

Teacher's perceptions of usefulness of online PD resources

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Abstract: Despite the rise of online professional development (PD) for early childhood educators, few studies have examined their perceptions of the usefulness of learning resources. We developed an online PD centered on teacher-child interactions, based on the critical features of high-quality PD. The PD was composed of 10 units with a variety of learning resources, including video lectures, research notes, testimonials, classroom videos, quizzes, reflection activities, and sharing activities. We examined teachers' perceptions of the usefulness of such learning resources and explored potential differences based on key demographic variables. Participants were 137 in-service Hong Kong kindergarten teachers. Evaluation surveys and semi-structured interviews were utilized after course completion. Classroom videos, which provided real-life examples, were perceived as most useful resource to improve teaching practices. Participants also considered video lectures, research notes, and testimonials as extremely useful resources, and reflection activities and sharing activities as useful resources. Quizzes emerged as the least useful resource, especially when these involved fact-based questions. Teachers' perceptions were not influenced by their demographic backgrounds. We conclude that teachers place a higher emphasis on online PD resources that offer practical examples compared to those focus on theoretical knowledge and self-reflection. The current study filled an important gap in the early childhood teacher education literature, specifically in the area of online PD, offering theoretical, practical, and policy-related insights.

Article History

Received: 23 October 2024

Accepted: 16 February 2025

Keywords

Teacher professional development; Online professional development; Teacher education; Teacher-child interactions; Learning resources

Introduction

The current study aims to explore teachers' perceptions of the usefulness of specific types of learning resources in an online professional development (PD) course focusing on teacher-child interactional quality. In contrast to conventional training programs, there has been a rise in online PD opportunities that facilitate more continuous interaction and knowledge construction for teachers' learning (Quinn et al., 2019). However, there is limited empirical evidence on teachers' perceptions of the usefulness of specific types of learning resources in the online PD. In this study, we developed an online PD centered on high-quality teacher-child interactions that support children's learning and development (Hamre et al., 2014). Providing professional learning resources can assist teachers in comprehending and developing the essential skills needed to foster teacher-child interactions in the classrooms (Langeloo et al., 2019). In the following sections, we will explain the benefits of online PD courses based on empirical evidence, revise prior literature on teachers' perceptions of usefulness of online learning resources, and indicate how PD improves teacher-child interactions.

Online PD: Teachers' Perception of Usefulness of Learning Resources

Online PD courses have the potential to promote sustained interactions and foster continuous engagement for teachers' learning (Yurkofsky et al., 2019). One significant benefit of online PD is the reduction in travel time and associated costs enables teachers to participate from home or their workplace (Palvia et al., 2018). This is particularly beneficial given the substantial daily workload that leaves teachers

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with limited time and energy (Hu et al., 2019). Learning from home or work facilitates the effective management of professional responsibilities alongside PD opportunities (Safi et al., 2020). Additionally, online PD offers the advantage of engaging in discussions with a diverse range of colleagues without geographical constraints (Onyema et al., 2019). This allows teachers to draw on the expertise of colleagues with varied teaching experiences and backgrounds, fostering a more comprehensive grasp of the subject matter. Moreover, online PD provides the opportunity for teachers to revisit and review previous learning materials (He, 2014), thereby reinforcing their understanding of the content.

Numerous studies in recent years have documented the positive impact of digital learning resources on teachers' professional learning and development (Bryson, 2009; MacWalter et al., 2016). Topal (2016) discovered that online courses featuring seven or more types of materials and resources, such as web pages, PDF/text documents, animations, videos, and graphics/images, significantly enhanced teachers' satisfaction with their professional learning experiences. Online PD resources facilitate teachers' learning by providing anchors for their understanding, enabling them to examine their knowledge from multiple perspectives, draw connections between related concepts, and bridge the gap between theoretical understanding and practical application (Ng & Bautista, 2024; Jeong & Hmelo-Silver, 2010). Moreover, research has shown that the use of videos in online professional learning environments can enhance teachers' pedagogical skills, content knowledge, self-efficacy beliefs, and understanding of children's learning processes (Bautista et al., 2022; Bragg et al., 2021).

The literature outlines essential principles for designing and implementing online courses, workshops, or learning modules for teacher PD (Coward & Jin, 2024). The first principle, relevancy, emphasizes the importance of addressing teachers' individual professional learning needs to solve real-world problems, foster a sense of ownership, and reduce the prevalence of top-down approaches (Farris, 2015). Second, usefulness pertains to the value and practicality of online PD in meeting teachers' needs and resolving issues related to practice, instruction, and student learning (Booth & Kellogg, 2015). The third principle is interaction and collaboration, which are crucial for teachers to facilitate the social aspects of learning through the participation in learning communities (Holmes et al., 2010). The fourth principle focuses on authentic tasks and activities, which enhance the effectiveness of PD by mirroring real-world classroom situations and directly relating to teachers' practices (Reeves & Pedulla, 2013). Lastly, reflection enables teachers to assess how newly acquired information can be applied to their practice and student learning outcomes, and this reflection can occur throughout the design process to support capacity-building and ongoing PD (Scott & Scott, 2010).

The current study focuses on the usefulness of online PD, as it is the key to help meet the needs of teachers (Booth & Kellogg, 2015). The knowledge gained from online PD should be useful and practical to inform teacher practice (Dede et al., 2009). Méndez et al. (2017) conducted a quantitative study involving 97 preschool teachers in Singapore to assess the perceived usefulness of PD activities for educators. Most teachers rated the usefulness of online PD as "moderate". However, online PD had the highest percentage of teachers indicating "low" usefulness. In another survey study conducted by Parsons et al. (2019), the authors examined 258 teachers' perceived usefulness of online PD. Most of teachers rated their online PD experience as largely or moderately beneficial, while some teachers considered it slightly beneficial, and even a few teachers deemed it not beneficial. Most teachers reported being able to apply what they learned to their teaching. Powell and Bodur (2019) conducted a qualitative multi-case study with six teachers, revealing positive perceptions about the usefulness of online PD, particularly in providing instructional ideas and reinforcing effective teaching practices. However, the study noted that while the online format was beneficial, it did not fully reflect a job-embedded PD experience, despite claims to the contrary. The current study aims at investigating teachers' perceptions of the usefulness of specific types of learning resources in an online PD course focusing on teacher-child interactional quality, which will be illustrated in the next section.

High-Quality Teacher-Child Interaction and Professional Learning

Teacher-child interactions refer to the daily reciprocal exchanges between teachers and children, encompassing both social and instructional verbal engagements (Hamre et al., 2013). These interactions create a foundation for bidirectional exchanges of information and experiences, which promote children's development through regular conversations (Hamre et al., 2014). As a crucial indicator of the quality of early childhood education, teacher-child interaction necessitates that teachers provide sensitive and responsive caregiving (Nilfyr et al., 2021). The informative instructions and feedback offered by teachers scaffold children to develop cognitive and socio-emotional skills and acquire relevant knowledge (Pianta et al., 2012).

The quality of teacher-child interactions is closely linked to children's learning outcomes and developmental progress (Schachter et al., 2019). Consequently, research supports the notion that enhancing the quality of these interactions should be a focus of PD initiatives (Karuppiah, 2021). Professional learning programs have the potential to improve teachers' knowledge and skills related to both general teacher-child interactions and specific instructional strategies (Ansari et al., 2020). In addition, teachers can learn and emulate effective behaviors by observing teaching videos (Bragg et al., 2021). The schemas and scripts developed from watching others' teaching practices are crucial for teachers to understand how to interact effectively with children in the classroom (Pianta, 2016). Therefore, participation in professional learning courses equips teachers with greater knowledge and skills, increasing their ability to identify and implement effective teacher-child interaction strategies in their classrooms (Haber et al., 2021; Ramilo et al., 2022). For instance, the widely utilized coaching model My Teaching Partner (MTP) has positive impact on enhancing teachers' growth in teacher-child interactions through cycles of videotaped teaching observations, review, and feedback (Hamre et al., 2010).

While the importance of providing PD courses to improve the quality of teacher-child interactions has been highlighted in previous research (Pianta et al., 2014), early childhood educators often lack adequate training on implementing effective instructional and interactional strategies to engage children (Post et al., 2020). It is well-documented that in-service teachers typically participate in district-mandated workshops, learn from daily classroom experiences with children, and acquire teaching advice in informal settings (Kraft et al., 2018). In addition, teachers seldom receive PD opportunities focusing on implementing effective strategies to enhance the quality of teacher-student interactions. The interactions and instructional methods prevalent in classrooms often exhibit a predominantly teacher-directed approach (Justice et al., 2008). Moreover, although PD courses focusing on teacher-child interactions generally offer adequate theoretical knowledge for teachers to learn about effective interactions, teachers may require actual skills to transfer the coursework into changes in their practices (Wong et al., 2024).

While previous studies provided empirical evidence about teachers' perceptions of usefulness of online PD courses (Méndez et al., 2017; Parsons et al., 2019), little is known about teachers' perceptions of the usefulness of specific types of learning resources in online PD programs. More specifically, how teachers perceive the usefulness of PD courses to improve their interactional quality with children in early childhood settings has not been examined. To inform teachers' professional learning and teaching practices, it is important to understand their perceptions of the usefulness of online learning resources (Dede et al., 2008). Therefore, the current study aimed to address these gaps in the existing research to make theoretical and practical contributions.

Context for the *Chat with Children* Online PD Course

This study was conducted in the context of *Chat with Children*, an online PD course developed and implemented in Hong Kong. In this city, kindergartens are considered the first stage of the formal school system, providing three-year pre-primary education serving children aged 3–6 years (Yang & Li, 2019). *Chat with Children* was designed to improve Hong Kong kindergarten teachers' interactional quality with children. This online PD was composed of 10 sequential units. Table 2 summarizes the topics covered and provides an overview of the course structure. Teachers used a self-paced learning mode to complete the course activities within three months.

Research Questions

We developed an online PD course centered on teacher-child high-quality interactions, which met the features of high-quality PD (Desimone & Garet, 2015; Desimone & Pak, 2017). The course composed of seven types of learning resources, including video lectures, research notes, testimonials, classroom videos, quizzes, reflection activities, and sharing activities. The study aimed to examine Hong Kong kindergarten teachers' perceptions of the usefulness of these learning resources, with the ultimate purpose of understanding teachers' preferences in online learning environments, thereby informing the design of different types of learning resources in subsequent online PD courses. The Research Questions (RQ) investigated in the study were:

RQ1 How do teachers perceive the usefulness of each learning resource, specifically in terms of improving their teaching practices? Are there any differences when comparing teachers' perceptions according to their demographic background?

RQ2 How do teachers perceive the most and least useful learning resources, specifically in terms of facilitating teacher-child interactions in the classrooms?

Method

Participants

A total of 137 teachers from over 30 different Hong Kong kindergartens completed the course and submitted valid evaluation surveys. Table 1 outlines teachers' demographic information in terms of sex, years of experiences teaching children 3-6, academic background (i.e., bachelor's, postgraduate diploma in education, master's degree), relevant qualifications (i.e., whether teachers' academic qualifications related to ECE, Psychology, or Special Needs), and their role(s) in the kindergartens (i.e., principal, head teacher, classroom teacher). As can be observed, most teachers were females with 1-4 years of experience teaching children aged 3-6 and obtained bachelor's degree or above related to ECE, Psychology or Special Needs. In addition, most of them (n = 112, 81.8%) worked full-time in kindergartens as classroom teachers.

Table 1

Demographic Background of Teachers Who Submitted Valid Evaluation Surveys (n = 137)

Variables	N	Percent
Sex		
Female	129	94.2%
Male	7	5.1%
Preferred not to indicate	1	0.7%
Years of experience teaching children 3-6		
Less than 1 year	15	10.9%
1-4 years	48	35.0%
5-9 years	36	26.3%
10-14 years	11	8.0%
15-19 years	14	10.2%
20+ years	13	9.5%
Academic background		
Below bachelor's degree	48	35.1%
Bachelor's degree	58	42.3%
Postgraduate diploma in education (PGDE)	15	10.9%
Master's degree and above	16	11.7%
Academic qualification related to ECE, Psychology or Special Needs		
Yes	132	97.2%
No	5	2.8%
Role(s) in the kindergarten		
Principal / Chief Principal / Vice Principal	7	5.1%
Coordinator / Supervisor / Head teacher	8	5.8%
Classroom teacher	90	65.7%
Assistant teacher	22	16.1%
Subject teacher	10	7.3%
Total	137	100.0%

Design and Instruments

The current study applied a descriptive mixed-method design (Morse & Niehaus, 2009). For the quantitative component, an evaluation survey was developed to collect information of teachers' perceptions of the usefulness of different learning resources. We adapted the evaluation instrument developed by Parsons et al. (2019), who validated a series of items intended to assess teachers' perceived usefulness of online PD resources. The evaluation survey used a 5-point Likert-type scale. Teachers were asked to rate the usefulness of the seven types of learning resources in terms of facilitating teacher-child interactions in their classrooms, from "Not Useful at all" to "Extremely Useful". For the qualitative component of the study, we conducted individual interviews. The interview protocol was developed based on the evaluation survey. Items were discussed by the research team in view of their alignment with our theoretical framework, clarity, appropriateness, and importance for answering the research questions. Certain items were refined and/or eliminated. The following questions were included in the interview protocol:

- Among the seven types of learning resources, which one do you think is most useful to facilitate teacher-child interactions in your classroom? Why?
- Which one do you think is least useful to facilitate teacher-child interactions in your classroom? Why?
- Can you tell me what was your most favorite learning resource of this course? Why?
- How about your least favorite learning resource of this course? Why?

Procedures

We obtained ethical approval (Ref. no. 2021-2022-0354) from our University before the data collection procedure commenced. At the recruitment stage, we disseminated the information of the PD course widely using different approaches, including cold calls, emails, posters with the QR code to register, and the registration link shared via social media such as Facebook, Instagram, and LinkedIn. After collecting all the soft copies of the consent forms signed by teachers, we distributed the demographic questionnaire for teachers to complete online. Teachers who submitted the complete demographic questionnaire were given access to the PD course. We prepared a tutorial video for teachers to understand how to navigate the online PD course via Google Classroom and complete the various activities. Every two or three weeks, we sent emails to follow up on teachers' progress. The emails reminded participants of the expected completion date of the units, encouraging them to finish the course tasks and activities within the three-month schedule. Additionally, we encouraged them to collaborate with the course facilitators and other colleagues. At the end of the course, we distributed the evaluation surveys for teachers to complete online. Teachers were asked to rate the learning resources based on their usefulness to facilitate teacher-child interactions in the kindergarten classrooms. In addition, selected teachers were invited to attend the semi-structured interviews individually. Each interview lasted for 30 minutes approximately. The audio recordings were made with the approval of participating teachers.

Data analysis

To address RQ 1, we conducted descriptive frequency analyses (Morgan, 2013) to look at differences in teachers' perceptions of the usefulness of learning resources (Mathias et al., 2016). In addition, we conducted One-way ANOVAs (Kim, 2017) to analyze if teachers' demographic background, including teachers' sex, years of experiences teaching children 3-6, academic background, relevant qualifications, and their role(s) in the kindergartens, would influence their perceptions of usefulness of learning resources. To address RQ 2, conventional content analysis was applied to analyze the ideas that participants brought up in their responses (Serafini & Reid, 2019). We noted and categorized related topics that emerged from teachers' responses based on the interview questions. Codes such as "real-life examples", "improvement of teaching practices", "fact-based questions", and "reflective learning" were used to capture teachers' perceptions.

Table 2
Overview of the Chat With Children Online PD Course

UNIT	TOPIC
Unit 1. <i>Chat with Children: Introduction</i>	Starting point of the learning journey: a brief introduction to the <i>Chat with Children</i> online PD course.
Unit 2. <i>Chat with Children: Why is it important?</i>	Foundation: Why and how teacher-child interactions are the backbone of a child-centered curriculum
Unit 3. <i>Child-centered conversations: Learning from children</i>	Benefits of conversations for teachers and children and classroom strategies to spark conversations in different classroom situations.
Unit 4. <i>The importance of exploring children's intuitive ideas</i>	How to interact with children when they articulate misconceptions?
Unit 5. <i>Thick conversations: Fostering quality chats in the classroom</i>	Engaging children in thick conversations to accelerate deeper conceptual development, language and vocabulary growth.
Unit 6. Narration can be the start of conversations	Parallel talk and self-talk and how teachers can incorporate such strategies in their classroom.
Unit 7. <i>Notice, predict and infer: How to elicit children's thoughts?</i>	to elicit children's thinking and support higher order thinking in classroom settings (e.g., in science, sensory play).
Unit 8. <i>Fostering discussions among children</i>	Understanding the importance of group dialogue and peer-talk among children and how teachers can facilitate or spark such conversations.
Unit 9. <i>High-quality conversations during play</i>	The importance of conversations during play and strategies to increase interaction during playtime.
Unit 10. <i>Chatting with children over meals</i>	Sharing ideas that can support teachers' efforts in increasing conversations with children during mealtime situations.

Each Unit comprised a variety of learning resources.

- Video lectures (around 10-15 minutes each) were presented by the Principal Investigator of the project, introducing the content of the unit and sharing research findings related to the topic of the unit at hand.
- Research notes summarized the key points of the video lectures, helping teachers to review what they have learned in each Unit.
- Testimonials were 2 to 4-minute-long videos that featured teacher educators, kindergarten principals, and teachers in Hong Kong sharing their perspectives and experiences regarding the specific topic of each Unit.
- Classroom videos (2-4 minutes per video) demonstrated teacher-child interactional activities in Hong Kong kindergartens. These videos showed spontaneous teacher-child interactions in Hong Kong kindergarten classrooms, illustrating how high-quality interactions of different topics can be implemented in the local context.
- Quizzes were simple fact-based questions that examined if teachers were paying attention in the testimonials and classroom videos. To answer the questions in the quizzes, teachers might need to re-watch the videos if they missed the information.
- Reflection activities were reflective questions proposed based on the topic of each unit to help teachers foster their thinking and reflect on what they had learned in the course.
- Sharing activities were open-ended questions appeared at the end of each unit for teachers to leave their comments and feedback. We encouraged teachers to share their ideas, perspectives, and experiences with other participants and the course facilitators.

We delivered the online PD course via Google Classroom, including all learning materials and course activities. Google Classroom is a low-cost, easily accessible, and sustainable learning platform. The learning platform allowed teachers to review the classwork and communicate with other participants and course facilitators by making posts.

The design of the *Chat with Children* online PD course met the five critical features of high-quality PD

programs (Desimone, 2009; Desimone & Garet, 2015), as explained below:

- **Content focus:** *Chat with Children* focused on how to improve teachers' interactional quality with their children. It provided theoretical principles and practical strategies through video lectures, testimonials, and classroom videos in a variety of important topics (i.e., How to foster quality chats in the classrooms; How to elicit children's thoughts).
- **Active learning:** The course offered teachers opportunities to observe, analyze, and discuss the theoretical ideas presented in the video lectures and research notes, and the real-life practices of other Hong Kong kindergarten stakeholders featured in the testimonials and classroom videos. Moreover, the questions raised in quizzes, reflection activities, and sharing activities facilitated active communications and exchanges among teachers and course facilitators.
- **Coherence:** *Chat with Children* aimed at improving teacher-child interactional quality, which is consistent with the kindergarten curriculum framework in Hong Kong (Curriculum Development Council, 2017). Teacher-child quality interaction also serves as one of the performance indicators of the Quality Assurance Framework of Hong Kong kindergartens (Hong Kong Education Bureau, 2017). In the classroom videos, we filmed spontaneous teacher-child interactional activities in Hong Kong kindergartens for teachers to understand how to interact with children more effectively in real-life situations.
- **Duration:** *Chat with Children* was conceptualized as 10 sequential units, with each unit involving approximately two hours of work, totaling approximately 20 hours. The units were distributed across three months. The timespan and number of hours spent in the program are considered to be sufficient to foster teachers' intellectual and pedagogical change (West & Bautista, 2022).
- **Collective participation:** We encouraged teachers from the same kindergarten to register and join the *Chat with Children* online PD course together. Within a collective group with familiar colleagues, teachers could learn and collaborate with each other more easily.

Results

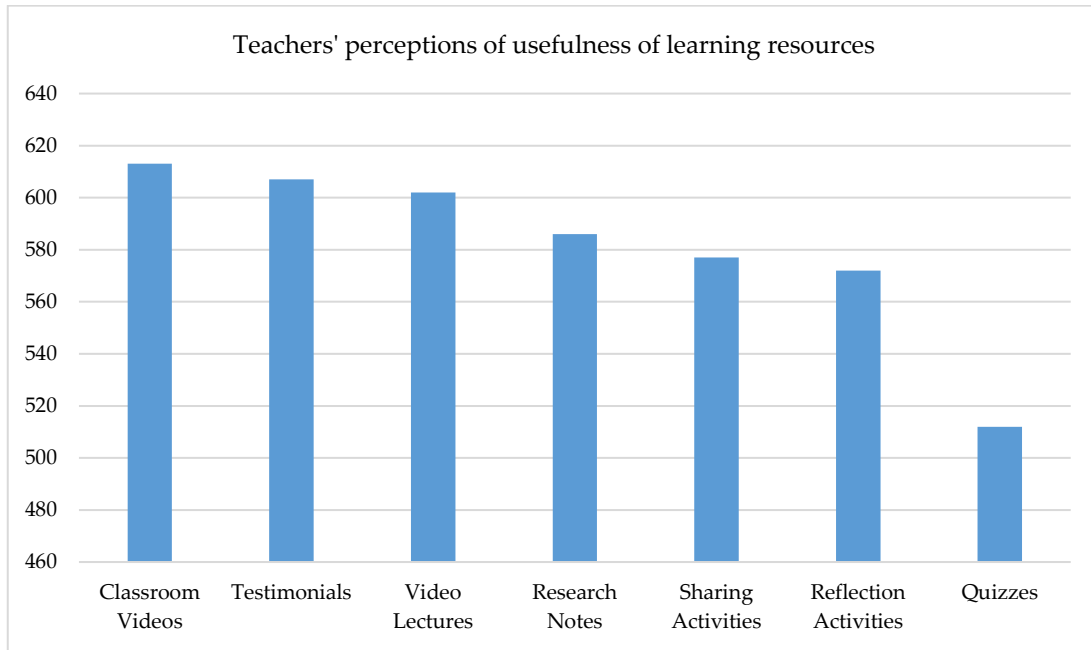
RQ 1: Teachers' Perceptions of Usefulness of Each Learning Resource

Table 3 presents the observed frequencies and percentages of teachers' perceptions of the usefulness of each learning resource. Overall, teachers' responses demonstrated that most learning resources provided in the *Chat with Children* PD course were perceived as "Useful" or "Extremely Useful" in terms of improving teaching practices. For most of the learning resources, only one or two teachers rated "Not useful" or "Not Useful at All". Among the seven types of learning resources, classroom videos ($n = 74$, 34.1%), followed by testimonials ($n = 72$, 33.2%), video lectures ($n = 68$, 31.3%), and research notes ($n = 65$, 30.0%), were rated by the highest percentage of teachers as "Extremely Useful" learning resources. The highest percentage of teachers rated reflection activities ($n = 71$, 32.7%) and sharing activities ($n = 62$, 28.6%) as "Useful". Some of teachers ($n = 31$, 14.3%) considered the usefulness of quizzes as "Neutral". In addition, among the seven types of learning resources, the highest number of teachers rated quizzes as "Not Useful" ($n = 6$, 2.8%) and "Not Useful at All" ($n = 10$, 4.6%). Results of One-way ANOVA showed that the group means were not significantly different ($p > .05$), which indicated that teachers' demographic background did not affect their perceptions of the usefulness of the online learning resources.

Table 3
Descriptive Statistics of Teachers' Perception on Learning Resources

Teachers' perception	Frequency (percentage)						
	Video Lectures	Research Notes	Testimonials	Classroom Videos	Quizzes	Reflection Activities	Sharing Activities
Extremely useful	68 (31.3%)	65 (30.0%)	72 (33.2%)	74 (34.1%)	33 (15.2%)	47 (21.7%)	54 (24.9%)
Useful	57 (26.3%)	51 (23.5%)	56 (25.8%)	57 (26.3%)	57 (26.3%)	71 (32.7%)	62 (28.6%)
Neutral	11 (5.1%)	17 (7.8%)	7 (3.2%)	4 (1.8%)	31 (14.3%)	16 (7.4%)	18 (8.3%)
Not useful	0 (0.0%)	2 (0.9%)	0 (0.0%)	1 (0.5%)	10 (4.6%)	2 (0.9%)	2 (0.9%)
Not useful at all	1 (0.5%)	2 (0.9%)	2 (0.9%)	1 (0.5%)	6 (2.8%)	1 (0.5%)	1 (0.5%)

Figure 1
Ranking of the Usefulness of Each Learning Resource



We produced a bar graph to provide a visual representation of the findings, comparing the perceived usefulness of learning resources (see Figure 1). Values were assigned to different categories of teachers' perception ("Extremely Useful" = 5; "Useful" = 4; "Neutral" = 3; "Not useful" = 2; and "Not Useful at All" = 1), and multiplied by the number of teachers in each category to calculate teachers' overall ratings of the usefulness of learning resources provided in the online PD course. Scores could theoretically range from 137 (if all participants had indicated "Not useful at all" for all resources) to 685 (if all participants had indicated "Extremely useful" for all resources).

As can be observed in Figure 1, total usefulness scores ranged from 512 to 613, which indicates that all the learning resources were perceived to be useful to some extent. However, the degree of perceived usefulness varied. Teachers perceived learning resources that demonstrate practical examples, such as classroom videos and testimonials, as most useful to facilitate their teaching practices. Learning resources that provide theoretical knowledge, such as video lectures and research notes, were considered moderately useful. Finally, learning resources that focused on self-reflection, such as sharing activities, reflection activities, and quizzes, were perceived relatively less useful to improve teachers' teaching practices.

RQ 2: Usefulness of Learning Resources in Facilitating Teacher-Child Interactions

In this section, we analyzed the teachers' qualitative responses to the four questions asked in the individual interviews. Teachers evaluated the usefulness of learning resources and shared their most and least favorite learning resources of the PD course.

Which Learning Resource is the Most Useful to Facilitate Teacher-Child Interactions?

Most teachers (20 out of 35) agreed that the most useful learning resource of the PD course was the classroom videos. From these teachers' perspective, classroom videos brought new insights for them to improve the interactional quality when chatting with children. For example, Ms Luna explained that

The classroom videos show real examples of teacher-child interactions, how teachers engage children in the conversations, and how teachers inspire children with different interactional strategies. They are very helpful for me to reflect on my own teaching practices.

This idea aligns with prior literature indicating that online learning resources have the potential to bridge the gap between theoretical understanding and practical application (Ng & Bautista, 2024). Furthermore, six teachers emphasized that the classroom videos linked the theory and practice for their

learning process. As Ms Yvonne pointed out,

The classroom videos visualize the theories demonstrated in the Video Lectures with practical examples. They are more helpful for frontline teachers like me. I can learn a lot from different styles of teacher-child interactions.

Some of teachers (6 out of 35) believed the most useful learning resource of the PD course was the sharing activities, which promoted the process of self-reflection. For instance, Ms Patricia argued that

Sharing activities are quite useful. Because you have to share something, and thus teachers have opportunities to reflect what they have learnt in the course. Also, you can learn a lot from other teachers' perspectives and posts.

As discussed in the theoretical framework, these quotes show that online learning resources can facilitate communications among fellow teachers (Onyema et al., 2019).

Which Learning Resource is the Least Useful to Facilitate Teacher-Child Interactions?

Among seven types of learning resources, most of teachers (21 out of 35) noted that the quizzes were the least useful compared to others. Among these teachers, some argued that the questions asked in the quizzes were not helpful for them to reflect on their learning. For example, Ms Laura shared that

The questions are fact-based. But I prefer reflective questions which are more useful for me to reflect what I have learnt in this course.

Other participants pointed out that the way the quizzes was delivered was not useful to facilitate their teaching practices. For instance, Ms Hannah indicated that

I understand that you (course facilitators) wanted to reduce the working load for teachers, but the yes/no questions are so easy to answer. The quizzes did help me to review the details in the videos, but I think more challenging questions could further improve my teaching practices.

Consistent with the findings of previous studies (e.g., Dede et al., 2009), teachers may perceive as less useful those learning resources that do not have clear potential to enhance their practices. Meanwhile, some teachers (8 out of 35) agreed that the least useful learning resource was the reflection activities. As Ms Cassy claimed,

I would say the reflection activities were the least useful. Because sometimes I would just skip them, and only watch the videos.

What is Your Most Favorite Learning Resource?

Many teachers (15 out of 35) who participated in the interviews argued that their most favorite learning resource in the course were the classroom videos, which showed spontaneous teacher-child interactions in real-life situations. Teachers argued that these videos were short, easy to follow, and allowed them to learn interactional strategies from natural conversations between teachers and children. For example, Ms Whitney shared,

I really enjoy watching classroom videos. They provide real-life examples for me to learn how to naturally interact with children in different situations. The interactional strategies demonstrated in the videos can be implemented into my own classroom.

This echoes with prior literature demonstrating that the use of videos in online professional learning environments can improve teachers' pedagogical skills (Bautista et al., 2022; Bragg et al., 2021). In addition, some teachers (7 out of 35) liked the testimonials the most. For instance, Ms Becky pointed out that

Teachers and principals always have different examples to share. You can have a lot of learning moments from their sharing in different context. It is very eye-opening.

What is Your Least Favorite Learning Resource?

When asked about the least favorite learning resource in the course, many teachers (12 out of 35) expressed that in general, they highly enjoyed this PD. They did not specify any learning resource that they dislike. These teachers argued that they liked all the learning resources provided. For example, Ms Eileen shared that

"I like everything of this course. It is very easy to go through. The videos are not very long. I can complete a Unit of

the learning resources easily. Each Unit is very fruitful, and I can always have some takeaways”.

Some teachers (9 out of 35) stated that they liked the quizzes the least. As Ms Bonnie claimed,

“Some questions in the quizzes are quite tricky. To recall the details, I have to go back and watch the videos again. To be honest I do not really like the quizzes”.

Table 4 summarizes the online PD resources that teachers found most and least useful to facilitate teacher-child interactions, and their most and least favorite resources in the Chat with Children PD course based on the findings of individual interviews.

Table 4
Summaries of Qualitative Findings

	Most useful learning resource	Least useful learning resource	Most favorite learning resource	Least favorite learning resource
	Classroom videos (20)	Quizzes (21)	Classroom videos (15)	Enjoyed everything (12)
	Sharing activities (6)	Reflection activities (8)	Testimonials (7)	Quizzes (9)
Resource type (no. of teachers)	Testimonials (4)	Testimonials, Research notes, Sharing activities (2)	Video lectures (5)	Reflection activities (5)
	Research notes (3)	Video lectures, Classroom videos (0)	Quizzes (3)	Sharing activities, Research notes, Video lectures (3)
	Video lectures, Quizzes (1)		Sharing activities, Research notes (2)	Video lectures, Classroom videos, Video lectures (0)
	Reflection activities (0)		Reflection activities (0)	

Discussion

This study revolves around *Chat with Children*, an online PD centered on teacher-child interactions. We examined Hong Kong kindergarten teachers’ perceptions of the usefulness of different types of learning resources, including video lectures, research notes, testimonials, classroom videos, quizzes, reflection activities, and sharing activities.

Based on the descriptive analyses we run to address RQ1, we found that teachers expressed a positive perception of the usefulness of all the learning resources provided in the PD course. Most teachers found *Chat with Children* to offer valuable guidelines and strategies for integrating high-quality teacher-child interactions into their classrooms. Similar to Topal (2016), our online PD course featured seven distinct types of learning resources, addressing the various needs of teachers seeking to enhance their teaching practices. We took into account the potential different learning styles of participants (Cheng & Chau, 2016) when designing these resources. Understanding that teachers may respond differently to practical, theoretical, and self-reflective materials, we included an array of rich, diverse, and multi-sensory resources to maximize the effectiveness of their learning.

While the online PD course was perceived useful overall, teachers found specific types of learning resources to be more useful than others in facilitating their teaching practices. Those learning resources that demonstrated practical examples in real-life situations, such as classroom videos and testimonials, were perceived to be the most useful. Consistent with the study by Bautista et al. (2022), teachers argued that the classroom videos included in the course offered an authentic glimpse into the reality of kindergartens. These videos facilitated the bridging of traditional theoretical education with actual classroom practices (Gaudin & Chaliès, 2015). Learning resources that provided theoretical knowledge, such as video lectures and research notes, were perceived to be moderately useful by teachers. In *Chat with Children*, video lectures and research notes offered teachers theoretical and explicit knowledge, thereby unpacking essential concepts and strategies for high-quality teacher-child interactions. While rooted in formal logic (van Schaik et al., 2019), these resources were perceived to be comparatively less useful than practice-based resources, even though theoretical knowledge is foundational to inform practice (Li & Sang, 2023). Being aware of

this trend is important for PD providers and facilitators to provide useful learning resources for teachers to improve their teaching practices.

Furthermore, learning resources that focus on self-reflection and assessment (such as sharing activities, reflection activities, and especially the quizzes) were perceived as relatively less useful to improve teachers' teaching practices. This finding supports the evidence from the study by Saric and Steh (2017), who identified a significant disparity between teachers' professional goals and their actual reflective practices. Teachers' goals to engage in professional learning may vary. Not all teachers are equally inclined to explore the potential significance or meaning of their daily work experiences (Selkrig & Keamy, 2015). Therefore, teachers may find self-reflection learning resources are least useful for them to guide their work.

In the interviews we conducted to address RQ2, we found that teachers perceived the most useful learning resources as their favorite learning resources. Similar to prior research (Wong et al., 2024), teachers showed a strong preference for resources centered on instructional practices, featuring concrete examples of teacher-child interactions in various settings. This preference is aligned with the Hong Kong's Kindergarten Education Curriculum Guide (Guide), which claims that "Teachers should encourage children to actively participate in various activities and give them sufficient time for interactions to experience the norms in social life" (Curriculum Development Council, 2017). This may explain, at least partially, why the favorite learning resources for kindergarten teachers were the ones perceived to be most useful in terms of improving their teaching practices.

To address RQ1, the findings of the current study showed that teachers' demographic background did not influence their perceptions of the usefulness of different types of learning resources. There was no difference when comparing teachers' responses based on their sex, years of experiences teaching children 3-6, academic background, relevant qualifications, and role(s) in the kindergartens. One possible reason may be due to the design of the course, which was based on the five critical features of high-quality PD (Desimone, 2009). In addition, the Guide encourages Hong Kong kindergarten teachers to understand children's developmental and learning needs, and to provide them with interactional opportunities in the daily context (Curriculum Development Council, 2017). However, kindergarten teachers in Hong Kong have limited access to PD programs aimed at enhancing teacher-child interactional quality (Li et al., 2020). Therefore, *Chat with Children* may have the potential to increase teachers' interest and motivation to engage in online PD, regardless of their backgrounds.

Conclusion

Based on the evidence collected, we conclude that:

- Online learning resources that demonstrate practical examples in real-life situations are perceived as most useful to enhance teachers' teaching practices. Compared to learning resources that focus on theoretical knowledge and especially those focused on self-reflection and assessment, videos of practice featuring high-quality interactions transfer abstract concepts into concrete teaching practices in a variety of circumstances (Valle-Flórez et al., 2024).
- Online PD that includes different types of learning resources has the potential to meet teachers' learning needs, regardless of teachers' demographic backgrounds. Exposing teachers to a wide variety of professional practices and stimulating their professional reflection may facilitate their teaching practices in the classroom (Santagata & Guarino, 2011).

Limitations and Future Research

This study has several limitations that must be acknowledged and overcome in future studies. First, we have only measured teachers' perceptions of the usefulness of learning resources, but not the impact of these learning resources on teaching practices in real-life situations. Future studies should involve the assessment of teaching practices before and after taking PD courses. Second, the study was conducted during the process of piloting an online PD course. Hence, the intent of this exploratory study was to share

observed teachers' perceptions of the usefulness of the learning resources. Future research should therefore consider using controlled experiments to investigate the impact of specific design features (e.g., materials, prompts, procedures, duration) (Bautista et al., 2022) on how teachers perceive the usefulness of the learning resources for enhancing their teaching practices. Third, the study has only included Hong Kong kindergartens. Whether the results generated in the current study can be observed in other socio-cultural settings is uncertain. Therefore, similar studies should be conducted in other societies to explore if the findings can be generalized.

Implications

From a theoretical standpoint, our study addressed a significant gap in the literature by highlighting teachers' perceptions of the usefulness of various types of learning resources within online PD courses. Teachers may perceive the theoretical knowledge and concepts acquired in PD courses as more abstract and less applicable to their practical school settings compared to real-life examples (Clarà, 2014). Furthermore, even with the support of course coordinators, teachers may find it challenging to reflect on what they have learned (Gelfuso & Dennis, 2014). In this sense, we advise that researchers could further explore how different types of knowledge presented in online PD courses influence teachers' perceptions of the usefulness of various types of learning resources.

We suggest that PD designers and facilitators should pay attention to the designs of different types of online learning resources, so as to raise their awareness of the need to improve the quality of their interactions with children. The Hong Kong curriculum Guide upholds of the core value of "child-centeredness", encouraging kindergarten teachers to understand children's developmental and learning needs, thereby providing them with interactional opportunities in the daily context (Curriculum Development Council, 2017). However, it has been documented that there is a lack of systematic and effective PD programs on improving teacher-child interactional quality (Li et al., 2020). In this case, policy makers should provide more online PD opportunities with different types of learning resources that allow teachers to align learning experiences and resources with their needs (Yurkofsky et al., 2019), enhancing teachers' professional skills and competences to support children's development.

Declarations

Authors' Declarations

Authors' contributions: Conceptualization, Wu, X. E. and Bautista, A.; Formal analysis, Wu, X. E. and Bautista, A.; Investigation, Wu, X. E. and Bautista, A.; Methodology, Wu, X. E. and Bautista, A.; Resources, Bautista, A.; Supervision, Bautista, A.; Validation, Wu, X. E. and Bautista, A.; Visualization, Wu, X. E. and Bautista, A.; Writing—original draft, Wu, X. E. and Bautista, A.; Writing—review & editing, Wu, X. E. and Bautista, A.; All authors have read and agreed to the published version of the manuscript.

Competing interests: The authors declare that they have no competing interests.

Funding: This study was supported by The Education University of Hong Kong. Also, the authors wish to acknowledge the funding support (#03ABS) of the Central Reserve Allocation Committee (CRAC, EdUHK). The views expressed in this paper are the authors' and do not necessarily represent the views of their institution.

Ethics approval and consent to participate: We obtained the ethical approval (Ref. no. 2021-2022-0354) from our University before the data collection procedure commenced. Informed consent was obtained from all subjects involved in the study.

Publisher's Declarations

Editorial Acknowledgement: The editorial process of this article was completed under the editorship of Dr. Mehmet Toran through a double-blind peer review with external reviewers.

Publisher's Note: Journal of Childhood, Education & Society remains neutral with regard to jurisdictional claims in published maps and institutional affiliation.

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