Original Research

Fostering teachers' professional autonomy in Taiwanese private kindergartens through systemic practical situated reflection within a collaborative learning community

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Abstract: The issue of professional autonomy among teachers in Taiwanese private kindergartens has grown increasingly critical in the context of professional learning and development (PLD) within early childhood education. This study adopted action research within a collaborative learning community framework, implementing the Systemic Practical Situated Reflection (SPSR) mechanism over 18 months. Professional autonomy is defined as teachers' capacity to make informed decisions regarding their teaching practices and professional growth. The findings of this study indicate that: 1) the involvement of experts within the learning community promotes reflective practices from diverse perspectives, which enhances teachers' autonomy; 2) the SPSR mechanism effectively supports professional growth within this community; and 3) ongoing weekly reflections empower teachers to address and overcome challenges in their educational environments. The SPSR framework developed in this study provides valuable insights into how professional autonomy can be fostered among educators, offering a model for PLD that can be applied beyond the context of Taiwanese private kindergartens.

Keywords: Action research, Teachers' professional autonomy, Systemic Practical Situated Reflection (SPSR), Teacher professional development, Collaborative learning community

Introduction

This study utilizes the Systemic Practical Situated Reflection (SPSR) mechanism, which is grounded in situational learning theory and cognitive psychology. These theories suggest that effective learning occurs within real-world contexts, where knowledge is constructed through practical experiences. Brown, Collins, and Duguid (1989) criticize traditional education for separating learning from real-world contexts, which they argue limits knowledge construction. Cognitive apprenticeships exemplify this approach, blending hands-on activities with social learning to foster active knowledge creation. Recent studies have also emphasized the role of digital tools in children's learning. For instance, Blumberg et al. (2024) explored how children engage with digital games, suggesting that interactive play can offer opportunities for meaningful learning within situated contexts. Similarly, Papadakis

(2023) discusses how educational apps, when chosen carefully, can enhance the learning experience for young children by supporting independent and contextual learning through digital environments.

The decline in the birth rate and the increasing popularity of public kindergartens have posed significant challenges for private kindergartens in Taiwan. Many private kindergarten teachers struggle to establish credibility, which impacts their professional image, interactions with parents, and self-confidence. Research suggests that parents are more likely to trust teachers based on their professional image rather than their formal qualifications. As a result, private kindergarten teachers must demonstrate professional autonomy in their teaching practices to build parental trust (Leung & Chen, 2016; Green et al., 2007; Chen & Li, 2017). This issue is compounded by parents' increasing reliance on digital tools for learning, as indicated by Vaiopoulou et al. (2021), who found that parents' perceptions of educational apps can significantly influence their expectations and trust in teachers. The integration of digital tools into the curriculum might be viewed as a step toward demonstrating professional autonomy and aligning teaching practices with parents' expectations.

A "learning community" emphasizes the interconnectedness of individuals, activities, and knowledge within a shared context. Participants contribute diverse perspectives and interests while collaboratively building meaning through interaction (Lave & Wenger, 1991; Wenger, 2004). In this context, each member's growth is facilitated by collective engagement, fostering mutual understanding and shared goals. The evolving educational landscape, including the integration of digital media into teaching practices, highlights the need for a collaborative learning environment where teachers can refine their professional autonomy and adapt to the changing expectations of parents and society.

This study utilizes the Systemic Practical Situated Reflection (SPSR) mechanism, which is grounded in situational learning theory and cognitive psychology. These theories posit that effective learning occurs within real-world contexts, where knowledge is constructed through practical experiences. Critics of traditional education, such as Brown, Collins, and Duguid (1989), argue that separating learning from practical experiences limits knowledge construction. Cognitive apprenticeships are one example of this, combining hands-on activities with social learning to foster active knowledge creation. Furthermore, the use of digital platforms and educational apps in early childhood education can further enrich the learning environment, as suggested by Blumberg et al. (2024) and Papadakis (2023), by offering new ways for children to engage with educational content in meaningful, context-based settings.

The action research process in this study follows a cyclical pattern of planning, action, observation, reflection, and revision (Corey, 1953). Through this process, the study aims to establish a community of practice among private kindergarten teachers, enhancing their professional autonomy and fostering collaboration. The SPSR mechanism was used to facilitate reflection on teaching practices, ultimately aiming to improve the professionalism of private kindergarten educators.

Study purposes

This research employs action research to develop the Systemic Practical Situated Reflection (SPSR) tools aimed at addressing the challenges faced by teachers in their workplaces. The specific purposes of this study are discussed below.

Enhancing professional autonomy

This study seeks to improve teachers' self-reflection and professional autonomy through the use of the Systemic Practical Situated Reflection (SPSR) framework. By engaging in structured reflection activities, teachers can adjust their perceptions of teaching contexts and deepen their understanding of professional autonomy, which is grounded in Schon's (1983, 2011) work on reflective practice and professional judgment. Schön's framework emphasizes that effective teaching practices require both technical expertise and reflective decision-making, enabling teachers to act independently in complex and dynamic environments (Schön, 1983). This study leverages this approach to enhance teachers' autonomy by supporting them in reflecting on their practices in real-world contexts, and facilitating informed decision-making (Zhao, 2007).

Fostering collaboration

This research seeks to strengthen collaboration among teachers by creating opportunities for mutual support and cooperative problem-solving within a learning community. As Wenger (2004) suggests, a learning community fosters a decentralized structure where members collaborate, share experiences, and co-construct knowledge. Lave & Wenger's (1991) theory of communities of practice stresses the importance of shared learning and interaction within a community to foster collective growth. This study aims to create a learning community that facilitates collaboration, problem-solving, and the sharing of best practices among teachers, aligned with Sato's (2003, 2004) work on fostering reflective practices in collaborative environments.

Nurturing a teaching culture

This study aims to implement strategies that promote the sharing of experiences among teachers, fostering a culture of continuous improvement. Building on Sato's (2003) and Wenger's (2004) ideas of learning communities, the study supports a high-quality teaching culture by encouraging teachers to engage in reflective practices and share insights. Teachers' participation in a collaborative environment

allows them to learn from one another and continuously refine their professional practices (Sato, 2003).

Building teacher confidence

Through the process of participating in the SPSR framework and receiving external evaluations, this study aims to enhance teachers' confidence in their teaching abilities. Following participation, teachers will receive certificates that recognize their professional development, reinforcing their sense of achievement and competence. Darling-Hammond (1988) suggests that professional growth and the recognition of accomplishments can build teachers' confidence and self-efficacy, which in turn improves teaching quality. In addition, Grundy's (1982) model of action research stresses the importance of reflective practice for boosting teachers' confidence in their teaching effectiveness.

Increasing parental trust

This study also aims to increase parents' trust in teachers and schools by demonstrating the professional growth and autonomy of educators. Research indicates that parents are more likely to trust teachers when they see evidence of their professional development and reflective practices (Leung & Chen, 2016). By fostering teachers' professional autonomy and reflective practices through SPSR, this study aims to improve the professionalism of educators, thus strengthening the relationship between educators and parents, which is essential for creating a supportive school environment (Green et al., 2007).

Theoretical framework

This study aims to closely align with its objectives by exploring and analyzing key theories related to learning and teacher development. To guide our investigation, we adopted five theoretical frameworks: Learning Community, Action Practical Research, Systemic Practical Situated Reflection (SPSR), Teacher Professional Autonomy, and Evaluation of Teacher Professionalism. These frameworks were chosen because they collectively provide a comprehensive lens through which we can examine and enhance teachers' professional practices in private kindergartens. Each framework offers unique insights into different aspects of teacher development, while also complementing one another to form a cohesive and multifaceted approach to the study.

Learning community

This framework emphasizes the importance of collaborative and supportive environments for teachers, where shared learning and mutual support foster professional growth (Lave & Wenger, 1991; Wenger, 2004). By adopting this framework, we aim to create a learning community among teachers that supports collective problem-solving and knowledge sharing, which are crucial for professional autonomy and development.

Action practical research

Action research, particularly practical action research, provides a dynamic process for teachers to reflect on their practices, implement changes, and evaluate the outcomes in real-world contexts (Grundy, 1982). This framework enables teachers to engage in ongoing reflection and revision, empowering them to make informed decisions and improve their teaching effectiveness.
Systemic practical situated reflection (SPSR)
SPSR integrates situated learning theory and cognitive psychology, offering a structured mechanism for teachers to reflect on their professional experiences in context. By encouraging teachers to reflect on specific challenges and teaching scenarios, SPSR aids them develop deeper insights and foster autonomy in decision-making (Brown, Collins, & Duguid, 1989). This framework serves as a central tool for the study, guiding teachers in their journey of reflective practice.

Evaluation of teacher professionalism

This framework provides the criteria and methodologies for assessing teachers' professional growth and effectiveness. It draws on established standards for teacher evaluation, integrating both self-assessment and external reviews (Pan et al., 2004). The evaluation process ensures that teachers are meeting high professional standards, thereby reinforcing the significance of continuous professional development.
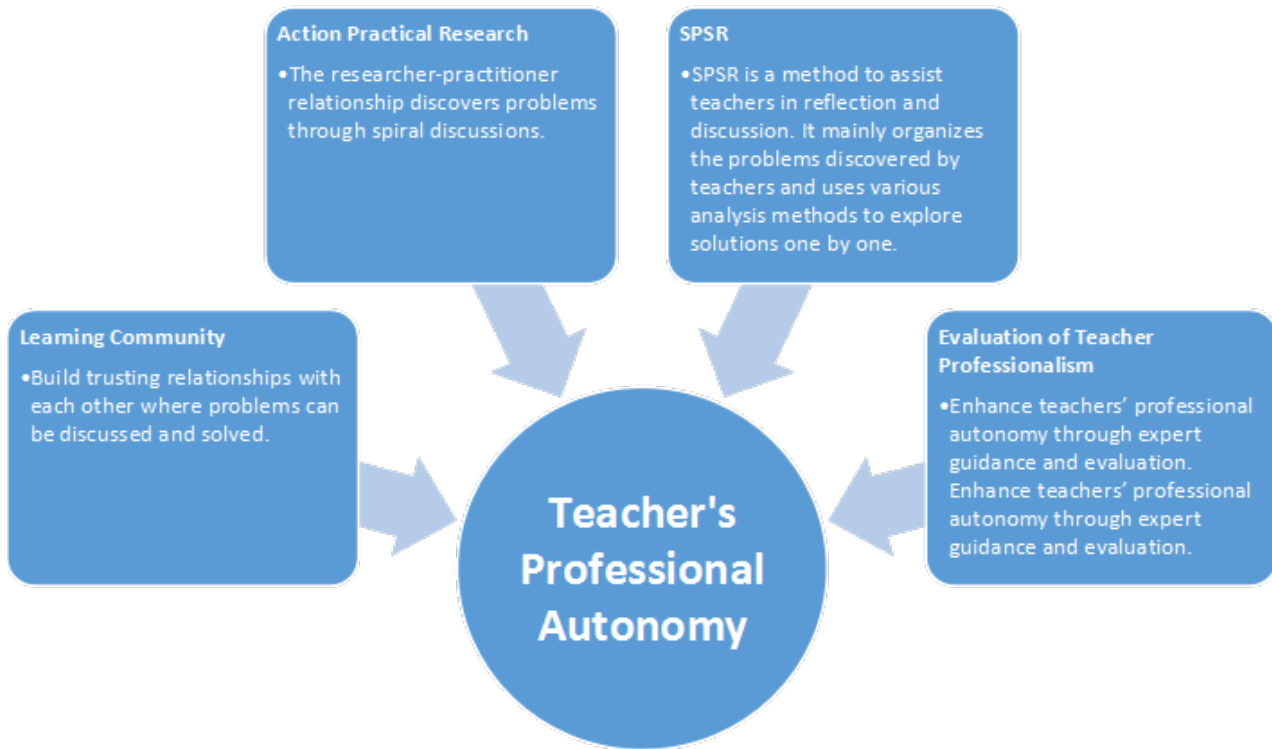
Teacher professional autonomy

Professional autonomy is fundamental to empowering teachers to make independent decisions and take actions that positively influence student learning. Rooted in Schon's (1983, 2011) theory of reflective practice, this framework underscores the relationship between teachers' reflective decision-making and their ability to navigate complex classroom dynamics. By enhancing teachers' autonomy, this framework supports their professional growth and ability to adapt to diverse educational challenges.
Figure 1 illustrates the interconnections among these five frameworks, highlighting how they work together to inform and guide the study. Each framework contributes a distinct but complementary perspective, ensuring a comprehensive exploration of teacher professional autonomy and development. The integration of these frameworks allows us to create a multifaceted approach that addresses both the individual and collective aspects of teacher growth, fostering a robust and sustainable learning environment.

Figure 1 visually represents the interconnections among the five theoretical frameworks that underpin this study: Learning Community, Action Practical Research, Systemic Practical Situated Reflection (SPSR), Teacher Professional Autonomy, and Evaluation of Teacher Professionalism. These frameworks are arranged in a manner that highlights their interrelatedness and how they collectively contribute to enhancing teachers' professional development.

At the core of Figure 1 is Teacher Professional Autonomy, which is central to the study's focus. The positioning of this framework at the center reflects its pivotal role in shaping and guiding the research. Teacher autonomy, as the ability to make independent, informed decisions in teaching, serves as the guiding principle through which all other frameworks are explored.

Action Practical Research
•The researcher-practitioner relationship discovers problems through spiral discussions.

SPSR
•SPSR is a method to assist teachers in reflection and discussion. It mainly organizes the problems discovered by teachers and uses various analysis methods to explore solutions one by one.

Learning Community
•Build trusting relationships with each other where problems can be discussed and solved.

Evaluation of Teacher Professionalism
•Enhance teachers' professional autonomy through expert guidance and evaluation. Enhance teachers' professional autonomy through expert guidance and evaluation.

Teacher's Professional Autonomy

Figure 1. Theoretical frameworks

The learning community framework is positioned around Teacher Professional Autonomy because it provides the necessary collaborative and supportive environment where teachers can interact, share experiences, and learn from one another. As depicted, this framework fosters collective reflection and shared problem-solving, which is critical for enhancing individual and collective autonomy. The decentralization of authority in a learning community creates a space for teachers to engage in mutual growth and share insights, thus reinforcing professional autonomy.

Surrounding both teacher professional autonomy and learning community is Action Practical Research. This framework emphasizes the cyclical process of planning, acting, observing, reflecting, and revising, which directly supports the development of professional autonomy. Action Practical Research is represented as an ongoing, dynamic cycle, enabling teachers to critically engage with their practice and make informed decisions that promote both personal and professional growth. The iterative nature of action research encourages continuous improvement, helping teachers refine their practices based on real-time feedback.

The Systemic Practical Situated Reflection (SPSR) framework is closely connected to both Teacher Professional Autonomy and Action Practical Research. SPSR acts as the methodological tool that facilitates structured reflection on teaching practices, helping teachers contextualize their decisions and understand the impact of their actions in real-world settings. Through SPSR, teachers are empowered to make autonomous decisions based on reflection and context, making it a crucial component for strengthening professional autonomy. The close relationship between SPSR and Action Practical Research is depicted to show how reflective practice feeds into the broader process of inquiry and improvement.

Finally, the evaluation of teacher professionalism framework, which evaluates teachers' practices against established professional standards, is linked to all other frameworks. It serves as both a feedback and validation mechanism for the development of teacher autonomy. Evaluation helps ensure that teachers' reflective practices and professional growth are aligned with accepted standards of excellence, offering objective insights that guide ongoing development. This framework supports

the continuous cycle of reflection and improvement, reinforcing the idea that professional autonomy is not only a matter of individual reflection but also one of professional accountability and growth.

Together, these five frameworks work synergistically to provide a comprehensive approach to teacher development. The visual depiction in Figure 1 emphasizes the dynamic and interconnected nature of these frameworks, showing how they collectively contribute to fostering a reflective, autonomous, and collaborative environment for teachers. Through this integration, the study aims to create a sustainable model for professional growth that empowers teachers, enhances their teaching practices, and ultimately benefits the educational system.

The following is a detailed description of each item of the theoretical framework:

Teachers' professional autonomy

This study centers on enhancing teachers' professional autonomy, defined as the capacity of educators to make independent decisions and take actions that guide student learning. Drawing on Schon's (1983, 2011) framework, professional autonomy encompasses two key elements: (1) actions derived from the principles of professional Practice and (2) decisions informed by reflection and exploration of those practices. Thus, professional autonomy goes beyond technical skills; it embodies a deep engagement with educational Practice.

A proficient educator must navigate the complexities of their environment, recognizing various possibilities and responding to the nuanced challenges that arise. This idea aligns with Schön's (1983) concept of reflective practice, where educators engage in ongoing reflection to adapt their teaching strategies in response to the dynamic nature of the classroom. For instance, when teachers create a learning environment, they broaden their focus, enabling them to identify problems and determine appropriate responses. This process of problem-solving and decision-making involves interacting with the context, defining the issues at hand, and framing the content to be addressed (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991; Hwang, 1999, 2005). Such interactions between the teacher and the learning context help educators develop the ability to adapt their practices and make informed decisions, ensuring that they meet the needs of their students effectively.

However, the question arises: Is a teacher's professional autonomy limitless? Certainly not—multiple constraints shape and limit autonomy. This is why educational systems have curricula, schemes of work, and structured training programs, not to mention policies, frameworks, and occasionally fads that teachers must navigate. A significant societal challenge is that individual freedoms can often conflict with institutional authorities (Deyoung, 1986). Teachers' autonomy is thus influenced by a wide range of factors, such as school organization, administrative structures, educational policies, societal and economic contexts, and even their own personalities and professional expertise (Zhao, 2007).

While teachers may ideally seek to exercise their autonomy, they must also contend with these external pressures. These factors do not always align with personal beliefs or professional judgments, creating tensions that complicate their reflections on how best to balance their autonomy with the expectations placed on them. Teachers are often caught between the demands of curriculum requirements, parental expectations, and administrative directives. In such dynamic environments, teachers must navigate these competing demands, sometimes simply working to "survive" the external constraints rather than fully exercising their autonomy. In response to these challenges, teachers may draw upon their professional knowledge, using contextual information to make informed decisions that support student learning while attempting to assert their autonomy (Darling-Hammond, 1988).

Professional autonomy empowers teachers to make judgments and decisions that impact the teaching process and ultimately guide student learning. However, in today's educational landscape, the notion of autonomy must be critically examined, as teachers are increasingly under pressure to deliver measurable results. The concept of liberal performativity — a term coined by Ball (2003) — highlights the intense scrutiny that teachers face in their professional roles, as they are often judged not by the quality of their teaching or the development of their students' skills, but by standardized test scores, performance metrics, and other external outcomes. This drive for quantifiable success places teachers under considerable stress, undermining the very autonomy that they are supposed to possess.

In this context, the autonomy that teachers are expected to exercise can often feel like a precarious balancing act, particularly when they are forced to follow mandated curricula, engage with prescriptive teaching schemes, or adopt standardized teaching practices (as mentioned earlier, such as the emphasis on cognitive load or phonics in some countries). Rather than being able to make independent, reflective decisions about their teaching practices, teachers often find themselves adapting their strategies solely to meet externally imposed targets.

While professional autonomy is rooted in practical reflection and an understanding of the educational context, it is becoming increasingly difficult for teachers to engage in reflective practice when they are under constant pressure to "perform" within the rigid confines of predefined outcomes. Nevertheless, autonomy should still be oriented towards achieving effective professional outcomes — but within a system that increasingly restricts personal choice and flexibility. The ideal of professional efficiency, then, becomes somewhat contradictory: teachers must still navigate their professional autonomy within the boundaries set by external standards while trying to maintain high-quality learning experiences for their students.

In this way, the current educational system creates a tension between the professional autonomy that teachers

strive for and the performative expectations placed upon them. Teachers must constantly manage the stress of delivering measurable results while attempting to remain true to their reflective practices and professional judgment. As such, understanding the challenges of autonomy in the modern educational environment is crucial for developing frameworks that can support teachers in balancing these conflicting demands.

This study explores the complex dimensions of teachers' professional autonomy, drawing on Schon's foundational work on reflective practice (Schon, 1983, 2011). However, it also builds on more contemporary perspectives that address the evolving challenges and opportunities teachers face today. In particular, recent research emphasizes the dynamic and contextual nature of professional autonomy, recognizing that it is not an isolated or static attribute but one that fluctuates according to the demands of the educational landscape (Day, 2016; Zeichner, 2010). While Schon's conceptualization of autonomy remains influential, scholars now recognize that the autonomy of teachers is often shaped by broader institutional, political, and societal forces, which can either enable or constrain their decision-making abilities (Kelchtermans, 2017).

The balance between personal freedom, external expectations, and student dynamics creates a multifaceted environment that teachers must skillfully navigate. For example, research on teacher agency (Biesta et al., 2015) underscores the importance of teachers' ability to act purposefully within given constraints, using their professional knowledge to make decisions that are both informed and adaptive to real-world classroom contexts. Teachers' professional autonomy is thus not only about making decisions independently but about strategically leveraging available resources and working within a complex set of pressures to shape teaching practices that promote student learning.

Despite the challenges posed by societal, institutional, and personal factors, such as curriculum mandates, assessment pressures, and parental expectations (Zhao, 2007), teachers can still draw on their professional expertise to make informed, context-sensitive decisions that support their teaching goals. This aligns with the concept of teacher professionalism (Sachs, 2003), where teachers are seen as autonomous professionals capable of exercising discretion in their teaching practices while being held accountable to broader educational and social outcomes.

Therefore, while professional autonomy is not unbounded—it is constrained by policy, resources, and external expectations—it remains a dynamic and essential force in the teaching profession. It drives teachers to innovate, reflect on their practice, and ultimately enhance student learning outcomes. In the context of an increasingly standardized and performance-driven educational landscape (Ball, 2012), understanding and strengthening teachers' professional autonomy has never been more crucial. By fostering an environment where teachers can exercise their agency, educational systems can encourage continuous improvement in teaching practices, supporting not only the academic development of students but also their holistic growth (Beauchamp & Thomas, 2009).

Learning community

This study employs Communities of Practice as a critical method. A Community of Practice is characterized by a decentralized structure in which all members are viewed as equal participants who contribute to the community's ongoing development and shared learning. In this model, participants engage in collective problem-solving, reflection, and knowledge-building around common interests or practices (Lave & Wenger, 1991; Wenger, 2004). This approach contrasts with traditional hierarchical structures and emphasizes the importance of social interaction and mutual support in the development of professional skills and knowledge. By focusing on Communities of Practice, this study underscores the collaborative and dynamic nature of teacher learning, where professional expertise is co-constructed through shared experiences and reflective dialogue.

Sato (2003, 2004) asserts that establishing a learning community requires systematic tools to facilitate team growth aligned with predetermined goals. These tools and methods foster reflective practices among community members and integrate diverse perspectives, thereby enhancing the community's problem-solving capabilities and responsiveness (Sato, 2003; 2004).

To assess the feasibility of implementing learning communities in Taiwan, this study reviews various research projects where "learning communities" were established to encourage idea-sharing. These studies consistently highlight the principle of decentralization, raising questions about how consensus is reached within the community and how its inherent mission drives development (Wang, 2018; Wu et al., 2015; Hu & Nagai, 2015; Pan & Chen, 2015; Pan et al., 2015).

Based on the comprehensive analysis above, the learning community in this study encompasses several key elements:

The learning community is decentralized (Lave & Wenger, 1991; Wenger, 2004). This decentralization is key to promoting equal participation, as each member contributes to the collective learning process. The effectiveness of this decentralized approach has been demonstrated in various educational settings, where the distribution of responsibility and decision-making leads to increased engagement and shared ownership of learning (Lave & Wenger, 1991; Wenger, 2004). Studies indicate that decentralized communities allow for the flourishing of diverse perspectives, enhancing problem-solving capabilities (Sato, 2003; Sato & Nakamura, 2004).

It employs systematic tools to guide collective growth based on essential indicators (Sato, 2003; 2004). To ensure that the community progresses toward its goals, learning communities often employ structured frameworks or tools. For instance, Sato (2003, 2004) developed systematic

reflection tools to assess both individual and collective progress in community settings. These tools help identify areas of improvement, provide feedback, and set specific goals that guide collaborative learning. Empirical research has shown that such systematic approaches improve the community's ability to engage in collective problem-solving and to sustain long-term development (Sato, 2003; Sato & Nakamura, 2004).

Every member has the potential to influence and grow alongside their peers (Lave & Wenger, 1991; Wenger, 2004; Sato, 2003; 2004). One of the core strengths of learning communities is that all members, regardless of their experience or status, have an opportunity to influence the group and grow through mutual engagement. In practice, this can be observed in settings where teachers, for instance, share their practices, exchange ideas, and learn from one another. Studies have highlighted that when participants are empowered to contribute their knowledge and experiences, they not only develop their skills but also help others to grow (Wenger, 2004). For example, in collaborative professional development settings, teachers who engage in reflective dialogue with peers often report increased confidence and professional growth, which benefits both their practices and the collective community (Sato, 2003; Sato & Nakamura, 2004).

Incorporating learning communities in this study embraces decentralization, fostering an environment where all members contribute to collective growth. The systematic tools guide the community toward predefined objectives, and the dynamic interplay of diverse perspectives enhances problem-solving capacity. As we explore the implementation of learning communities in the Taiwanese context, it is clear that this decentralized approach holds great potential for facilitating collaborative learning and fostering a sense of ownership and growth among community members.

Action practical research

This study employs Action Practical Research, an approach designed to enhance teachers' autonomy. According to Grundy (1982), action research can be categorized into three modes: technical, practical, and critical. Technical action research focuses on experimental analysis, similar to how a master carpenter crafts a wooden box, relying on the ideas and techniques of those involved. Practical action research reflects how teachers make informed decisions in the classroom, grounded in their experiences and reflections. Critical action research empowers individuals to break free from traditional routines through social awareness and critique.

In this study, we utilize the practical action research model proposed by Grundy (1982), as shown in Figure 2. This empirical approach allows participants to assess their actions and apply what they learn in Practice. Practical action research is inherently process-oriented, emphasizing the significance of the process over merely the outcomes.
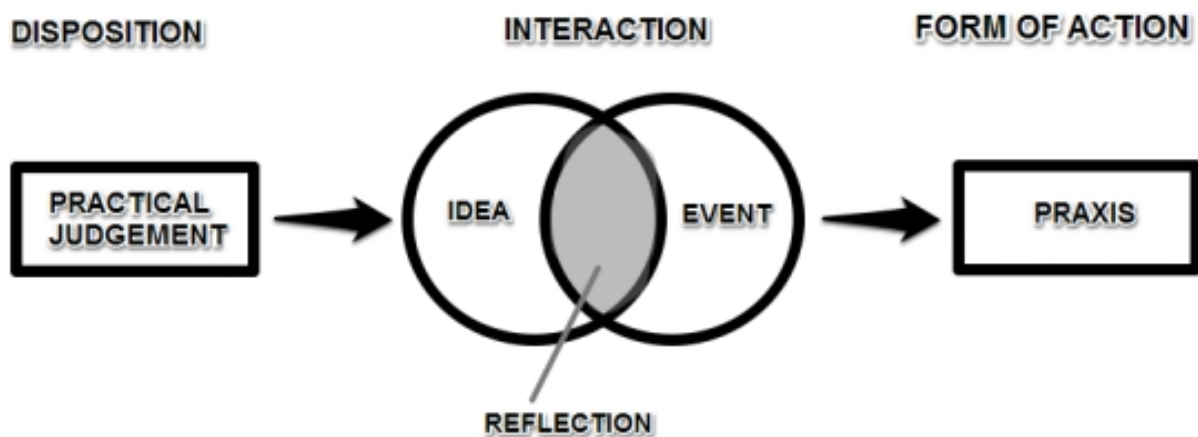
Figure 2. The model of practical action research (Grundy, 1982)

Before establishing a consensus task, researchers must first assess the community model, reflecting on events and ideas during interactions. Subsequently, they can modify the interaction model to implement the community model effectively. Adopting the perspective of "researchers as practitioners," this study guides community members through five key steps of practical research: planning, action, observation, reflection, and revision. Within this framework, community members continually interact and adapt their consensus, facilitating the observation of behavioral changes and the growth process of all members.

While the concept of a "community of learners" is often associated with more formalized or academic settings, teachers in a kindergarten setting can still form a community of practice (Lave & Wenger, 1991). In this context, kindergarten teachers engage in a collective, collaborative learning process, even if the focus is on early childhood education rather than higher education or more traditional

teacher development environments. The interactions and shared experiences among teachers foster mutual learning, problem-solving, and the co-construction of knowledge. In this study, the community model refers not only to formal, structured learning communities but also to the informal, day-to-day collaborative interactions that occur within the kindergarten setting. Teachers, as practitioners, engage in ongoing reflection, share insights, discuss challenges, and adjust their practices based on the collective knowledge and experiences of the group. These interactions can lead to the development of shared pedagogical strategies, the refinement of teaching practices, and ultimately, the growth of both individual teachers and the community as a whole.

Thus, while kindergarten teachers may not fit the traditional mold of a "community of learners," they certainly engage in a form of professional learning that aligns with the principles of Communities of Practice. Through continuous interaction, reflection, and adaptation, they can enhance their professional development and contribute to the broader goals of improving early childhood education.

By employing Action Practical Research, mainly through Grundy's practical action research model, this study provides a dynamic framework for exploring and enhancing teachers' autonomy. The iterative process of planning, action, observation, reflection, and revision allows for a deeper understanding of the evolving dynamics within the learning environment. This study contributes to the theoretical knowledge of teachers' autonomy development and offers practical insights for educators aiming to foster collaborative and reflective communities. Practical action research emerges as a powerful tool for facilitating meaningful change and continuous improvement in educational settings.

Systemic Practical Situated Reflection (SPSR)

In this study, the researcher developed the Systemic Practical Situated Reflection (SPSR) framework to support teachers in reflecting on their professional interactions. The primary goal of SPSR is to enhance teachers' capacity to analyze and reflect on challenging situations, drawing from the theoretical foundations of Situated Learning Theory (SLT) and Situation Awareness from cognitive psychology.

Situated Learning Theory emphasizes that learning occurs in the context of real-world situations, advocating for a shift away from traditional educational practices that often detach learning from practical, authentic contexts. SLT critiques conventional, formalized education models that prioritize abstract knowledge over practical experience, proposing that learning should be embedded in real activities and situations. It asserts that knowledge is constructed through active, hands-on engagement and social interaction, rather than passive memorization (Brown, Collins, & Duguid, 1989). However, while SLT provides a robust framework for contextual learning, one critique is that it may not fully account for the complexities and constraints of formal educational settings, where rigid

curricula and standardized testing often force educators to prioritize content delivery over situated learning (Darling-Hammond, 2006). This disconnect can hinder teachers' ability to engage deeply with SLT principles, especially in high-stakes environments where "teaching to the test" prevails.

SPSR, which integrates SLT and Situation Awareness, offers an authentic assessment tool for evaluating teachers' performance within real-life contexts. It encourages teachers to reflect on and analyze challenging situations as they arise in the classroom, facilitating higher-level problem-solving and adaptive decision-making. Teachers who demonstrate proficiency in SPSR are viewed not as passive recipients of knowledge, but as active creators of knowledge, engaged in synthesizing and applying complex information. This creative role requires teachers to go beyond surface-level understanding and engage in deep, reflective practice. Proficient educators using SPSR are expected to demonstrate the ability to navigate ambiguity, address the nuances of student behavior, and respond flexibly to evolving classroom dynamics (Cumming & Maxwell, 1999).

While this emphasis on reflective practice is crucial, there are inherent challenges in its implementation. One critique is that the SPSR framework, like SLT, may not always be easily applicable to all educational settings. For example, in environments characterized by high teacher turnover, large class sizes, or significant bureaucratic constraints, teachers may find it difficult to engage in the sustained reflection that SPSR demands. Additionally, there is the risk that SPSR, by focusing on reflection, may inadvertently downplay the importance of direct instructional strategies and evidence-based practices that are often required for measurable student outcomes (Hattie, 2009). Teachers may become overly focused on their reflective practices at the expense of concrete, proven methods for teaching and student achievement.

Moreover, the SPSR framework assumes that teachers have the time, resources, and institutional support necessary to engage in deep reflection and systematic problem-solving. However, in practice, many educators face immense pressure due to curriculum constraints, standardized testing demands, and the need to deliver results in a competitive educational environment (Ball, 2003). These external pressures can undermine the reflective process, as teachers may prioritize compliance with external mandates over the deeper, context-specific reflection encouraged by SPSR.

Despite these challenges, the development and application of SPSR represent a significant advancement in providing teachers with a tool for enhancing their reflective practice. By leveraging the principles of Situated Learning Theory and cognitive psychology, SPSR emphasizes the integration of learning within real-world contexts. This framework pushes teachers to evolve from simply replicating existing knowledge to becoming active creators of knowledge— engaging with students' needs and contextual challenges in innovative ways. In doing so, SPSR aligns with broader

educational goals of professional growth, adaptability, and problem-solving.

Yet, while SPSR encourages teachers to refine their ability to perceive and integrate complex information, it also underscores the tension between professional autonomy and institutional constraints. The framework's emphasis on reflective practice is vital for fostering professional growth, but it must be balanced with the need for concrete, results-driven approaches in education. In this sense, SPSR can be seen not as a panacea for all educational challenges but as a complementary tool that, when effectively integrated, enhances teachers' professional growth in specific contexts. As educators engage with SPSR, they not only refine their reflective capabilities but also deepen their understanding of how to navigate the complex realities of the classroom. However, continued critique and examination of the framework are necessary to ensure its adaptability across diverse educational contexts and its alignment with the evolving demands placed on teachers.

Evaluation of teacher professionalism

To effectively assess the improvement of the teaching profession, this study employs a comprehensive evaluation framework focusing on teachers' autonomy. Experts are invited to conduct assessments based on established standards for teacher evaluation. This evaluation method aligns with the criteria set for assessing teacher professionalism.

The Evaluation of Teacher Professionalism is crucial for improving teachers' Professional Practice in Taiwan, where a system for evaluating the professional development of primary and secondary school teachers has been in place since 2006. The evaluation criteria encompass curriculum design, teaching methods, class management, and student learning outcomes. Standard assessment methods include internal evaluations and teacher self-assessments, utilizing tools such as teaching observations and portfolios. While college teachers undergo annual assessments, there remains a gap in the review of kindergarten teachers' professional development (Hwang, 1999, 2005, Hwang et al, 2008).

Pan et al. (2004) established criteria for evaluating teacher professionalism in primary and secondary schools through a structured process in a field trial. This involved forming Teacher Evaluation Committees within each school, consisting of the principal, the director of Academic Affairs, the assessed teachers, and other educators. The evaluation was carried out through both self-assessment and external assessments, which involved experts and scholars. The Committee created an evaluation manual that served as the assessment tool, incorporating a variety of methods, such as classroom observations, interviews, portfolio reviews, discussions, and questionnaires to gather performance data by established criteria.

Implementing a rigorous and systematic evaluation process, guided by established professional standards, is critical for assessing improvements in the teaching profession. Research on teacher evaluation frameworks, such as those proposed by Darling-Hammond (2017) and Danielson (2013), demonstrates that comprehensive evaluation systems — combining both self-assessment and external review — are more effective in promoting professional growth and enhancing teaching quality. These frameworks underscore the importance of both qualitative and quantitative data in the assessment process to ensure a balanced and objective evaluation. For instance, Darling-Hammond (2017) advocates for formative assessments and feedback, which empower teachers to reflect on their practices and drive continuous improvement. Similarly, Danielson's (2013) model emphasizes the role of collaborative evaluations in fostering professional learning communities and promoting shared accountability among educators.

Inspired by the Evaluation of Teacher Professionalism framework, this study incorporates expert evaluations of teachers' autonomy, ensuring a comprehensive and objective assessment. Previous studies have shown the effectiveness of this approach in measuring and enhancing teachers' professional practices (e.g., Hargreaves, 2018; Sachs, 2016). These findings support the notion that structured evaluation processes—both internal and external — are essential for driving teacher development, ensuring accountability, and fostering a culture of continuous professional growth. As research suggests, a well-structured and transparent evaluation system is critical for advancing teacher professionalism, improving teaching quality, and ultimately enhancing student outcomes (Hattie, 2009).

Research structure

This research employs a 1.5-year practical action research framework, illustrated in Figure 3.

Based on the framework shown in Figure 3, the committee established professional criteria tailored to the cultural and educational context of the case kindergarten. This tailored framework ensures that the criteria are both relevant and practical for the specific needs of the teachers and the educational setting.

We implemented the Situated Practical Self-Reflection (SPSR) approach twice, aimed at enhancing teachers' professional autonomy within the kindergarten. The third SPSR session served as a formal assessment, where teachers' reflective practices were evaluated against the defined criteria.

Levels of pofessional autonomy

The framework categorizes professional autonomy into three distinct levels:

Apprentice level:
At this foundational level, the focus is on developing situational awareness — the ability to assess classroom dynamics, identify key challenges, and make informed

judgments within the broader cultural context. Teachers at this stage may still rely on guidance from others, including peers or mentors, to navigate complex situations. The aim is to help teachers understand the context of their practice and gradually build their autonomy in decision-making.
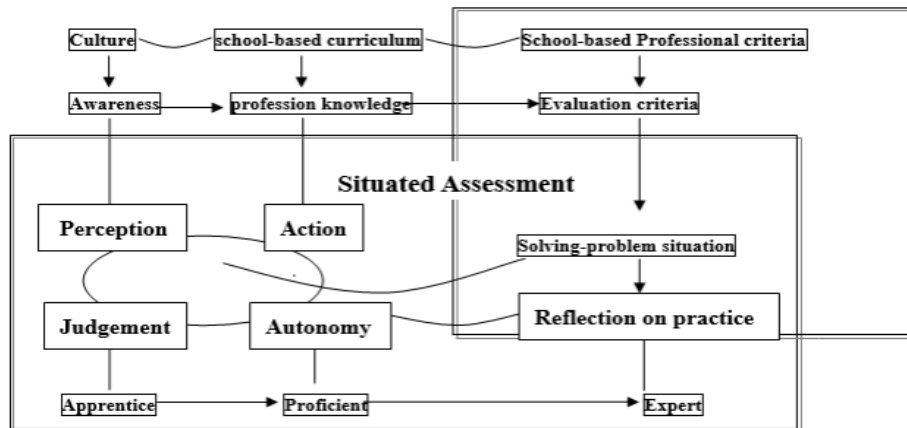
Figure 3. The framework on action practical research

Proficient level:

Teachers at this level are expected to create a professional understanding of their role and take autonomous actions that align with the specific needs of the kindergarten's curriculum. At this stage, teachers can independently manage classroom situations, adapt their teaching strategies based on reflective practice, and make decisions that foster a positive learning environment. Their actions are more aligned with the curriculum, reflecting a deeper integration of their professional knowledge.

Expert level:

At the expert level, teachers engage in reflective practice that is not only responsive to the immediate needs of the classroom but also adheres to more established professional criteria. These teachers take a proactive role in shaping and refining teaching practices, regularly engaging in critical reflection on their performance, and using their insights to drive continuous improvement. Expert teachers contribute to the educational community by sharing best practices and mentoring others.

Explanation of the diagram in Figure 3

The diagram in Figure 3 visually represents the progression of professional autonomy across these three levels. It outlines how teachers move from basic situational awareness at the Apprentice level, to creating a deeper professional understanding at the Proficient level, and ultimately to a stage of expert reflection and self-directed professional development. The diagram may also include arrows or markers indicating key milestones or assessment points, showing how each level builds upon the last.

The SPSR approach is integrated at each of these levels, allowing teachers to assess their growth and development throughout the process. The diagram may also include feedback loops to illustrate the continuous nature of reflective practice, where each stage informs the next, creating a dynamic process of professional learning.

This framework provides a clear and structured way to assess and enhance teachers' professional autonomy in early childhood education. By delineating these levels and embedding reflection into the assessment process, this study aims to cultivate a culture of continuous professional development and improvement in the kindergarten setting.

Research process

Step 1: Organize a Teacher Advisory Committee (TAC)

The TAC comprises nine experienced members from the Taiwan Teacher Professional Development Association (TTPDA). All members have over 20 years of experience in early childhood education, establishing them as experts in the field.

Step 2: Evaluate the school environment

The TAC members carried out a thorough assessment of the Kindergarten by visiting the school's facilities, classrooms, and curriculum. They reviewed essential documents, including lesson plans and parent records, to understand the educational context.

Step 3: Define evaluation frameworks

During their meetings, the TAC established several vital tasks:
a. Develop professional criteria for teachers to implement the Curriculum effectively.
b. Create three levels of evaluation criteria: Apprentice, Proficient, and Expert.
c. Design problem-solving scenarios based on actual

classroom practices.
d. Establish three Situational Professional Reflection (SPSR) frameworks.

Step 4: Conduct the first SPSR

Fifteen kindergarten teachers participated in the first SPSR, where they shared their experiences in a workshop format. The TAC used a specially designed form to observe teachers' professional autonomy, guiding them to reflect on their judgments and decisions.

Step 5: Implement the second SPSR

Three months after the first SPSR, the second SPSR was conducted. During the intervening weeks, TAC experts held discussions with the teachers, gathering challenges they faced to create a comprehensive question bank. The second SPSR sought to enhance teachers' structured reflection on their professional autonomy, using a new form tailored to address specific issues identified during prior discussions.

Step 6: Final SPSR and evaluation

The final SPSR took place three months after the second. The TAC evaluated each Teacher's responses according to the previously established criteria. The focus was on understanding how teachers achieved professional autonomy in various situations and assessing their growth over the training period.

Step 7: Certification and future training

Upon completion of the final SPSR, each Teacher receives a certificate along with their evaluation results. This marked the end of the first training stage, reinforcing that systematic problem-solving is crucial for professional autonomy. Plans for subsequent training stages will be developed to continue supporting teachers' growth.

SPSR design concept

Question types: The SPSR utilizes problem-solving scenarios based on actual events in the kindergarten setting. Each scenario is designed to be relatable and relevant to the teachers' experiences.

Core story evaluation: A single core story can evaluate multiple professional criteria simultaneously, allowing for a comprehensive assessment of teachers' competencies.

Contextual focus: The SPSR emphasizes professional reflection within the school-based Curriculum. Therefore, the professional criteria and evaluation methods should be tailored to align with the cultural and curricular context of the Kindergarten. The case kindergarten contributed stories or events that informed the development of the evaluation questions.

Clarity of instructions: Each question must clearly outline the expected actions of the participants. A table will detail the evaluation criteria, specifying the conditions for reaching the Apprentice, Proficient, and Expert levels. Responses that do not fit into these categories may indicate that the solution was unclear or did not meet the evaluation criteria; in this case, they will be classified as "cannot be judged."

Question types for SPSR

Situational essay questions: The TAC designed several situational essay questions based on core stories from the kindergarten environment. These questions encourage teachers to reflect on their teaching practices in real-life scenarios.

Example Assessment Scenario:

Story: In the morning, children in a classroom share their home toys. Two unique toys capture everyone's attention. Miny shares a toy snake, stating, "Grandma said, 'Someone crafted this from bamboo!'" Johnny presents a toy grasshopper, explaining, "My uncle made it from bamboo he cut from a tree." A child mentions, "I have a bamboo mat at home. It's cool to sleep on in the summer!" May adds, "My grandma lives in the countryside, and I've never seen her dry clothes with a bamboo pole." Another child excitedly shares, "I went to my aunt's house, where we dug bamboo shoots for soup, and she made me origami toys from bamboo leaves!" Some children, curious, ask, "What is bamboo?" The Teacher then decides to guide the children in exploring the concept of "Magical Bamboo."

Based on the story, please answer the following questions:

- Set the unit teaching objectives for "Magic Bamboo". Please address cognitive, affective, and skill development aspects. Criteria A3: Determine objectives based on children's experiences and abilities.
- Design nature exploration activities for the "Magic Bamboo" unit. Ensure activities align with teaching needs.Criteria A1: Use units to master objectives for nature exploration.
- List nature exploration activities. Provide learning content for children. Criteria A2: Arrange activities related to nature exploration.
- Conceive the learning areas for the "Magic Bamboo" unit. Detailed content configuration for each area. Criteria A4: Explain the significance of each learning area for children's development.
- Utilize family and community resources for the "Magic Bamboo" unit. Criteria A5: Design resources from families or communities for learning.
- Plan visits related to the "Magic Bamboo" unit. Criteria A6: Design visiting activities that support the learning process.

After answering these questions, teachers will be provided with grading criteria, as shown in Table 1, to reflect on their responses and for reviewers to evaluate their performance based on this standard.

Mind map questions set

Teachers create or identify various possibilities and represent them in a network format, such as a mind map centered around a situation, event, or problem. Figure 4 is an example of a Mind Map Questions Set.

Table-filled test questions

Teachers can organize their concepts in a table format to address a specific situation, event, or question within the framework. An example of this is provided in Table 2.

Table 1. The criteria of a situational essay

Professional criteria of teachers	Evaluation criteria		
	Apprentice	Proficient	Expert
Criteria A3: Determine the unit teaching objectives based on children's experience and abilities.	The teaching objectives of the set units emphasize cognition, are too abstract or straightforward, and do not consider the experience and abilities of children.	The teaching objectives of the set units emphasize cognition and taking care of affection or skills, but they cannot see the connection with the children's experience.	The set unit's teaching objectives can consider the balance of cognition, affection, and skills and connect with the children's experience.
Criteria A1: Achieve the objectives of exploring nature through the unit.	Only moving muscles and bones are the objectives; no exploration game exists.	The objectives are related to the unit.	Can master unit-based nature exploration activities.
Criteria A2: Arrange activities related to nature exploration.	Arrange nature activities that pay attention to safety, which has nothing to do with the unit's content.	Arrange enjoyable and safe nature exploration activities related to the unit's content.	Arrange nature exploration activities that are appropriate to the unit's content, are connected with the unit activities, and can be extended.
Criteria A4: Explain the significance of each learning corner for children's learning.	Use the existing learning area in the Kindergarten to allocate children to play in the room without considering the meaning related to the unit.	Add the content of the relevant unit in the learning area, and teach children to show the appropriate content in the learning area.	The overall conception of the learning area content related to the unit to construct the overall performance of each learning area process.
Criteria A5: Design family or community resources that individuals or communities can use during learning.	Oral about the existence of bamboo forests in the community.	Investigate the children's parents and the bamboo forest in the community and introduce them to the children.	Based on the survey results, choose to visit and design study sheets.
Criteria A6: Design visiting activities for the learning process.	Only take young children to the bamboo forest for a walk.	Prompt the objectives of visiting the bamboo forest.	List the specific objectives of visiting the bamboo forest, and design a study sheet to remind children of the Practice.

Simulated situation practice problem

Instructions:
a. Provide materials and scenarios for teachers to create and operate on the spot to produce a finished product.
b. After watching a video, teachers critique the teaching based on specific questions. Sample questions for the "Simulated Situation Practice Problem"
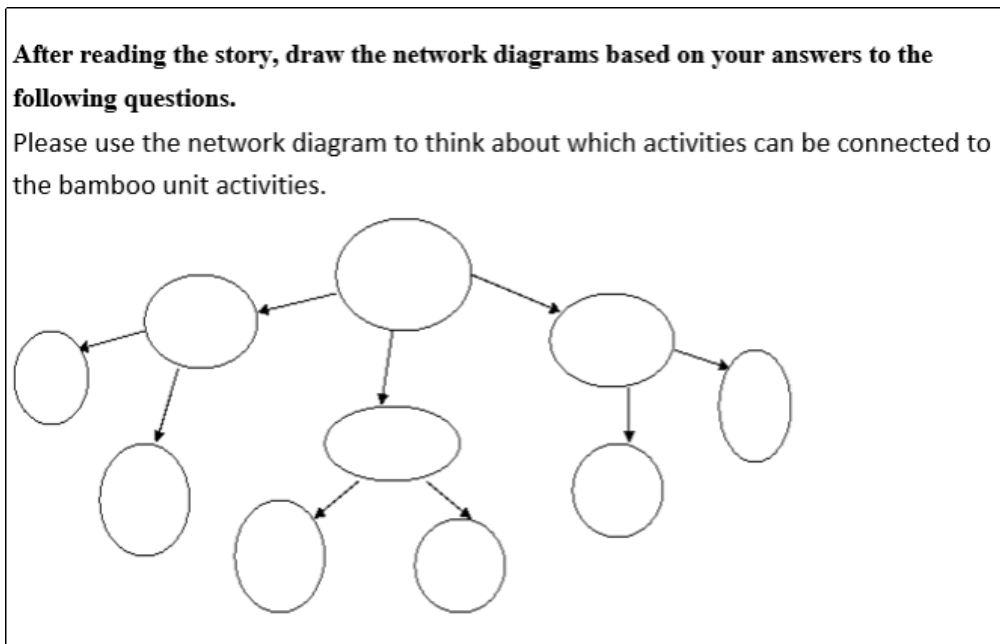
Reflection task:
After viewing the "Magic Bamboo" teaching video in a kindergarten class, please write your comments. You may watch the video twice.
a. First viewing reflection (30 minutes): After the first viewing, outline your main points or answers on the provided paper, leaving space for further elaboration after the second viewing.
b. Second viewing reflection (30 minutes): Complete your reflections based on insights gained from the second viewing.

Questions to address:
a. Integration of children's thoughts: Can Teacher Wu effectively integrate children's thoughts and simplify complex opinions during group discussions? Please refer to criteria B3 and B4 to assess Teacher Wu's performance and provide justifications and suggestions.
b. Conclusions and guidance: Is Teacher Wu able to summarize the discussion while guiding subsequent activities? Again, refer to criteria B3 and B4 for your evaluation.
c. Fostering higher-order thinking: What questions can arise from group discussions encouraging children's higher-level thinking during activities? Please refer to criteria B5 and indicate Teacher Wu's performance level, providing reasons for your judgment and a content network of critical questions for group discussions.

After reading the story, draw the network diagrams based on your answers to the following questions.

Please use the network diagram to think about which activities can be connected to the bamboo unit activities.

Figure 4. Example of mind-maps sets of questions

Table 2. Example of table-filled test questions

	Activity name	Motivational activity	Start Activity	Comprehensive activities
Please come up with possible answers to "Magic Bamboo" and fill in the form.				
Nature exploration				
Musical and theatre activities				
Language ativities				
Scientific activity				
Shape art activities				
Physical fitness activity				
Community visit				

d. Observing learning behaviors:

List the learning behaviors and performances of three children in the class. Use a table format to present:
The left column: Observations of children's behaviors.
The middle column: Levels of learning behavior.
The right column: Reasons for your judgments.

Grading standards:

After completing your responses, refer to the grading standards in Table 3 for self-evaluation and to guide reviewers in assessing Teacher Wu's level according to the "Simulated Situation Practice Problem" criteria.

Workplace practice questions

Instructions:

Teachers evaluated for this exercise are asked to provide materials from their workplace performances, such as photos, audio recordings, and videos, to interpret critical content points. Below are sample workplace practice questions.

Reflection task:

Please watch the teaching video of Teacher Wu's "Magical Bamboo" course, provided by Sun Kindergarten. After watching for the first time, take 30 minutes for your first round of reflection. Then, watch the video a second time and take another 30 minutes for your second round of reflection.

a. Video overview:

The teaching video of Teacher Wu's course, "Magical Bamboo," should include a complete group discussion, learning themes for children, children's classroom learning behaviors, and their on-site performances. After viewing, please respond to the four questions based on Teacher Wu's teaching context.

b. Reflect and answer:

Unifying ideas: Can Teacher Wu unify children's ideas and simplify complex opinions in the group discussion? What is your assessment?
Extending activities: Can Teacher Wu extend follow-up

activities based on the conclusion of the group discussion? What do you think? For both questions, refer to evaluation indicators B3 and B4 to determine Teacher Wu's level. Provide reasons for your judgment and suggestions for improvement.

c. Guiding higher-irder thinking:

In guiding children's learning themes, what questions can Teacher Wu raise during group discussions to foster higher-order thinking?

Refer to evaluation indicator B5 to determine Teacher Wu's level. Include reasons for your judgment and outline critical questions that could be raised in group discussions.

d. Learning behaviors table:

Please list three children's learning behaviors and performances in the class, indicating their learning behavior levels. Use a table format:

Left column: Facts about children's learning behaviors and performances.

Middle column: Corresponding levels of learning behavior for each observation.

Column: Justifications for your assessments.

Children's Learning Behavior (Performance)	Levels	Reason

e. Second viewing reflection:

After the second viewing, outline your answers or write critical points on the test paper, leaving space for your second round of reflections.

Grading criteria:

After completing the questions, teachers will receive the grading criteria shown in Table 4 for self-review and for reviewers to assess Teacher Wu's performance.

Table 3. The criteria of simulated situation practice problem

Professional criteria of teachers	Evaluation criteria		
	Apprentice	**Proficient**	**Expert**
Criteria B3: Integrate children's ideas and simplify complex opinions. 33	In the group discussion, you can guide children to repeat two or more speeches and ideas and be accepted by their peers.	During the group discussion, you can summarize the similarities between more than two kinds of children's speeches or ideas and have the children accept them.	In the group discussion process, you can guide children to integrate meanings and methods of speech or ideas for more than two kinds of children, and the children will accept them.
Criteria B4: Draw conclusions to guide follow-up activities.	In the process of group discussion, you can guide children to identify critical reactions that somebody can transform into activities based on the many responses of the children.	During the group discussion, participants can derive ideas for activities from the children's speech or statements, providing a basis for subsequent discussion and modification or trial activities.	In the group discussion process, you can find consensus and re-discussable questions about children's speech or ideas and form feasible, practical activities from this.
Criteria B5: Judge the meaning of learning behavior in anecdotal records of children's behavior.	We recognize learning using the five senses in children's behavior and performance.	Recognize the learning of children's active or passive imitation, cognition, or skills in the children's behavior and performance.	Can recognize the characteristics and levels of children's learning activities in terms of indicators such as active and passive, memory and application, stereotypes, and innovation of children's behavior and performance.

The framework and models presented in this section are essential to understanding the underlying principles that drive this research, as well as how teachers are encouraged to engage in reflective practice. These elements serve as a critical tool for stimulating deep thought among educators, guiding them to critically analyze their own professional autonomy and teaching practices. The aim is to move beyond a simple assessment of professional behavior and instead foster a reflective mindset that leads to continuous professional growth.

The models provided in this section are not just theoretical constructs but practical tools designed to provoke thought and self-reflection among educators. As Schön (1983) emphasizes in his work on reflective practice, the process of reflection is central to professional development. By encouraging teachers to think critically about their practices and the broader educational context, the framework empowers them to engage in a deeper analysis of their role in the classroom and their capacity for professional autonomy. This reflective approach aligns with current educational trends that highlight the importance of self-reflection and lifelong learning for teachers (Darling-

Hammond, 2006; Zeichner, 2010).

The reason for including these detailed frameworks in the main body is to ensure that the tools for reflection are readily accessible to the readers, especially educators who may benefit from immediately applying the models in their practice. The section is not meant to overwhelm the reader with results but to provide a structured approach for teachers to engage with the core principles of professional autonomy in their context. This method of continuous, situated reflection allows teachers to identify areas of growth and adapt their teaching strategies accordingly, ensuring that their practice is not static but continuously evolving.

Furthermore, by presenting this model in the main body, it bridges the gap between theoretical frameworks and real-world applications. It allows the reader to see how these abstract concepts can be put into practice in the specific context of early childhood education, offering both a theoretical foundation and a practical roadmap for professional development. The purpose is to guide teachers in using the model as a tool for self-assessment and ongoing professional growth, rather than solely offering evaluative data.

Table 4. The criteria of workplace practice questions

Professional criteria of teachers	Evaluation criteria		
	Apprenticeship	Mastery	Expert
Criteria B3: Good at unifying children's ideas and simplifying complex opinions.	Be able to repeat the ideas by at least two children during the group discussion, and the children can accept them.	Summarizing the similarities of all ideas by at least two children during the group discussion, and the children can accept it.	Be able to unify the meaning and Practice from all ideas by at least two children during the group discussion, and the children can accept it.
Criteria B4: Good at concluding and extending the follow-up activities	During the group discussion, the Teacher can find critical responses that are transformable into activities based on multiple answers from the children.	During the group discussion, the Teacher can derive the idea of activities from children's speech or thoughts. It is sufficient for follow-up discussion, correction, or trial activities.	The Teacher can condense consensus and discussable questions during the group discussion to form feasible, practical activities.
Criteria B5: Judge the meaning of learning behavior in anecdotal records of children's behavior.	We recognize learning using the five senses in children's behavior and performance.	Recognize the learning of children's active or passive imitation, cognition, or skills in the children's behavior and performance.	Can recognize the characteristics and levels of children's learning activities in terms of indicators such as active and passive, memory and application, stereotypes, and innovation of children's behavior and performance.

SPSR procedure

a. Overview of SPSR Sessions: The process includes two Simulative SPSRs, culminating in a formal SPSR as the final assessment.
b. Collaboration During Simulations: Evaluated teachers engage in discussions during the simulation tests to share insights and perspectives on the SPSR results.
c. Reflection Workshop: After completing the Simulative SPSR, teachers participate in a focus group workshop for reflection. The TAC (Teacher Advisory Committee) discusses the results with the kindergarten teachers. In the workshop, the TAC and teachers collaborate to identify blind spots, guiding reflections on problem-solving situations and allowing TAC members to revise evaluation criteria based on the results.
d. Formal SPSR Outcomes: The formal SPSR serves as the final assessment. The results lead to the issuance of professional certification, which is provided to each Teacher alongside individual performance summaries.

Ethical considerations in the research

In conducting this study, we placed great emphasis on adhering to the ethical principles in educational research to ensure the protection of the rights of all participants. First, all participants were asked to sign an informed consent form before the study began. The form clearly outlined the purpose of the research, the procedures involved, any potential risks, and the rights of the participants. The identities of all participating teachers were kept confidential, and all data were anonymized during analysis to safeguard participants' privacy.

Furthermore, this study adhered to the principle of voluntary participation. Participants were informed that they could withdraw from the study at any time without facing any negative consequences. During data collection, we ensured that participants had ample time and opportunities to reflect and encouraged them to express their thoughts freely throughout the reflection process. This included both their views on the teaching content and their

use of the reflection tools.

Finally, to ensure the fairness and objectivity of the study, all procedures underwent review and approval by an academic ethics review committee, in compliance with relevant ethical guidelines. The results and conclusions of the study will be presented truthfully and transparently. In future research, we aim to further explore how to balance the development of teachers' professional autonomy with ethical practice.

Research results

This practical action research constructed professional criteria for teachers in Kindergarten according to their cultural context and curriculum situation. Besides, with the kindergarten-based Curriculum, this research guided teachers' situated awareness to make autonomous judgments. Furthermore, with simulated SPSR, teachers improved self-reflection to adjust their situated awareness to achieve the purpose of the Teacher's Professional Autonomy image.

Our results found four aspects: curriculum design, instruction process, learning environment, and children's guidance.

Curriculum design

Curriculum design is to explore teachers' innovation and appropriate concepts for curriculum design concepts. Table 5 presents the results of teachers' professional autonomy in curriculum design in case kindergarten.

Table 5. The results of curriculum design

Items		Professional criteria of teachers	Assessment results (Number of teachers who have reached the level)			
			Unjudged group	Apprentice	Proficient	Expert
I. Curriculum design	1. Nature exploration	**A1**: Achieve the objectives of exploring nature through the unit.	6	7	1	0
		A2: Arrange activities related to nature exploration.	6	8	0	0
	2. Unit activities	**A3**: Determine the Unit Teaching Objectives based on children's experience and abilities.	0	7	5	2
		A34: Arrange unit-based teaching activities that children are interested in.	2	6	5	1
	3. Grouping activities	**A35**: Divide the class into groups and arrange activities with the same learning objectives but different types for the entire class.	1	10	2	1
	4. Learning corner activities	**A4**: Explain the significance of each learning corner for children's learning.	1	5	6	2
		C1: Communicate and negotiate with parents to achieve children's learning activities.	0	0	12	2
	5. Community resources application	**A5**: Design family or community resources to use during the learning process.	0	6	8	0
		A6: Design visiting activities for the learning process.	0	0	12	2
		A36: Collect and apply community resources.	3	5	3	3

Table 5, The Results of Teacher's Professional Autonomy on Curriculum Design in Case Kindergarten, demonstrates that two criteria, A1 and A2, fall under the Apprentice Level or Unjudged group. Specifically, A1 is defined as "To achieve the objectives of exploring nature through the unit," and A2 as "To arrange activities related to nature exploration." This suggests that teachers need to strengthen their contextual connections in curriculum planning, ensuring that their lesson designs align more effectively with the exploration of nature as a learning objective.

Table 6. The results of the instruction process

Items	Professional criteria of teachers	Assessment results (Number of teachers who have reached the level)			
		Unjudged group	Apprentice	Proficient	Expert
1. Unit teaching	**A16**: Connect young children's activity experience.	0	3	10	1
	C5: Teach various subjects simultaneously (at least three issues).	0	5	7	2
2. Group discussion of teaching	A7: Master children's topics of interest to continue their participation and focus.	0	13	0	1
	A8: Asking questions to guide children's thoughts.	1	7	6	0
	A9: Give back to each child, so let every child be valued.	4	9	1	0
	B3: Integrate children's ideas and simplify complex opinions.	2	5	2	5
	B4: Draw conclusions to guide follow-up activities.	2	1	6	5
3. Grouping teaching	C6: Guide children's interest in the hands-on operation.	0	2	9	3
	C7: Guide the autonomous application of children's materials.	0	7	7	0
	A17: Control time flexibly to keep children's interest continuing.	0	4	8	2
4. Learning corners teaching	C9: Introduce the activities in the learning corners.	2	2	3	7
	C10: Guide young children to enter the learning corners to participate in activities.	2	2	2	8
	C11: Guide children to clean up automatically.	0	0	6	8
5. Thematic constructive teaching	B5: Understand the blind spots of the problem in the theme and prompt the young children appropriately.	3	1	3	7
	A15: Understand children's interests and abilities in children's peer interaction.	1	0	8	5
	C2: Discuss themes and activities with all children.	2	1	2	9
	C3: Guide young children to cooperate in finding ways to solve the problems raised by the theme.	1	1	6	6
6. Instructional evaluation	B6: Judge the meaning of learning behavior in anecdotal records of children's behavior.	1	2	2	9
	C12: Guide children to share works or learning experiences.	1	2	2	9
	A18: Examine the essential competency criteria of children in their spare time for teaching.	1	6	4	3
	A19: Collect and organize children's portfolios.	2	7	5	0
	A20: Guide children's parents to cooperate in inspecting children's portfolios.	0	11	3	0

(Note: Item column also shows **II. Isntruction process** spanning the table rows.)

However, in the case of Criteria C1, "To communicate and negotiate with parents to achieve children's learning activities," all evaluated teachers demonstrated professional abilities at the Proficient and Expert levels. This suggests that these teachers have a solid command of how to communicate with parents, a key aspect of fostering collaborative relationships for the benefit of student learning.

Moreover, significant individual differences were observed across the three levels (Apprentice, Proficient, and Expert) for other criteria. These differences may point to varying degrees of experience, understanding, and application of professional autonomy in different teaching contexts.

This finding aligns with research on professional autonomy and the dynamic nature of teacher development. According to Darling-Hammond (2006), effective teacher autonomy is deeply tied to both reflective practice and professional knowledge, especially in areas such as communication with parents, where teachers' skills can advance quickly with experience and engagement. This result also ties into the work of Lave & Wenger (1991) on Communities of Practice, where the process of mutual engagement and knowledge-building fosters the professional growth that leads to expert practice in specific contexts. Furthermore, as emphasized by Zhao (2007), teachers' autonomy and professional decision-making often develop over time and are influenced by the teacher's ability to adapt and apply new learning in their teaching context. The significant differences observed in the results underscore the variability of teacher development within a community, aligning with Schön's (1983) model of reflective practice, where teachers move through stages of expertise based on their ongoing reflective cycles.

Instruction process

The instruction process explores the exploration of teaching design and teaching. Table 6 presents the results of Teachers' Professional Autonomy in the Instruction Process in the Case of Kindergarten.

Regarding the Results of Teacher's Professional Autonomy in Instruction Proceedings in Case Kindergarten, Table 6 shows that the Profession Criteria C11 & A15 of all evaluated teachers are at the Expert Level of Proficient and Expert (C11: To guide children to clean up automatically; A15: Able to understand children's interests and abilities in children's peer interaction). For other criteria, evaluators assign teachers to three levels.

Learning environment

The Learning Environment section examines how teachers can foster a conducive student learning and introspection atmosphere. Specifically, it assesses Teachers' Professional Autonomy in the learning environment at Case Kindergarten.

Table 7. The results of the learning environment

Items		Professional criteria of teachers	Assessment results (Number of teachers who have reached the level)			
			Unjudged group	Apprentice	Proficient	Expert
III. Learning environment	1. group learning facilities	C4: Conceive or discuss the presentation of works with children.	4	0	2	8
		B2: Use resource recycling to make teaching aids.	0	0	0	15
		A21: Prepare and display teaching aids for grouping learning.	0	5	5	4
	2. Learning corner facilities	B1: Repair and add teaching materials and aids in the learning corners along with the unit.	0	0	14	0
	3. Unit learning scenarios	C13: The unit's situated learning draws on the experiences of children.	1	3	3	7
		2. Learning corner facilities	3	8	2	1
		3. Unit learning scenarios	3	2	6	3
		C16: The unit provides autonomous role-playing learning scenarios.	4	4	5	1
		C17: The unit provides common-sense learning situations.	2	4	7	1

Table 7 presents the results of this assessment. Regarding the decoration theme, the data indicates that all evaluated teachers achieved Expert Levels in the Professional Criteria of C4 and B1. Criterion C4 (constructing or discussing the presentation of works with children) and B1 (repairing and enhancing teaching materials and aids in the learning corners) reflect a high degree of professionalism among educators.

Children's guidance

Children's Guidance refers to how teachers can provide children with appropriate norms and choices in their learning environment. Table 8 illustrates the results of Teachers' Professional Autonomy related to Children's Guidance in Case Kindergarten.

In examining the Teacher Professionalism in Early Childhood Guidance, Table 8 indicates that all evaluated teachers achieved proficient and expert levels in the following criteria:

A24: Ability to explain children's advanced intelligence based on their behavior.

A25: Capacity to arrange related experiential activities that align with children's previous performances.

A26: Skill in integrating children's learning experiences and providing feedback to enhance their self-understanding.

For the other criteria assessed, evaluators categorized teachers into three levels: apprentice, proficient, and expert. However, the relationship between these levels and the overarching concept of professional autonomy remains unclear.

Table 8. The results of children's guidance

Items		Professional criteria of teachers	Assessment results (Number of teachers who have reached the level)			
			Unjudged group	Apprentice	Proficient	Expert
IV. Children's guidance	1. Guide children to make choices	A22: Provide children with suitable choices as much as possible.	0	11	3	1
		A10: Adjust children's choices into feasible and operable actions.	0	5	8	1
	2. Promotion of children's cooperation	A11: Seize the opportunity to promote children's natural cooperative performance.	1	1	10	2
		A12: Seize the opportunity to promote children's self-appreciation	1	1	11	1
		A13: Seize opportunities to promote children's respect for others' ideas.	1	1	9	3
	3. To construct children's learning experience	A23: Arrange or seize the opportunity to connect children's different experiences.	2	8	4	0
		A24: Explain children's Advantage Intelligence based on their behaviors.	1	0	0	13
		A25: Arrange related experience activities along with children's previous performance.	1	0	0	12
		A26: Integrate children's learning experience and give feedback to them to improve their self-understanding.	1	0	2	11
	4. Individual guidance	A14: Find out which children need individual guidance assistance.	1	1	12	0
		A27: Collect case data and report in the Case Counselling Conference.	1	0	13	0
		A28: Construct an Individualized Education Plan based on the case's situation.	1	1	12	0

Figure 5. Teacher's professional autonomy images

Discussion

In our research, we developed the Situational Practical Situated Reflection (SPSR) framework to clarify teachers' perceptions and enable them to make informed judgments. This framework fosters confidence in independent actions and allows teachers to exercise their professional judgment without undue external influence. It enhances teachers' acuity, assessment skills, and reflective Practice in the workplace (Cumming & Maxwell, 1999).

The SPSR framework focuses on three critical aspects of professional judgment: situated acuity, judgment, and reflective Practice. Acuity involves recognizing significant events in complex and dynamic situations while understanding the context of various essential occurrences. These contexts can arise from individual children's needs, group dynamics within the classroom, peer interactions, or even parents' perspectives (Deyoung, 1986). Judgment encompasses synthesizing facts, articulating processes clearly, and conveying intentions effectively. Reflective Practice encourages teachers to assess whether they honor children's spontaneity and creativity or inadvertently impose constraints on their natural development.

In our case study of the Kindergarten, we observed noticeable growth among teachers, as evidenced by the photographs illustrating varying levels of teacher autonomy (see Figure 5).

In Figure 5, the leftmost Teacher exemplifies the expert level, the middle Teacher is at the proficient level, and the rightmost Teacher is at the apprentice level. This progression highlights the increasing willingness of teachers to engage with children, resulting in the establishment of firm, positive relationships.

To explain the progression of teachers from the "Apprentice" to "Proficient" to "Expert" levels in Figure 5, we need to link this process to theoretical foundations and empirical research. Firstly, this progression can be connected to Schön's (1983) concept of reflective practice. Schön argued that experienced educators continuously reflect on their actions and classroom dynamics to improve their teaching. Teachers at the "Apprentice" level are still learning to identify and understand various situations in the classroom, and they often require external guidance, which makes it challenging for them to establish firm, positive relationships with children. As teachers progress to the "Proficient" level, they begin to adjust their teaching

strategies based on reflection and experience, enabling them to manage classroom situations more independently and develop stronger teacher-student interactions. When teachers reach the "Expert" level, their reflective practice becomes deeper and more natural, allowing them to establish strong, positive relationships with students in the teaching process.

Vygotsky's (1978) Zone of Proximal Development (ZPD) theory helps explain this process. At the "Apprentice" level, teachers typically rely on the support of mentors or colleagues to help them understand and respond to the needs of the children. As teachers move into the "Proficient" level, they are increasingly able to manage classroom dynamics more effectively and create a more supportive and meaningful learning environment. By the time they reach the "Expert" level, teachers' responses are not only reactive to immediate situations but also anticipatory, enabling them to adjust the classroom environment proactively, which further enhances teacher-student relationships.

Empirical studies on teacher professional development (e.g., Darling-Hammond, 2006; Hargreaves & Fullan, 2012) also support this progression. These studies suggest that as teachers' professional development increases, so does their ability to understand and respond to students' needs. Particularly at the "Proficient" and "Expert" levels, teachers tend to use more reflective practices and adaptive strategies to foster positive teacher-student relationships. This underscores the essential role of teacher professional development in building supportive learning environments and positive teacher-student interactions.

The progression of teachers from "Apprentice" to "Proficient" to "Expert" is supported by Schön's theory of reflective practice and Vygotsky's Zone of Proximal Development. As teachers' reflective abilities and understanding of student needs deepen, their role in the classroom and their relationships with students evolve, thus establishing positive and effective teacher-student interactions at various levels.

Among the 54 questions in the formal SPSR results for 15 teachers, the breakdown shows 194 responses at the expert level, 288 at the proficient level, 205 at the apprentice level, and 45 unanswered. This indicates significant potential for growth in teachers' professional autonomy, particularly for younger and less experienced educators.

In evaluating Professional Criteria C1 (C1: Communicating and negotiating with parents to facilitate children's learning

activities), we found that 12 teachers were assessed at the expert level, two at the proficient level, and one evaluation was missing. This data underscores that teachers possess the capacity for professional communication with parents, which fosters trust and supports collaborative efforts in children's learning.

Overall, our findings contribute valuable insights into the nature of professional autonomy in early childhood education and suggest areas for further development. Future research could explore how these concepts of professional autonomy can be applied in varied educational contexts, enhancing relevance for a broader international audience.

Implication of practice

Based on the research conducted, the following implications for practice are proposed:

Teacher autonomy and professional image

The autonomy of teachers plays a crucial role in reshaping and strengthening their professional image. Teacher professionalism is no longer solely defined by personal conduct or inherent talent but is more closely linked to the degree of independence teachers are allowed to exercise within their work environments. In the face of the complexities and instabilities within modern education systems, teachers who have the freedom to make independent decisions are better positioned to respond effectively to the situational demands of the classroom. They are empowered to make informed judgments and take action in real-time, which enhances their professional credibility and effectiveness in teaching.

Criteria for teacher autonomy in school-based curriculum

Within the framework of ongoing curriculum reforms, teacher autonomy has increasingly been defined as the ability to move beyond reliance on textbooks and conventional instructional materials. Teachers are expected to make professional decisions that align with the needs of their school-based curriculum. However, the pressures of reform, including standardized assessments and policy mandates, often reduce teachers' autonomy, making it harder for them to engage in deep self-reflection. The ability to explore and address these pressures is essential to preserve and enhance teachers' sense of professional independence, fostering more reflective practice. Teachers must be provided with tools and support to navigate these pressures and regain control over their instructional decisions.

Impact of school systems on teacher autonomy

The organizational structure of the school system has a significant impact on the autonomy teachers experience within the curriculum. As Yang (2004) notes, a well-organized school system fosters an environment where teachers can make deliberate, informed decisions about curriculum and pedagogy. When teachers are empowered to reflect—either independently or collaboratively—they can make thoughtful decisions about student learning. However, in a complex educational landscape where stress and time constraints are prevalent, teachers may be pressured to rely on pre-established textbooks or scripted curricula. In such cases, autonomy can be constrained. Therefore, a well-structured school system can serve as the foundation for supporting teacher autonomy, ensuring that teachers are equipped to make sound decisions in alignment with the school's curriculum.

Formulating criteria for professional autonomy

Establishing clear and transparent criteria for professional autonomy can enhance teachers' experiences and decision-making within the context of a school-based curriculum. These criteria provide a clear framework for when and how teachers should exercise their professional independence. Although the degree of autonomy may vary based on the school environment, teachers should be encouraged to draw on foundational professional knowledge as the basis for evaluating their practice. By providing explicit guidelines for decision-making, schools can reduce the potential for chaotic or unfocused decision-making and ensure that teachers can make reflective, well-informed judgments about their teaching practices. This structured approach ensures that teachers maintain a sense of ownership over their professional decisions, which in turn promotes continuous professional development.

The implications outline the broad principles and frameworks that inform teacher autonomy and professionalism, particularly how teachers should be supported in developing and exercising their autonomy within a structured environment. These are strategic concepts aimed at setting the stage for autonomy to thrive within the curriculum. The implications outline the broad principles and frameworks that inform teacher autonomy and professionalism, particularly how teachers should be supported in developing and exercising their autonomy within a structured environment. These are strategic concepts aimed at setting the stage for autonomy to thrive within the curriculum.

Conclusion

This study employs practical action research to create a learning community that enhances private kindergarten

teachers' professional autonomy and development through the Systematic Practice Situational Reflection (SPSR) mechanism. The key findings of this research are:
a. The involvement of experts within the learning community context enables kindergarten teachers to reflect on their teaching practices from multiple perspectives. b. The SPSR mechanism significantly plays a significant role in the professional growth of the learning community. c. Over 1.5 years of continuous weekly action research and reflection effectively established teachers' professional autonomy and addressed various school-related challenges.

These findings align with several established viewpoints: a. As Corey (1953) articulated in the "researcher as a practitioner" model, practical action research fosters teacher professional growth and autonomy. This study confirms the effectiveness of this approach in enhancing teacher professionalism within the private kindergarten context, demonstrating its broader applicability in education. b. Sato (2003, 2004) emphasized that systematic tools are essential for developing a learning community, highlighting the interplay between individual and group growth. This study indicates a measurable increase in individual teachers' professional capabilities, thereby enhancing the overall image of the Kindergarten and potentially increasing enrollment rates post-implementation. There is substantial evidence supporting the effectiveness of this method for both teachers and institutions.

Thus, we aspire to position this research as a valuable resource for kindergarten and school operators, illustrating that the growth and professional image of individual teachers are key contributors to the overall success of the educational team. This approach not only facilitates self-reflection but also encourages teachers to continuously assess their practices and recognize opportunities for further development. While teachers are encouraged to reflect on their current practices, it is crucial to acknowledge that there remains significant room for growth and improvement. By fostering a deeper understanding of the interconnections within the educational community, this study highlights the importance of ongoing professional development and the continuous evolution of teaching practices to meet the dynamic needs of students and the broader educational environment.

Limitations of the study

While this study provides valuable insights into the development and enhancement of teacher autonomy within the context of school-based curricula, it is important to acknowledge the following limitations that may affect the interpretation and generalization of the findings:

Limited sample size and generalizability

One significant limitation is the relatively small and localized sample used in this study. The research was conducted in a single kindergarten setting, which may limit the ability to generalize the findings to other educational contexts, especially those in different geographical or cultural settings. A larger and more diverse sample, encompassing a wider range of schools and educators, would provide a broader perspective and allow for more generalizable conclusions about teacher autonomy across different educational environments.

Teacher self-assessment bias

The SPSR framework relies heavily on teachers' self-reflection and self-assessment, which introduces the possibility of bias. Teachers may overestimate their professional autonomy or may be reluctant to acknowledge areas where they feel less competent. This subjective nature of self-reflection could potentially lead to overly positive assessments of their practice. To mitigate this bias, future studies could incorporate a more objective assessment framework, involving external evaluators or peer reviews, to provide a more balanced and comprehensive picture of teachers' professional autonomy.

Short-term nature of the study

The study's duration of 1.5 years, while sufficient for observing changes in teacher practice over time, may not be long enough to capture the full impact of professional autonomy development. Teacher autonomy is an evolving and dynamic process that may take several years to fully manifest, particularly when teachers are adjusting to new curriculum structures and reflective practices. Longer-term studies could provide deeper insights into the sustained effects of autonomy and the potential for continued professional development over time.

External factors influencing teacher autonomy

The study primarily focused on the internal dynamics of teacher autonomy within the context of the kindergarten curriculum. However, numerous external factors, such as national education policies, standardized testing pressures, and institutional constraints, also play a significant role in shaping teachers' autonomy. These factors were not comprehensively addressed in the current study, and their impact may have influenced the teachers' ability to exercise autonomy in practice. Future research could explore how these external factors interact with internal processes to affect teacher autonomy in more complex ways.

Limited scope of evaluation criteria

While the study established a framework for evaluating teacher autonomy, the criteria used for assessment may not fully capture the complexity of teaching practices. The focus was on specific areas such as communication with

parents and curriculum design, but other critical aspects of teaching, such as classroom management, student engagement, and professional collaboration, were not deeply explored. Expanding the evaluation criteria to cover a wider range of teaching competencies would provide a more holistic view of teacher autonomy.

Cultural and contextual bias

This study was conducted within a specific cultural and educational context, which may influence the way autonomy is perceived and practiced. Cultural attitudes toward teaching and authority, as well as the socio-economic background of the kindergarten community, may shape teachers' understanding and exercise of autonomy. The findings may therefore be less applicable to settings where cultural norms and educational expectations differ significantly. Future research could benefit from cross-cultural studies to examine how teacher autonomy is conceptualized and enacted in diverse educational contexts.

Suggestions for future teacher autonomous development

Building upon this study, several recommendations can enhance future teacher autonomy development:
a. Continuous professional development programs: Implement ongoing professional development initiatives for teachers, focusing on practical action research principles and the SPSR mechanism to ensure sustained growth and autonomy in teaching practices.
b. Collaborative learning platforms: Create collaborative platforms within and between schools where teachers can share experiences, insights, and best practices, fostering a supportive environment for professional development.
c. Mentorship programs: Establish mentorship pairings between experienced and novice teachers to facilitate knowledge transfer and practical insights, contributing to continuous skill development and autonomy.
d. Integration of technology: Utilize technology for professional development, providing online courses, webinars, and digital resources that offer accessible, relevant information to enhance pedagogical skills.
e. Institutional support: Schools should actively support teachers' participation in professional development, allocating time, resources, and recognition for those engaging in reflective practices, thereby cultivating a culture of continuous improvement.

By implementing these recommendations, educational institutions can empower teachers to take ownership of their professional growth, ultimately enhancing the quality of education and improving student outcomes.

Authors' contributions

Joni Tzuchen Tang (http://orcid.org/0000-0003-0887-7715) contributed to the integration of research and discussions in this article. She worked on synthesizing the theoretical framework of the SPSR mechanism and applied it to the context of early childhood education, specifically for private kindergarten teachers in Taiwan. Dr. Tang played a leading role in writing and editing the manuscript.

Yie Su Hwang (https://orcid.org/0000-0002-9089-7696) designed and developed the Systemic Practical Situated Reflection (SPSR) framework in the context of kindergarten education. As the primary architect of the SPSR model, Professor Hwang contributed substantially to the conceptualization and structure of the study. Her expertise also guided the integration of SPSR into early childhood teacher professional development.

Conflicts of interest

The authors declare that there are no conflicts of interest related to this manuscript.

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