139.

Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human behavior and emerging technologies*, *2*(4), 314-324.

An-Chun, W. (2009). Practice of China Breaking Through Teacher Education's Institutional Barriers. .

Bautista, A., Xu, R., Cen, F., & Yang, W. (2023). Professional Learning Communities in Chinese Preschools: Challenging Western Frameworks. *Education Sciences*. https://doi.org/10.3390/educsci13101055.

Chen, L. (2020). A historical review of professional learning communities in China (1949-2019): some implications for collaborative teacher professional development. *Asia Pacific Journal of Education*, 40, 373 - 385. https://doi.org/10.1080/02188791.2020.1717439.

Chen, Y., & Peng, J. (2018). Continuing professional development of EMI teachers: a Chinese case study. *Journal of Education for Teaching*, 45, 219 - 222. https://doi.org/10.1080/02607476.2018.1548177.

García-Avilés, J. A. (2020). Diffusion of innovation. *The international Encyclopedia of media psychology*, *1*(8).

Hairon, S., & Tan, C. (2017). Professional learning communities in Singapore and Shanghai: implications for teacher collaboration. *Compare: A Journal of Comparative and International Education*, 47, 104 - 91. https://doi.org/10.1080/03057925.2016.1153408.

He, P., & Ho, D. (2017). Leadership for school-based teacher professional development: the experience of a Chinese preschool. *International Journal of Leadership in Education*, 20, 717 - 732. https://doi.org/10.1080/13603124.2016.1180431.

Hoaglund, A., Birkenfeld, K., & Box, J. (2014). Professional Learning Communities: Creating a Foundation for Collaboration Skills in Pre-Service Teachers. *Education 3-13*, 134, 521-528.

Kao, C., Lin, K., & Chien, H. (2018). Predicting teachers' behavioral intentions regarding web-based professional development by the theory of planned behavior. *Eurasia journal of mathematics, science and technology education*, 14, 1887-1897. https://doi.org/10.29333/EJMSTE/85425.

Kao, C., Wu, Y., Chang, Y., Chien, H., & Mou, T. (2020). Understanding Web-Based Professional Development in Education: The Role of Attitudes and Self-efficacy in Predicting Teachers' Technology-Teaching Integration. *The Asia-Pacific Education Researcher*, 29, 405 - 415. https://doi.org/10.1007/s40299-019-00493-x.

Ke, Z., Yin, H., & Huang, S. (2019). Teacher participation in school-based professional development in China: does it matter for teacher efficacy and teaching strategies?. *Teachers and Teaching*, 25, 821 - 836. https://doi.org/10.1080/13540602.2019.1662777.

Khasawneh, Y., Alsarayreh, R., Ajlouni, A., Eyadat, H., Ayasrah, M., & Khasawneh, M. (2023). An examination of teacher collaboration in professional learning communities and collaborative teaching practices. *Journal of Education and e-Learning Research*. https://doi.org/10.20448/jeelr.v10i3.4841.

Li, C. (2023). A Comparative Study on the Professional Development of Teachers in China and British Universities. *Journal of Education, Humanities and Social Sciences*. https://doi.org/10.54097/ehss.v23i.12769.

Liu, H., Lin, C., & Zhang, D. (2017). Pedagogical beliefs and attitudes toward information and communication technology: a survey of teachers of English as a foreign language in China. *Computer Assisted Language Learning*, 30, 745 - 765. https://doi.org/10.1080/09588221.2017.1347572.

Luo, W., Berson, I., & Berson, M. (2020). Integration of Digital Technology into an Early Childhood Teacher Preparation Program in China. *Early Childhood Education Journal*, 49, 1165 - 1175. https://doi.org/10.1007/s10643-020-01115-8.

Musanti, S., & Pence, L. (2010). Collaboration and Teacher Development: Unpacking Resistance, Constructing Knowledge, and Navigating Identities.. *Teacher Education Quarterly*, 37, 73-89.

Ohayon, A. (2023). Influence Of Teachers Participation In Professional Learning Community On Their Teaching Skills. *The European Proceedings of Educational Sciences*. https://doi.org/10.15405/epes.23056.40.

Pan, X., & Gan, Z. (2020). Perceiving Technology-Based Professional Development Practices for Teachers. *International Journal of Computer-Assisted Language Learning and Teaching*. https://doi.org/10.4018/ijcallt.2020040103.

Peng, Y. (2017). RESEARCH ON THE CONSTRUCTION OF SUPPORTING SYSTEMS FOR INCLUDING CHILDREN WITH AUTISM SPECTRUM DISORDERS IN PRESCHOOL CLASSROOMS. .

Philipsen, B., Tondeur, J., Scherer, R., Pynoo, B., & Zhu, C. (2022). Measuring institutional support for online and blended learning professional development: validating an instrument that examines teachers' perceptions. *International Journal of Research & Method in Education*, *45*(2), 164-179.

Prenger, R., Poortman, C., & Handelzalts, A. (2019). The Effects of Networked Professional Learning Communities. *Journal of Teacher Education*, 70, 441 - 452. https://doi.org/10.1177/0022487117753574.

Rigelman, N., & Ruben, B. (2012). Creating Foundations for Collaboration in Schools: Utilizing Professional Learning Communities to Support Teacher Candidate Learning and Visions of Teaching. *Teaching and Teacher Education*, 28, 979-989. https://doi.org/10.1016/J.TATE.2012.05.004.

Romero, G., & Vasilopoulos, G. (2020). From Rural China to Canada: Communities of Practice to Support a Teacher Professional Development Study Program Abroad.. , 23.

Scott, T., Guan, W., Han, H., Zou, X., & Chen, Y. (2023). The Impact of Academic Optimism, Institutional Policy and Support, and Self-Efficacy on University Instructors' Continuous Professional Development in Mainland China. *SAGE Open*, 13. https://doi.org/10.1177/21582440231153339.

Sun, P., & Mei, B. (2020). Modeling preservice Chinese-as-a-second/foreign-language teachers' adoption of educational technology: a technology acceptance perspective. *Computer Assisted Language Learning*, 35, 816 - 839. https://doi.org/10.1080/09588221.2020.1750430.

Tang, L., & Ye, J. (2023). Effects of Community of Practice on College English Teacher Professional Development: Case Study of English Teaching of Featured Chinese Culture Faculty Development. *English Language Teaching*. https://doi.org/10.5539/elt.v16n2p11.

Wan, C. (2023). Construction of a Web-Based Remote Training Platform for Rural Preschool Teachers in China. *2023 International Conference on Educational Knowledge and Informatization (EKI)*, 43-47. https://doi.org/10.1109/eki61071.2023.00017.

Xia, O. (2005). Investigation and Study on the Training for Teachers in Higher Education Institutions in Southwest China. *Journal of Chongqing University*.

Yang, T., & Hong, X. (2023). The Educational Technology Divide in Glocalisation: A Perspective for Interpreting Early Childhood Teachers' Practices of ICT Implementation. *Early Education and Development*, 35, 150 - 168. https://doi.org/10.1080/10409289.2023.2231321.

Yang, Y., & Rao, N. (2020). Teacher professional development among preschool teachers in rural China. *Journal of Early Childhood Teacher Education*, 42, 219 - 244. https://doi.org/10.1080/10901027.2020.1726844.

Yoo, H., & Jang, J. (2022). Effects of professional learning communities on teacher collaboration, feedback provision, job satisfaction and self-efficacy: Evidence from Korean PISA 2018 data. *Compare: A Journal of Comparative and International Education*, 53, 1355 - 1372. https://doi.org/10.1080/03057925.2022.2036591.

Zhong, W. (2024). Teacher Professionalisation and School Engagement in Chinese Vocational Colleges and Universities. *Journal of Computing and Electronic Information Management*. https://doi.org/10.54097/vplq4bdf.

Zhou, L., Xue, S., & Li, R. (2022). Extending the Technology Acceptance Model to Explore Students' Intention to Use an Online Education Platform at a University in China. *SAGE Open*, 12. https://doi.org/10.1177/21582440221085259.

Zhou, X. (2023). Issues with the Development of Professional Preschool Teaching Staff in China and Developmental Strategies. *Science Insights*. https://doi.org/10.15354/si.23.re850.