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The Influence of an Online Community of Practice on Professional Development for Online Teaching: Case Study on Kindergartens

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Abstract: The unexpected closure of schools, including kindergartens, due to the coronavirus pandemic in the past two years transformed face-to-face teaching into online teaching, which was not a common practice for kindergarten teachers. As research reveal, kindergarten teachers are generally inexperienced in teaching online, so they need ongoing support and interactive professional training like building a community of practice (CoP) for switching to online teaching. Yet, limited research has investigated the impacts of building an online CoP as a teacher professional development approach in early childhood education. Thus, this study examined the effects and sustainable factors of the CoP groups provided by a university for online teaching in early childhood education through intensive training and quadripartite collaboration among kindergarten teachers, teacher trainers, preservice teachers, and eLearning specialists. To have an in-depth investigation, this study employed a case study of three kindergartens, semi-structured interviews with eight kindergarten teachers and three university teacher trainers were conducted via Zoom. Then, multi-sourced data, including artifacts and interview data, were analyzed by thematic analysis based on the CoP Theory to elucidate participants' experiences of an online CoP as an approach for teacher professional development. Based on the findings, this study revealed that the CoP empowered kindergarten teachers to teach online by (1) developing their technical and leadership skills through (2) building up a supportive network for idea exchanges; and (3) accumulating resources, skills, and tools they needed for online teaching from the domain, community, and practice dimension accordingly. In addition, the findings indicated that content relevance to the school curriculum, availability of time for collaboration, continuous technical support, and self-learning resources are important factors for sustaining the online teaching practices learned from the CoP groups. This study recommended an establishment of an ongoing online CoP for facilitating more sustainable teacher professional development in early childhood settings.

Keywords: Community of Practice, Teacher Professional Development, Online Teaching, Early Childhood Education

1. Introduction

The outbreak of coronavirus disease in 2019 resulted in the closure of kindergartens and the forced transition from in-person education to online teaching in Hong Kong, which aroused the attention of teacher training on this aspect, especially for kindergarten teachers. Inadequate professional training and support were found to have negatively impacted the effectiveness of kindergarten teachers' online instruction (Hu et al., 2021). Seeing the pressing needs, the Education University of Hong Kong (EdUHK) launched the community of practice (CoP) project for online teaching in early childhood education in 2021. The project was meant to strengthen the capability of kindergarten teachers to teach online through intensive training and quadripartite collaboration, specifically among kindergarten teachers, teacher trainers, preservice teachers, and eLearning specialists. Although some existing research has outlined the benefits of a CoP for upskilling teachers' workforce and enhancing the quality of online teaching (Printy, 2008), limited research has investigated its impacts on kindergarten teachers' professional development in early childhood education (To et al., 2021). This paper aimed to explore whether the online CoP groups affected kindergarten teachers' professional development for online teaching by examining the factors that might affect the sustainability of the online teaching practices supported by the CoP groups.

2. Literature Review

Kindergarten Teachers' Unpreparedness for Online Teaching

A study conducted by Hu et al. (2021) showed that kindergarten teachers had little preparation time and school training for online teaching. Deficiencies in teachers' capacity for technology adoption, technical support, technological resources, and up-to-date training hindered technology integration in the early childhood education settings in Hong Kong (Han, 2003; Hu & Yelland, 2017). Kindergarten teachers encountered significant difficulties teaching online as there was a gap between the teacher education courses and the ICT level they incorporated (Kalogiannakis, 2010). The research found that the suitability of technological tools, teachers' capability, and professional development opportunities have affected teachers' online teaching competence (Saxena & Prasad, 2021). In summary, previous studies underline the needs to enhance teachers' efficacy in online teaching.

CoP as a Practical Approach to Enhancing Teachers' Professionalism Although the Hong Kong Education Bureau encouraged kindergarten teachers to participate in training organized by the learning communities of schools (Curriculum Development Council, 2017), little evidence of implementing learning communities such as CoP in kindergartens has been found. Hence, it was worth conducting a case study to investigate the possible impacts of CoP on kindergarten teachers' professional development in Hong Kong.

Reasons for Studying CoP for Kindergarten Teacher Professional Development

Teacher professional development for kindergarten teachers generally consists of a series of one-off workshops and meetings and an ongoing learning process through engagement in practice, comprised of informal activities such as peer sharing (Schaler & Fusco, 2003). After teachers' reflection, the approach embodies accumulating new knowledge and applying it to existing practices (Moore, 2008). Effective teacher professional development focusing on job-embedded responsibilities can yield positive outcomes when it is sustained over time in the CoP (Bokiev et al., 2017). Still, limited evidence of ongoing professional development activities recurred in a CoP was found in the kindergartens of Hong Kong. Therefore, this study focused on the impacts of communities of practice on kindergarten teachers' professional development through co-developing online learning materials.

Communities of Practice (CoP)

From the sociocultural perspective, CoP considers teachers' professional development in a social context requiring participation and reification among groups of people that share mutual engagement, a joint enterprise, and a shared repertoire of ways of doing things regularly (Lave & Wenger, 1991; Wenger, 1998). Members exchange ideas and knowledge to find solutions with common interests in a subject or problem. The theoretical framework of this paper was based on the three crucial dimensions of a CoP theory (Wenger, 1998; Wenger-Trayner & Wenger-Trayner, 2015), namely the domain, the community, and the practice. As shown in Figure 1, the domain refers to mutual engagement as an identity is defined by a shared domain of interest. Members are committed to the domain and therefore share a sense of competence; the community represents the joint enterprise as the mutual relationships sustained through interactions and collaborations among the members; the practice is related to the shared repertoire of resources: experiences, stories, tools, and solutions to recurring problems (Wenger, 1998). Situated learning emerges through a process of participation and reification. Teachers' involvement in the CoP is conducive to value creation by acknowledging that practice is an intrinsic condition of the existence of knowledge, forming a mechanism for the development, dissemination, and reification of knowledge (Hernaez, 2011). The characteristics and the key dimensions of the CoP have been clarified from the above literature reviews to guide the data analysis of this study.

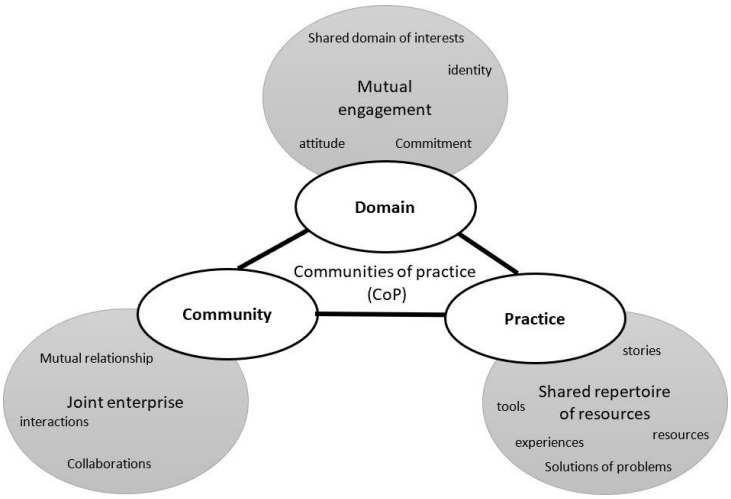

Figure 1. The Community of Practice Model (adapted from Wenger, 1998, p.72; Wenger-Trayner & Wenger-Trayner, 2015)

Prior research on CoP generally attributed its application to higher education (Cesareni et al., 2011; Correia & Davis, 2008). A CoP can function as vocational training for teachers to improve their use of technologies in schools, operating as an approach for teacher professional development and sharing reifications of teaching practices (Kirschner & Lai, 2007). Conversely, little research has focused on its implementation in early childhood education settings (Kirkby et al., 2019).

Regarding the sustainability factors of CoP, a sustainability model emerged from a study conducted by Kezar and Gehrke (2017, p.11), which includes leadership development; distribution and succession; a viable financial model; a professional staff; feedback and advice mechanisms; research and assessment; and an articulated strategy. This model suggested relevant factors that might affect the sustainability of applying online teaching practices by kindergarten teachers.

Communities of Practice Project for Online Teaching in Early Childhood Education

Communities of Practice (CoP) Project for Online Teaching in Early Childhood Education was a part of a university-level project. Given the pressing needs for training kindergarten teachers in designing online teaching materials as a substitution for face-to-face classes, the project intended to build the online teaching capability of kindergarten teachers through quadripartite collaboration and intensive training. Six CoP groups were formed, one for each of the six kindergartens in Hong Kong, when the project started in January 2021. Each group worked together from January to July 2022 to co-develop six sets of online teaching materials in the six learning areas in the Curriculum Framework of Kindergarten Education recommended by the Hong Kong Curriculum Development Council (2017).

3. Methodology

As mentioned in the introduction, few studies have focused on the influences of CoP on teacher professional development for online teaching in early childhood education. The present case study addressed this issue with the following research questions:

1. How does the online community of practice groups (CoP groups) affect the professional development of kindergarten teachers for online teaching?
2. What factors affect the sustainability of the online teaching practices of kindergarten teachers learned from the online community of practice groups (CoP groups)?

Research Design

This study employed a case study (Yin, 2018) to delve into the impacts and sustainability factors of CoP groups on teacher professional development for online teaching in an early childhood education setting.

Data Collection

This case study is a follow-up study to the CoP project that ended in July 2021. To have an overview of the project and the contextual background of each CoP group, this study began with reviewing the project documents and artifacts, including the project report and published online learning materials co-developed in the CoP groups. These documents later served as evidence to support participants' claims during the analysis of the interviews. The semi-structured individual interviews for about thirty minutes took place in mid-April 2022, nine months after the end of the project, with eight kindergarten teachers from three different kindergartens and three teacher trainers who supervised the corresponding groups. These participants were purposively targeted as they were the co-supervisors and members from three of the CoP groups. Participants' views on their current teaching practices and experience in the CoP groups were collected. The interview design involved reviewing relevant literature related to building a CoP (Cesareni et al., 2011; Printy, 2008) based on the theoretical framework of the CoP Theory in three dimensions (Wenger, 1998; Wenger-Trayner & Wenger-Trayner, 2015). All these participants clearly understood the primary purposes of this study. Before the main study, a project-in-charge EdUHK academic participated in the pilot study to provide suggestions on the instruments.

Triangulation of This Study

This study collected multi-sourced data for triangulation from participants, including artifacts and interview data with kindergarten teachers and teacher trainers, to validate the responses from various sources (Yin, 2018). Data collected from the interviews were checked and verified with the project documents and artifacts to yield the study's validity.

Ethical Measures

After the research plan was constructed, an ethical review application form was approved by the panels of the Office of Research. Consent forms that clarified this study's purposes and significance were sent to the participants. After receiving the signed consent forms, individual interviews were arranged in April 2022 for two weeks. Throughout the study process, participants were free to withdraw at any point without any negative effect. Information obtained was anonymized and treated as confidential.

4. Data Analysis

To conduct rigorous qualitative data analysis, the two investigators undertook a multistage process of examining, coding, categorizing, and interpreting data as outlined by Mills and Gay (2015) using a qualitative research coding software called Delve Tool. Deductive codes were derived from the theoretical framework of CoP Theory and the relevant literature related to the characteristics and applications of CoP (Wenger, 1998; Wenger-Trayner & Wenger-Trayner, 2015). Codes extracted from the data were reviewed to identify and match patterns for generating themes accordingly (Clarke & Braun, 2017). After generalizing the themes, the codes were rearranged based on the themes using Delve Tool. Then, the themes were regrouped into three dimensions: domain, community, and practice for analyzing the three kindergarten cases in the following section.

5. Results and Findings

Code of the Participants

The participants were coded in terms of their roles, namely teacher (T) and co-supervisor (CS) supporting that kindergarten (KG) to protect their privacy, as shown in Table 1.

Table 1. *Coding of participants*

Code	Representation	Example	Range of code
CS	Teacher trainer who co-supervised a kindergarten in the CoP group involved in the research	"CS1" stands for the co-supervisor who co-supervised the first kindergarten involved in the interview	From CS1 to CS3
T	Kindergarten teachers who participated in the CoP group involved in the research	"T1" stands for the first kindergarten teacher involved in the interview	From T1 to T3 (from KG1) From T4 to T6 (from KG2) From T7 to T8 (from KG3)

Contextual Background of the Kindergarten Teachers' Online Teaching Experience

In this study, most kindergarten teachers reported only half a year to a year of online teaching experience before joining the CoP project. They started online teaching in the first year when face-to-face classes were suspended in 2020 because of the pandemic (T1, T8, CS1, CS2). Without much training on online teaching (T2, T5), kindergarten teachers, thus, encountered difficulty from the very beginning when attempting to teach online, especially in creating online teaching materials for their students (T1, T7, CS3). For example, as T1 stated, "*We were not too skilled at editing the film or making it appealing to children. In the beginning, we did not know how to use green screens and create a virtual background.*" They were unsure about how to conduct online teaching properly and perceived it as less interactive than regular face-to-face classes. Some said the online teaching mode was less inspirational to students' thinking (T5, T8). It was challenging to sustain children's concentration online (T7). Overall, before joining this CoP project, kindergarten teachers were generally unconfident about online teaching suitability and underestimated the strengths of teaching online.

Research Question 1: Impacts of CoP on Supporting Kindergarten Teachers Switching to Online Teaching

The Domain Dimension

Aligning with the CoP project, the CoP theory was used to analyze the data involved; the results and findings are separated into three major parts, as shown in Table 2. Those about the domain dimension are discussed first.

Table 2. *Theme categorization and codes of the impacts of CoP groups in the domain dimension*

Dimension	Themes	Codes	Examples
Domain	Sharing domain of interests	Focusing on the same task; committed to completing the tasks	*"We commented to one another, intending to make high-quality teaching videos. We wanted to enhance the learning effectiveness of our students with online teaching."*
	Growing confidence	More confident; grew confidence	*"After finishing the project, we were more confident in our video shooting and post-production skills."*
	Job satisfaction	Felt satisfied	*"We felt satisfied. Our students recognized us when we taught with these videos online, they were delighted."*

As stated in the literature review, the domain dimension refers to mutual engagement as an identity is defined by a shared domain of interest. CoP group members are generally committed to the domain and share a sense of competence. In this study, each CoP group had a shared domain of interests

as group members concentrated on developing six sets of online teaching materials in the six learning areas. As demonstrated in Table 2, T5 described: "*We commented to one another, intending to make high-quality videos. We wanted to enhance the learning effectiveness of our students with online teaching.*" CS1 added that she was glad to see all members commit to completing the tasks, resulting in a positive outcome. Half of the kindergarten teachers (T1, T2, T6, and T8) showed confidence in improving students' attention and teacher-student interaction through videos. As T2 put it: "*After finishing the project, we were more confident in our video shooting and post-production skills. […] The video retained students' concentration. The videos allowed our students to learn at home, combined with hand-held materials. The learning outcomes were achieved effectively."*

It was also found that the CoP groups had enhanced kindergarten teachers' job fulfillment. T1 felt satisfied with herself as she accomplished the tasks. She was thrilled to see her students answer her questions and identify her in the videos. What impressed her most was that some students who initially had weak concentration could stay focused for six to eight minutes when she used the co-developed materials in her class. T4 was touched by the parents who applauded their efforts in marking the videos as the learning experience became vivid: "*After using online teaching materials in our class, students' parents appreciated that. Our students were excited to dance with the animals in the videos.*" Above all, kindergarten teachers generally grew confidence and satisfaction with online teaching after committing to the quadripartite collaboration in the CoP groups.

The Community Dimension

As mentioned previously in the literature review, the community refers to the joint enterprise as the mutual relationships sustained through social interactions and collaborations among the members. As shown in Table 3, both teacher trainers and kindergarten teachers engaged in joint activities and discussions in the CoP groups.

Table 3. *Theme categorization and codes of the impacts of CoP groups in the community dimension*

Dimension	Themes	Codes	Examples
Community	Building a strong relationship	Close/harmonious/ comfortable/strong relationship	*"We had a good relationship. As our CoP group members had different strengths, we learned from one another during our discussions and collaborations."*
	Interacting socially	Provided advice; asked for support; consultations; discussions	*"When designing the teaching plans and the teaching events, the supervisor provided some advice on improving our lesson design, while we asked for support from eLearning specialists."*
	Collaborating as a team	Collaborated well; worked together; solved problems together	*"We pre-downloaded some software, and then our CoP group members taught us how to create animations. During the process, we solved problems together."*

By forming a networked partnership, teacher trainers and kindergarten teachers in the CoP groups generally had positive views on the relationship and collaboration among the members as they learned from one another and enhanced the quality of the videos after negotiating and seeking consensus (T1, T5, T7, CS1, CS2). Various types of members contributed to the CoP groups based on their strengths. For example, as T7 explained, "*The supervisor provided some advice on improving our lesson design, while we asked for support from eLearning specialists.*" CS2 added, "*The two preservice teachers learned the technical skills from the eLearning specialists for supporting the kindergarten teachers.*" Teachers from the same kindergarten had extensive collaboration. For example, T1 recalled, "*I work closely with T2. We prepared lesson plans and revised contents based on our school curriculum.*" The above findings showed that the CoP groups generally supported the kindergarten teachers through social participation with different group members harmoniously in a supportive learning environment.

The Practice Dimension

The practice dimension is about a shared repertoire of resources, including experiences, stories, tools, and solutions to recurring problems (Wenger, 1998). As illustrated in Table 4, more than half of the kindergarten teachers noted that the shared resources provided in the CoP groups were useful for their

online teaching. T1, T4, T6, and T8 shared that the resources posted on the online platform could inspire them in curriculum design as they gained insights by referring to others' teaching styles, contents, and the use of other eLearning tools with interactive game templates. T1 explained: "*Other preservice teachers' sharing of online teaching inspired us. […] We adopted game-based learning, making the teaching materials more exciting and diverse.*"

Table 4. *Theme categorization and codes of the impacts of CoP groups in the practice dimension*

Dimension	Themes	Codes	Examples
Practice	Utilizing tools	Tools; software; digital device	*"We created an interactive game with Word Wall for the topic of counting down numbers."*
	Strengthening techniques	Techniques; green screen; animations; virtual objects; video editing; video shooting; lesson plan design	*"We learned different techniques, such as creating stop-motion animations, removing green screens, and adding some virtual objects to the online teaching materials. My presenting skills have been improved."*
	Accumulating resources	Resources; sharing from other teachers; online teaching materials	*"Other preservice teachers' sharing of online teaching inspired us. We did not know stop-motion animation could be used in an instructional video."*

As mentioned in the introduction, most kindergarten teachers expressed concerns about the interactivity of online teaching before joining the community. In the CoP groups, most of them learned how to apply different techniques to make the videos interactive with students. As demonstrated by T6, "*We created an interactive game with Word Wall for the topic of counting down numbers. Our students followed the video and counted down the numbers together*."

More importantly, most kindergarten teachers involved (T1, T2, T5, T7, T8) are regarded to have developed a sense of competence in technical skills, knowledge, and tools for lesson design and video production after participating in the project. For example, T1 said, "*We learned different techniques, such as creating stop-motion animations, removing green screens, and adding some virtual objects to the online teaching materials. My presenting skills have been improved.*"

The above examples demonstrated that through the professional development in the CoP, kindergarten teachers utilized online teaching tools to raise students' engagement. Kindergarten teachers indicated that they played a leadership role in leading teachers to incorporate online teaching approaches after being community members. Peer-to-peer teacher professional development activities were organized in the kindergartens. For example, T1 recalled, "*We organized a sharing session to share what we learned in CoP with our colleagues*." Meanwhile, T5 praised, "*Most teachers acquired animation creation skills through a mini-workshop, promoting what we learned in CoP with our colleagues*." This implied that good practice extended outside the CoP group by developing kindergarten teachers' leadership identity. Overall, a conclusion can be drawn that most kindergarten teachers strengthened their technical skills for online teaching by utilizing the shared resources accumulated in the CoP among the kindergartens. Some also embraced their leadership role by promoting good practices with their colleagues.

Results and Findings Addressing the Impacts of CoP on Supporting Kindergarten Teachers Switching to Online Teaching

Overall, most kindergarten teachers in this study reflected that their participation in the CoP groups contributed to their professional growth in switching to online teaching. In the domain dimension, it was found that they became more confident and satisfied with their online teaching after sharing the commitment to creating online teaching materials with the CoP group members; in the community dimension, kindergarten teachers learned through socially interacting and collaborating with the group members harmoniously, building a supportive learning environment; in the practice dimension, most kindergarten teachers acquired technical skills for creating online learning materials with the help of the shared resources in CoP, which facilitated idea exchanges and accumulated resources by sharing the materials they co-created with other CoP groups among the kindergartens. Some of them also

shared the good practice with their colleagues, leading to developing their leadership roles.

Research Question 2: Potential Factors Affecting the Sustainability of the Online Teaching Practices Learned from the CoP

This section discusses teacher trainers' and kindergarten teachers' views on the sustainability factors that might affect the online teaching practices they learned in the CoP groups from the domain, community, and practice dimensions.

In the domain dimension, kindergarten teachers reported reusing the online learning materials they created during the CoP experiences in a different academic year as the contents were related to their school curriculum (e.g., T3, T5, T7). For example, T7 disclosed: "*Our principal appreciated our participation in this online CoP group and encouraged us to reuse our learning resources."* Similarly, T3 mentioned that *"The formation of the CoP was right at the time to support teachers in developing online teaching skills and video creation skills. It was complimentary to our school-based plans. We could see how the online learning materials were combined with the hands-on material packages for facilitating students' learning.*" A group of kindergarten teachers (e.g., T3, T7) perceived online teaching as a new trend in kindergartens to supplement students' learning.

Although the CoP groups in this project linked people with shared interests in creating online learning materials for kindergartens, there are two inhibiting factors affecting the sustainability issues: limitation of project timeframe and members' identity change effects. Members of the CoP groups had limited communication after the project ended as CS3 revealed that "*The community built in the project was terminable. The groups stopped growing after the end of the project. For promoting sustainability, gathering a group of people can drive the motives to the kindergartens as pioneers*". It shows that maintaining the CoP groups led by passionate educators on online teaching in early childhood education could facilitate participation and strengthen the sustainability of the CoP groups. A change in members' identity may also affect the bonding among group members. For example, T4 shared, "*The two preservice teachers have graduated and become kindergarten teachers. We did not keep in touch*." It shows that some kindergarten teachers raised concerns over connecting members from non-partnered kindergartens after changing their jobs or roles.

Regarding the community dimension, most kindergarten teachers from the second kindergarten considered continuous technical support from the community members effective for idea exchanges and discussion on new software and tools. Both the teacher trainers and kindergarten teachers responded that sufficient time for collaboration was notable for sustaining their practices in the CoP groups. For example, T1 emphasized, "*Sufficient time for collaboration within the CoP group is essential. We took one to two days to create a 10-minute video. We needed to re-watch it to check if there was any error*." A sufficiency of kindergartens' workforce and resources are contributing factors as CS2 explained that "*Participation in the CoP is the extra workload added to the teachers who may have difficulty balancing their normal work and tasks in the CoP group.*"

In the practice dimension, most participants, both the teacher trainers and the kindergarten teachers, regarded access to self-learning resources as favorable criteria for sustaining kindergarten teachers' practice for online teaching (e.g., T5, T6, T8, CS1, CS2). A typical response from CS1 showed: "*Self-paced learning materials upskill them [kindergarten teachers]. After posting tutorial videos on the platform, they [kindergarten teachers] can learn in their free time.*" T5 appreciated that the resource platform contained many resources for self-learning and free elements. Kindergarten teachers could access the learning materials even after the end of the project. Hence, they received the opportunities to learn and apply online learning practices sustainably.

Results and Findings Addressing the Potential Factors Affecting the Sustainability of the Online Teaching Practices learned from the CoP

In short, the above findings revealed that most kindergarten teachers sustainably applied what they learned in the CoP in their teaching practices because of the following favorable factors: (1) aligning the contents with the kindergarten curriculum, (2) having sufficient time and technical support for collaboration, and (3) given access to self-learning resources. On the other hand, the findings unveiled three unfavorable factors that may cause inhibitory effects: (1) limitation of project timeframe, (2) effects of identity change, and (3) limited workforce and resources.

6. Discussion

Based on the findings, it was generally found that kindergarten teachers positively developed a more robust collaborative partnership with the members of CoP. Kindergarten teachers have enriched the teaching and learning experience with online interactive tools and materials. The results reinforce the theory of Wenger (1998) that teachers can achieve learning goals through active involvement in implementing knowledge and skills with a group of people who share similar goals. Although this study focused on the implementation of CoP in early childhood education settings, it confirmed the findings of earlier studies in primary and secondary schools that teachers developed their technical and leadership skills, confidence, flexibility, and creative and innovative thinking abilities in the CoP (Hammersley-Fletcher & Kirkham, 2007; Mercieca & McDonald, 2021).

Regarding the factors for sustaining the practice, this study has emerged a list of sustainability factors of the CoP, partly coinciding with the sustainability model proposed by Kezar and Gehrke (2017); for instance, continuous technical support and time in the community and resources. Moreover, this study raised the alignment with the kindergarten's curriculum in context as an additional factor to sustain the online teaching practices kindergarten teachers learned in the CoP.

7. Conclusion

Limitations and Implications for Further Study

This case study was a follow-up study to a CoP project, given the time and resources, resulting in the professional growth of kindergarten teachers. Kindergarten teachers joined the project during the class suspension, which gave them sufficient time to co-create online learning materials. This study, however, might not reflect the cases of every kindergarten that participated in other CoPs or other periods. More in-depth research could be done regarding the ongoing implementation of the CoP project.

In conclusion, this study has unveiled that kindergarten teachers' participation in the CoP groups enhanced their readiness for online teaching by building a supportive professional network for idea exchanges, strengthening their online teaching competencies, and accumulating online teaching resources. It facilitated the evolution of online teaching practices in kindergartens. To sustain the legacy of the CoP groups, it is essential to consider sustainable factors such as aligning the contents with the kindergarten curriculum, providing self-learning resources, continuous technical support, and sufficient time for collaboration within the CoP groups. This study has contributed to research on the values of forming a long-term community of practice for kindergarten teachers' sustainable professional development in early childhood education.

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