



Digital ethnography of an online professional learning community based on WeChat for Chinese early childhood teachers

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ABSTRACT

Enhancing the professional development of early childhood education (ECE) teachers is an important step toward the goal of improving children's learning experiences. Building professional learning communities (PLCs) has been validated by previous works in the ECE domains. The proliferation of social media has catalyzed the emergence of online community, bringing with them their distinctive value in teachers' professional development. WeChat is the most popular social networking service in China. However, only limited attention has been paid to how ECE teachers engaged in online communities and how PLCs for ECE teachers are shaped online in the Chinese contexts. Thus, this study aims to investigate how ECE teachers engage in a WeChat-based community and shape the community as a PLC. Multi-sourced data were collected including excerpts and screenshots of discussions in the chat group and webinars, fieldnotes, and interviews with 12 participants. Key findings suggest that: (a) leadership is distributed through the practices of volunteer facilitators, (b) teachers' practices are shared through reflecting on professional reading and inquiring, (c) shared visions attracted and activated teachers in the online context, and (d) supportive relationships tend to mitigate the isolation of Chinese ECE teachers. This study addresses key challenges to the further development of PLCs based on SNS. The insights about how Chinese early childhood educators utilize the basic functions of social media can contribute to better practices for professional development in and beyond China.

1. Introduction

Developed from learning organization theory (Senge, 1990), though the definition of professional learning communities (PLCs) varies in diverse contexts, scholars have reached a relatively broad consensus that these describe a group of people deprivatizing and critically examining their practice in an ongoing, learning-oriented, growth-promoting, and reflective way (Mitchell & Sackney, 2000; Toole & Louis, 2002). In educational field, PLCs are thought of as one of the most effective approaches for improving teachers' professional development (PD). PLCs are generally shaped by the interactions and communications among members of the group. Scholars have also adopted several intertwined, core characteristics (Hirsh & Hord, 2009; Toole & Louis, 2002), like "competence" (Stoll et al., 2006), "capacity," and "dimensions" (Antinluoma, 2021; Mann, 2005), when describing PLCs to define effective PLCs or "exemplary PLC practices" (Cowan, Fleming, Thompson, & Morrissey, 2004). Hord (1997) was the first to systematize the five core characteristics of PLCs in a school context: shared values and visions, collective creativity, supportive and shared leadership,

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supportive conditions (physical conditions and people's capacities), and shared personal practices. Other characteristics are also mentioned in the literature, such as reflective inquiry and dialogue (Dufour, 1998; Hipp et al., 2008), collective responsibility and a focus on students' learning (Kruse et al., 1994; Mitchell & Sackney, 2000), continuous improvement (DuFour, 2004), and collegial and inclusive relationships among members (Stoll et al., 2006).

Conventional PLC activities are mainly based on a face-to-face model, but it is common for social network service (SNS) features like chat groups to provide a remarkable number of means for resource-sharing and daily organization (Tsiotakis & Jimoyiannis, 2016; Xue & Churchill, 2020). Furthermore, communicative technologies and network platforms make it possible to expand the collaborative scale of PLCs from a single school to a larger area, or even to include an entire nation (Prenger et al., 2017). This demonstrates how online environments are generally becoming the main places where interactions among teachers are happening and where their PLCs are shaped. This tendency has been also boosted by the COVID-19 pandemic, since online approaches were, at times, the only means available for meeting with others during municipal or nationwide lockdowns. Reconstructing PLCs in a hybrid or purely online form not only allows new implementation challenges to emerge, they also potentially provide alternate ways for shaping PLCs. Furthermore, this prompts us to interpret novel phenomena during the shaping of PLCs in online contexts to decide if they can still be regarded as PLCs. This is a time to reflect on or renew our understanding of PLCs and to embed our new understanding of them in the current social setting.

Various SNS features have been adopted to shape hybrid PLCs for early childhood education (ECE) teachers; this has been done by stakeholders and by the users of WeChat, the most popular SNS in China (Xue et al., 2019; Zhang et al., 2018). At the same time, emerging unofficial teacher-oriented SNS-based communities not only organized long-term learning projects for engaged teachers but also provided them with emotional support (Holmes, 2013; Krutka et al., 2014; Wesely, 2013), even making it possible for some teachers to experiment with self-organizing mechanisms (NelimarkkaMatti et al., 2021). Decentralized online communities led to the building of collaborative networks with their multiple types of members (Rosenberg et al., 2020), including ECE teachers, principals, student teachers, and parents. Notably, WeChat groups and other features of WeChat, such as WeChat official account, made it possible to handle almost all the PLCs' activities during the pandemic. Several remarkable characteristics which could be observed from these communities echoed the core paradigms of PLCs; however, little academic attention was paid to reveal the reality of these unofficial communities, namely how Chinese teachers engaged with one another. Furthermore, little has been published on how online communities empower Chinese ECE teachers through PLCs. This paper aims to investigate a targeted unofficial WeChat group to understand how Chinese ECE teachers engage in WeChat-based communities and shape PLCs in purely online contexts. The findings of this paper are expected provide suggestions for using online communities to improve teachers' PD and address other concerns, such as a lack of emotional support. Additionally, the paper explores insights in a Chinese context to nourish practitioners worldwide. As for the academic significance of this paper, we hope to provide more evidence about which theoretical frameworks of PLCs developed before the digital era are suitable for use when interpreting novel communities shaped purely in an online context. Thus, this paper aims to answer the following research questions:

RQ1: How do Chinese early childhood teachers engage in the online community based on WeChat?

RQ2: How are Chinese ECE teachers constructing the WeChat-based online community as a PLC?

1.1. Professional learning communities in online contexts

The face-to-face model underpins traditional forms of PLCs activities (National Staff Development Council, 2001), and it is easier for teams of teachers who work in the same context to form specific and shared goals and to meet regularly for PD activities (Lantz-Andersson et al., 2018). Challenges to face-to face PD, such as members' conflicting schedules, have also emerged and become increasingly serious as the size of a PLC grows. Further, although some PLCs are mainly based on a face-to-face model, members still negotiate the scheduling of offline events and daily communication through SNS.

Moving conventional PLCs online or reconstructing them as a hybrid or completely online form of meeting are appropriate ways to facilitate PLCs (Beach, 2012). Some commonly mentioned advantages of hybrid PLCs, compared to traditional PLCs, are lower cost and time demands (Hodes et al., 2011), more satisfying personal learning interests and pacing (Curwood, 2011), and accessibility to valuable educational resources unavailable locally (Nistor et al., 2012). In addition, some scholars suggested that, theoretically, there is no limit on the group size of an PLCs based on SNS (Beach, 2012; Mackey & Evans, 2011). However, some large online open or self-organized teacher groups have been questioned by scholars as to whether they are really effective PLCs (Kelly & Antonio, 2016; NelimarkkaMatti et al., 2021). A trained moderator or facilitator (Goodyear et al., 2019), creating a task-driven environment (Hutchison & Colwell, 2012), and adopting a standard protocol guiding online sessions are recommended strategies for engaging teachers in PLCs.

1.2. Digital ethnography of teachers' online communities

The research method of digital ethnography developed from traditional ethnography. Ethnography is based on participant observations over time, during which researchers immerse themselves in communities (Coleman, 2010). In addition to education and teacher-education contexts, traditional ethnography has commonly been used to explore learning communities of teachers and school climate reforms worldwide (Peng, 2012). Compared to quantitative approaches, ethnography can help researchers to better trace and interpret ongoing changes among individual teachers and groups.

Internet it is a space where individuals from different cultures connect through new media (Kaur-Gill & Dutta, 2017; Kaur-Gill & Dutta, 2017). Therefore, new cultural phenomena and their associated issues are emerging. For this reason, digital ethnography

(Murthy, 2008) has developed to address new research concerns. Physical involvement is not essential in digital ethnography, and researchers can collect content that is available on digital platforms from their offices or homes (Kozinets, 2015). This highlights the flexibility of digital ethnography, but also brings to light its related challenges and debates. For instance, the definition of a “field site” becomes vague. Additionally, how to conduct participant observation in online contexts are under debating. Although digital media allows researchers to remain unobtrusive, since they can enter chatrooms or social network sites and keep lurking, the approach is somewhat contrary to the interactive principle of ethnography and raises some ethical concerns (Redman & Trapani, 2012). Involved participant observation (Kozinets, 2020) requires researchers to disclose them self and embody in online interaction. Researchers adopted this approach need extra skills and a sense of caution in managing their self-presentation and identity during the investigation process. Bengtsson (2014) suggests that engagement with community members can be a more valuable way for ethnographers to obtain authentic first-hand data than pure observation. Furthermore, when conducting further inquiries, such as interviews, trust and the reciprocal relationships built through engagement with members are key prerequisites

Richmond (2014) used digital ethnography to conduct online fieldwork as a pure observer, interpreting social interactions and peer-to-peer learning in LinkedIn’s “Higher Education and Learning” group. WeChat-based communities have received much attention from scholars in educational fields. Mao and Wang (2020) explored communicative patterns in a group created for contact between teachers and parents. In summary, as digital ethnography is still a relatively new research methods, few studies to date have focused on those WeChat-based communities for ECE educators in China.

2. Methodology

2.1. Site and context

The “Super Early Childhood Education Experts” (SECEE) is an independent, non-profit ECE-related online community. Two main social platforms of WeChat comprise the SECEE (see Table 1), its WeChat groups and WeChat official account (shortly “WCOA”). Most of its members are ECE teachers, but student teachers, kindergarten principals, and researchers. Followers of the SECEE WCOA can contact the operations team to complete an application to join into the WeChat groups with other learners. The researchers conducted fieldwork in the WeChat group which is used for a PD project named “Co-reading Club.” In it, participants join the WeChat group, and the mentors select one book for members to read each month (see Table 2). Participants are asked to post about their reflection on the reading at WeChat built-in platform and WeChat group as assignments (see Fig. 1). Synchronous discussions were held via the WeChat group each Saturday, and participants shared their own reflections after reading the designated chapters of an assigned book. During the discussions, they also addressed related ECE topics brought up by SECEE mentors. Webinars were held via a Zoom-like online platform, Voov, to recognize the most engaged learners of the month and to introduce the designated book for the next month. The community also holds offline activities periodically before COVID-19.

2.1.1. Data collection

In terms of collecting data, we adopted Kozinets’ (2020) involvement participant observation approach; that is, we participated in the project as general members without any special privileges. We also had to complete the assigned monthly reading and participate in the online discussion and video meetings, exchanging ideas with other members (De Seta, 2020).

We observed and collected data from 10 synchronous discussions and three webinars of the targeted online community, SECEE. The duration of each synchronous discussion or webinar was about 1.5 h. A total of 87 participants were involved, although the member list of the WeChat group shows that 467 individuals could have participated. With this in mind, we defined the “participants” as those people who posted at least one message during any discussion, or who were present for at least one webinar. On average, about 30 people participated in each discussion or webinar.

Three sets of data were collected in this study. The first included excerpts and screenshots of participants’ discussions in the WeChat group and webinars. We used an automated program developed by the third author to capture the textual excerpts of discussions in the WeChat group, after receiving permission from its operations team. Some essential information, such as visual messages or people’s actions, like forwarding a post, could not be caught by the program. Thus, 57 screenshots were collected from WeChat group discussions and served as complementary information. All the conversations and actions archived in the excerpts and screenshots were in Chinese, and a significant portion of the excerpts used in this paper are presented in screenshot form with English translations. In addition, we used several screenshots to show how mentors guided the discussion by questioning participants. This also revealed the reality of how webinars are conducted.

Table 1
Main SNS functions of WeChat.

WeChat Function	Description
Messaging	Users can instantly send text and voice messages, images, videos, files, or links to each other.
Chat groups	Groups (up to 500) can be created, and users can chat via messaging and sending images, files, videos, or links to the group.
Official accounts	Based on WeChat’s public platform, individuals and organizations can create an official account to push notifications to and interact with their followers via group texts, voice messages, or images.

Adapted from Xue & Churchill, 2019.

The second set of data included fieldnotes taken during participant observations of the discussions and webinars. These notes recorded the personal experiences of the first author while observing and engaging in discussions and the webinars. The notes also serve as a record of actions and content generated by some participants to support interviews conducted with them at a later date. As mentioned in Section 2.1, we needed to participate in this reading club project as general members, and we had to write our own reading reflections to participate in the group's assignments (see Table 2).

The third dataset came from interviews. Twelve participants (demographic information is shown in Table 3) were selected for semi-structured interviews during the fieldwork period. In this study, we assumed that all 87 participants took part in the process of shaping the SECEE PLC. We adopted a purposive sampling strategy (Liamputtong & Ezzy, 2005) that selected several active and continuously engaged participants as interview participants; they were present in discussions and webinars at a high frequency, and they were willing to share their own practice experiences with other participants. This led us to define them as being highly engaged in SECEE. Interviews with participants were conducted through WeChat's video or audio call features. Interviews were conducted in Mandarin and transcribed into simplified Chinese. Based on the preliminary analysis, significant excerpts have been selected from the interview data. These were then translated into English for further analysis and discussion in this paper.

2.2. Data analysis

The three sets of data collected in this study were mainly analyzed using thematic analysis (Braun & Clarke, 2006). Interviews, excerpts (screenshots), and fieldnotes provided complementary information during the analysis. Two types of thematic analysis were applied to the three sets of data to answer Research Questions 1 and 2.

To answer Research Question 1, "How do Chinese early childhood teachers engage in the online community based on WeChat?", we adopted thematic analysis with an inductive approach to explore typical action modes for describing the ways that teachers engaged in SECEE. In this part of the data analysis, fieldnotes took the primary position, and the other two datasets provided supplementary information. For instance, participants' motivations and perceptions of engagement in online communities were assessed from the interview data. Some quantitative data, such as the frequency of messaging, was also helpful for distinguishing different levels of engagement. Four typical action modes of teachers' engagement in SECEE, "WCOA followers", "lurkers", "interactive members", and "volunteers" emerged.

To answer Research Question 2, "How do Chinese ECE teachers construct the WeChat-based online community as a PLC?", we adopted thematic analysis with an abductive approach. Main themes and sub-themes were based on both background theory and the abductive coding of qualitative data (Timmermans & Tavory, 2012). We explored evidence from participants' perceptions and the correlated phenomenon or collective action which could be observed in the online community, because PLCs are shaped through communications and interactions among members, neither of which physically exist after the actual moment has passed. For this reason, interview data took the priority in this part of the analysis. Specifically, we coded original interview data focusing on exploring keywords about participants' perceptions, feelings, and experiences when they engaged in the online community. The background theoretical framework was based on the characteristics of PLCs outlined by Hord (1997), as shown in Table 4, which describes the patterns of collective behavior and organizational climates of effective PLCs. We adopted five features as the main perspectives for evaluating the shaping of online PLCs, thus the main themes developed from five features. The themes derived from the interview data coding were identified if the original data fit the description of PLCs' characteristics. Then, we identified sub-themes. In the meantime, analyzing interview data also guided us to narrow the scope of the excerpts and screenshots, to determine which were worthy of in-depth analysis. For example, we paid special attention to those events commonly mentioned by different interviewees and then traced these through the original excerpts that recorded these key events. These excerpts provided rich objective information about PLC-related practices in SECEE. Six excerpts and two screenshots were used to elucidate how the characteristics of PLCs formed in the online community. Four main themes, detailed in the findings section, will be further discussed, along with the essential evidence.

2.3. Ethics

In terms of research ethics, the first author, who was responsible for the fieldwork, disclosed himself to the members of the WeChat group, to ensure that they were informed of his presence at the beginning of the fieldwork. He posted a message using the "@everyone" function to introduce his basic personal information, status, and details of the research project. When he attended an online meeting for first time, he activated his camera and microphone to disclose himself again. The researchers obtained informed consent from 87 participants. For every interview quote or online discussion used in this study, the researchers negotiated with the involved members, and all personal information (including nicknames and profile pictures) appearing in visual or textual data has been anonymized.

Table 2
Assigned books

Title	Author(s)	Assigned
<i>Children's Cosmos</i>	Hayao Kawai	March 2021
<i>Powerful Interactions: How to Connect with Children to Extend Their Learning</i>	Amy Laura Dombro, Judy Jablon, Charlotte Stetson	April 2021
<i>Brain Rules for Baby: How to Raise a Smart and Happy Child from Zero to Five</i>	John Medina	May 2021

Table 3
Interview participants' demographic information.

Participant Position (Code)	Length of service (yrs)	Region (Province)	Kindergarten Status
Principal 1/Member (P1)	28	Hubei	Public
Principal 2/Member (P2)	28	Zhejiang	Public
Principal 3/Member (P3)	32	Shanghai	Public
Teacher/Volunteer Facilitator 1 (VF1)	2	Shanghai	Public
Teacher/Volunteer Facilitator 2 (VF2)	5	Zhejiang	Private
Teacher/Volunteer Facilitator 3 (VF3)	6	Chongqing	Public
Teacher/Volunteer Facilitator 4 (VF4)	4	Tianjin	Public
Teacher 1/Member (T1)	2	Jiangsu	Public
Teacher 2/Member (T2)	2	Zhejiang	Public
Teacher 3/Member (T3)	2	Jiangsu	Public
Teacher 4/Member (T4)	16	Guangdong	Private
Teacher 5/Member (T5)	2	Beijing	Private

Table 4
Theoretical framework of PLCs (Hord, 1997).

Characteristic	Description
Supportive and shared leadership	Requires the collegial and facilitative participation of the principal who shares leadership—and thus power and authority—by inviting staff members' input and participation in decision-making
Shared practices	Includes an unwavering commitment to student learning that is consistently articulated and referenced in the staff's work
Shared values and vision	Involves the review of a teacher's behavior by colleagues, including feedback and assistance activities to support individual and community improvement
Supportive conditions	Includes physical conditions and human capacities that encourage and sustain a collegial atmosphere and spirit of collective learning
Collective learning and application of learning	Requires that school staff at all levels are engaged in processes that collectively seek new knowledge and the application of this learning to solutions that address students' needs

3. Findings

3.1. Teachers' engagement spectrum in the WeChat-based online community

Chinese teachers engaged in the online community mainly by receiving information from the community's official WeChat account, by being present in synchronous discussions of WeChat groups and webinars, and by generating their own content to share with others. Participants mutually interacted through multiple media sources and using diverse approaches, including text messages, audio messages, images, and short videos. Problems still existed when there were too many people involved in a single WeChat group discussion. As the interview with T1 shows, she suffered from the over-proliferation of information during a hot discussion:

There are too many messages even in a short period. I often log in to my WeChat PC application to read those long and detailed thoughts of others, and I check the new received messages on my smartphone. It was really a tough time.

There were four types of teacher engagement that emerged from the data analysis: WCOA followers, WeChat group lurkers, interactive members, and volunteers. These four types of engagement can be considered on a spectrum because participants' engagement was both fluid and unsynchronized. In this vein, the spectrum also depicted the process of how teachers deepened their engagement in the online community.

3.1.1. WCOA followers

The followers of the official SECEE WeChat account had the lowest level of participation, meaning that these teachers were not presented in the WeChat group, but willing to access new information from SECEE. Some of followers will take further actions to engage in SECEE such as trying to join into WeChat groups operated by SECEE. Interview data revealed that features SECEE WCOA has, such as "keeping up with latest news in ECE areas," "meeting the real needs of teachers in practice," and the positive attitudes of content authors toward Chinese ECE, attracted teachers.

A win-win nature of the interactions between individuals and the community was identified. For instance, principal participants played a role seeking valuable resources and ideas to share with their colleagues, as reflected in an interview with P2:

I will firstly subscribe to a lot of ECE-related WCOAs and keep following them for a period to decide if their content is suitable for teachers. ... I think SECEE is more suitable for young teachers.

Teachers and other members enjoyed the professional content provided, while the practices they shared helped the online community to attract potential members.

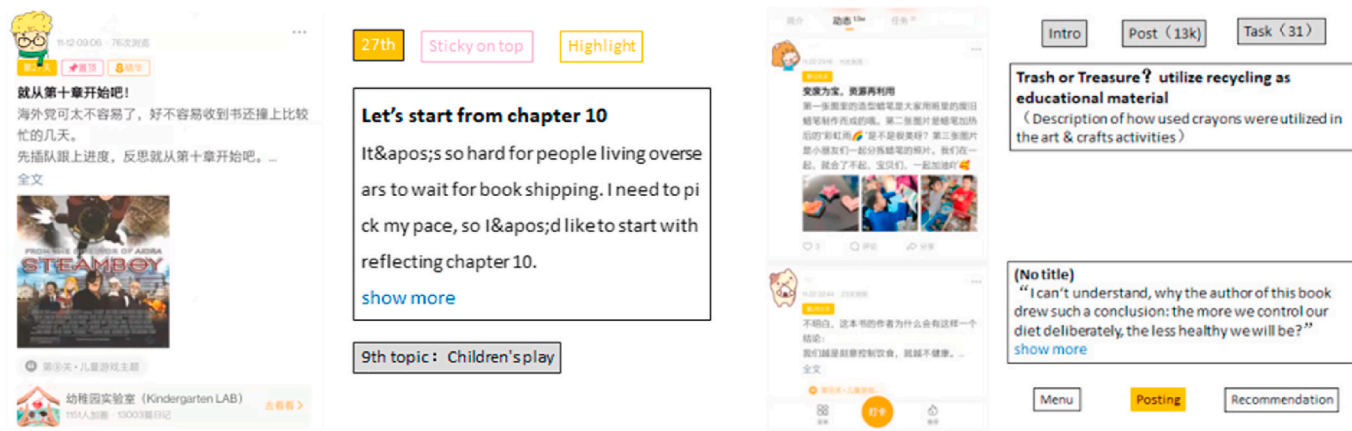


Fig. 1. Reading reflections.

3.1.2. Lurkers

The second type of engagement was lurking in the WeChat group. Lurkers were less interactive and generated less content than other members. At the very least, their presence on the member list of the WeChat group demonstrated that they had acted on a desire to engage in further learning and interaction than WCOA followers, because only followers submitted and completed procedures can be invited into WeChat groups. However, there were many teachers who were always absent from the regular discussions, even though they had completed the procedures for joining the group.

3.1.3. Interactive members

Teachers at this level of engagement, as its name implies, tended to be more interactive. They often left comments and shared their practices via text or visual forms and gave feedback to others during discussions. We determined that embracing offline events held by SECEE could be regarded as a notable sign of this type of engagement, because there some members took on extra travel costs to attend offline events far from their home regions. However, higher engagement in the online community we investigated means that the teachers had to disclose themselves more fully to others, even though this community allows teachers to use nicknames when interacting with others. As T2 stated in the interview:

I cannot say anything as I like, because I found my colleagues already appeared in the member list of WeChat group since last month. My principal did not like teachers of our kindergarten attending too many events held by unofficial organizations and forwarding to my timeline of WeChat.

These teachers opted to develop further interactions with other members, even though, in doing so, they took some unpredictable social risks.

3.1.4. Volunteers

The fourth type of engagement was that of volunteers, those teachers who spontaneously provided volunteer work and contributed to the development of the online community. For instance, these teachers were willing to serve as shift facilitators to support others' learning for one month. They gave timely feedback to members who asked questions about a book's content, and they hosted the live sessions every Saturday evening. We deemed this kind of action mode as the top level of engagement.

3.2. Shaping PLC in SECEE: main themes and sub-themes

3.2.1. Participative leadership

The sub-theme *volunteer facilitator* shows the distributed leadership characteristics of PLCs in SECEE. SECEE members can submit to become a volunteer facilitator for an upcoming month. Volunteer facilitators are responsible for organizing regular online sessions and guiding the discussion while interacting with other members (see Fig. 2). Additionally, before starting the reading of a new assigned book, volunteer facilitators serve as the main instructor for the book's reading orientation session. The volunteer introduces the background, chapters, and the main ideas of the assigned book (see Fig. 3).

Becoming a volunteer facilitator motivated teachers to engage in intensive learning, at least during the month in which they served. During our interviews, almost all participants who had ever been a volunteer facilitator mentioned that this responsibility pushed them to put more effort into their own reading and learning. They felt they had to be an "expert" on the assigned book, so they could run the reading orientation webinar. As VF2 reflected:

I needed to put more effort into reading. I no longer cared about how many times I had read the same content. I asked myself if I had really caught the core thoughts and real meaning of the authors. What's more, I also needed to learn how to effectively present my ideas.

Taking on the role of facilitator led to more intensive reading than participants had ever experienced. Through this process, the

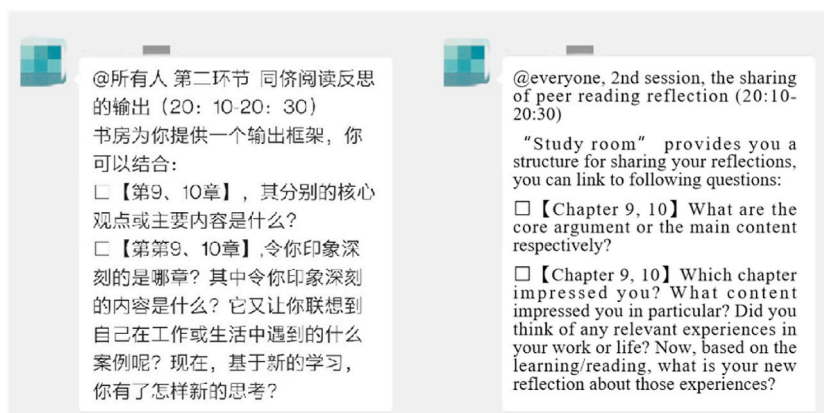


Fig. 2. Volunteer facilitators moderate synchronous online discussions.



Fig. 3. Reading orientation held via an online meeting.

facilitators deeply absorbed insights from the book, and their reading habits were generally reshaped.

The second sub-theme is *mentor training*, which represents another significant impact of the volunteer facilitators' practice brought to participants. Novice ECE teachers made up the bulk of the volunteer facilitators. Generally, chances for and experiences of leading PD projects were not easy for them to access in their workplaces, but this opportunity allowed them to learn organizational strategies, and the experience helped foster the crucial quality of PD leadership. They learned how to understand others' demands and then provide them with effective support. For, example, volunteer facilitators were responsible for surveying and reporting on reading task completion every week (see Fig. 4).

As some participants noted, this was the first time they had ever been tasked with listening carefully to what others said in a chat group, or in their posted reflections during their mentoring round.

The third sub-theme is *stress*. Almost all of the volunteer facilitators shared that they felt stress associated with the role, and the pressure was even greater than if they had undertaken similar work in their workplace. As VF3 shared in an interview:

It was a good experience, but to be honest, I have suffered from the pressure for months. I didn't have any prior experience, so I asked other volunteer facilitators for help and prepared in advance. It was so challenging for me, but I didn't want to quit. It was a chance, you know, which is not easily available in my workplace.

Three reasons why stressful feelings formed emerged from data. First, taking on mentoring work in PD activities in an online context was, indeed, a challenge for Chinese ECE teachers, as many generally lack solid technology use skills. Second, stress emerged from the respectful and warm relationships among participants. Many volunteer facilitators, like VF3 reflected above, tried to respond to the trust and respect they received from the online community, even if doing so cost them extra leisure time. Third, the title "volunteer facilitator" devised by the operations team, was connected to stressful feelings. In Chinese, they were known as *banzhuren* (literally, the head teacher of a class), which evoked the metaphor of everyone learning together as a class to help build rapport among the members of the online community. This title, however, led to some misunderstandings of the volunteer facilitator role, which led to feelings of stress. In an interview, VF4 provided more insight into the role.

Going with this title seems like we (the volunteer facilitators) are managing, or even supervising, others. It is not true. I'd like to adjust it. I think we are serving and supporting others.

This title is somewhat easily linked to the image of an administrator or supervisor. In fact, the title contrasts with the valuable climate of equity and caring found in PLCs.

3.3. Peer's sharing practices

Four sub-themes describe the main theme of "peers sharing practices." These are *inquiry*, *reflection*, *multimedia*, and *sharing happiness*. These sub-themes show how the characteristics of PLCs' shared practices are formed in the online community. Additionally,

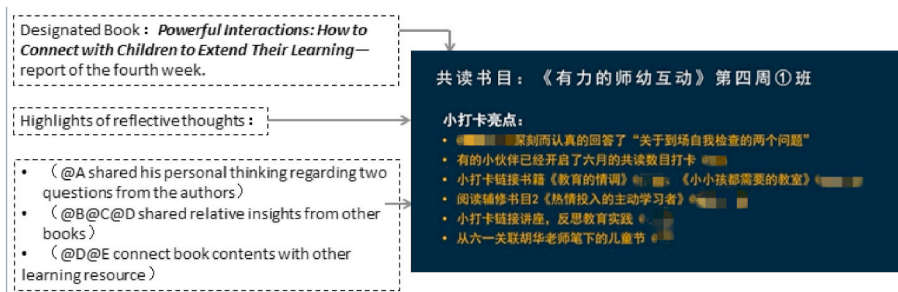
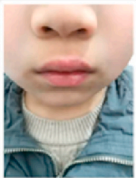


Fig. 4. The report about the status of members' learning.

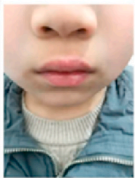
大班小朋友，老是用舌头舔嘴巴，嘴唇都干掉了。如果说他，会强化他这个动作，各位书友有什么好妙招？



我想他这个不是口周炎，如果他不舔嘴的时候，嘴巴不会有这些症状的。
.....
是不是季节问题导致嘴唇周围缺水或不舒服？

我想他这个不是口周炎，如果他不舔嘴的时候，嘴巴不会有这些症状的。
.....
口我到现在长大了，有时候也会，不能舔嘴唇，小时候可严重了，后来都离不来酱油

This is a 5-year-old boy. He often licked his lips with tongue. His lips now are chapped. I worried if I pointed this out, his behavior may be reinforced. Every "Study room" peers, do you have any suggestion?



I don't think he has perioral dermatitis, because when he didn't lick lips, his lips didn't show any symptoms.
Is it due to the dehydrated or uncomfortable lips during this dry season?

I don't think he has perioral dermatitis, because when he didn't lick lips, his lips didn't show any symptoms.
□ I have grown up. I also did this in my childhood. Should not lick lips. The more he licks, the drier his lips will be. It was same cause during my childhood. Now I

应该先问问她为什么舔，有的孩子是因为嘴干，也有的是因为无聊

如果是病的话，还是要去医院开点药擦一擦

谢谢

我问过他自己，他说自己嘴干，就会去舔嘴唇，今天我试着去纠正他这个习惯

我和他说了舔嘴唇会越干的，并给他看了嘴唇发干的图片，让他知道舔嘴唇的结果，然后告诉他，如果想舔嘴唇，就去喝点水，几分钟没有舔嘴唇我就会鼓励他一下。

Should ask him at first why he licked lips. Some kids did it because the lips were dry, and some did it because they were bored.

If he really has perioral dermatitis, he should go to hospital to get some medicine.

Thank you everybody.

I have asked him. He said when his lips were dry, he would lick lips. Today, I have tried to correct this habit.

I told him that the more he licks, the drier his lips will be and showed him several picture of dried lips to know the consequences if he did not stop this behavior. Then, I told him, when he wants to lick lips, go drink some water. When he did not lick lips for a few minutes, I encouraged him.

Fig. 5. Discussion about a boy's behavior.

with the help of the mentors, teachers receive training in reflecting on and presenting details and issues related to their practice effectively when they present their ideas during online interactions.

The first sub-theme is *inquiry*. Teachers shared their practices by inquiring of others during discussions. The topics they inquired about included guiding problem behaviors among children, organizing teaching materials for curricula covering a particular theme, and so on. In online contexts, teachers need to give clear and detailed descriptions of their issues in the classroom, because, in most cases, the other educators from whom they are seeking help are not colleagues from their own workplace. Fig. 5 provides a visual example.

Practices were shared not only by teachers who were seeking help, but also teachers or principals who tried to help them.

The second sub-theme is *reflection*. Teachers' practices were shared when they reflected on their reading. Specifically, they shared their real teaching experiences to illustrate which strategies from the book they found useful and effective. They also shared practical challenges that had puzzled them and noted when they were inspired by reading the book.

The third sub-theme is *multimedia*. Teachers commonly described the episodes in their classrooms using text messages, with pictures providing complementary information. We observed that practices shared via multimedia formats easily elicited feedback from the other participants. Short videos were also welcome and popular in the WeChat group, as shown in Fig. 6.

Multimedia practice-sharing echoes the nature of ECE teachers' work because children's play-based learning happens both in and outside of the classroom. In some cases, visual content could better express the environmental information of outdoor spaces, such as lawns and sandboxes. Also, making decorations for the classroom and various teaching aids are a necessary part of ECE teachers' practice. Pictures and videos were the best formats for sharing these masterpieces and their related ideas with other teachers.

The fourth sub-theme is *happiness*. We observed teachers sharing their excitement and happiness with being a preschool educator in some cases, as Fig. 7 shows. This screenshot recorded T1' sharing in the WeChat group, as she stated in her interview:

It really took me a lot of effort to clean up that dilapidated orchard. Then, I took the children to play there. How talented the children are! Their masterpiece, which they named the "flower castle," was just like a reward for my efforts. And what also made me happy was that I knew my friends in this online community would understand my happiness and give me feedback.

T1 believed she would get positive feedback from the others in SECEE, but such positive feedback was almost unavailable from her workplace colleagues at a public kindergarten located in a rural, undeveloped ECE region.

3.4. Shared vision

In our observations, SECEE's shared vision is to improve professionalism through continuously absorbing, reflecting, generating one's own content, and sharing with peers. In the analyzed WeChat group, the shared vision focused on absorbing insights from reading, connecting the readings to practice, and then writing one's thoughts as messages and blogs. The shared vision influenced the behaviors of the engaged teachers in two main ways, activation and collective behavior.

In terms of activation, the first shared stage inspired the teachers to engage with the online community. Some teachers opted just to

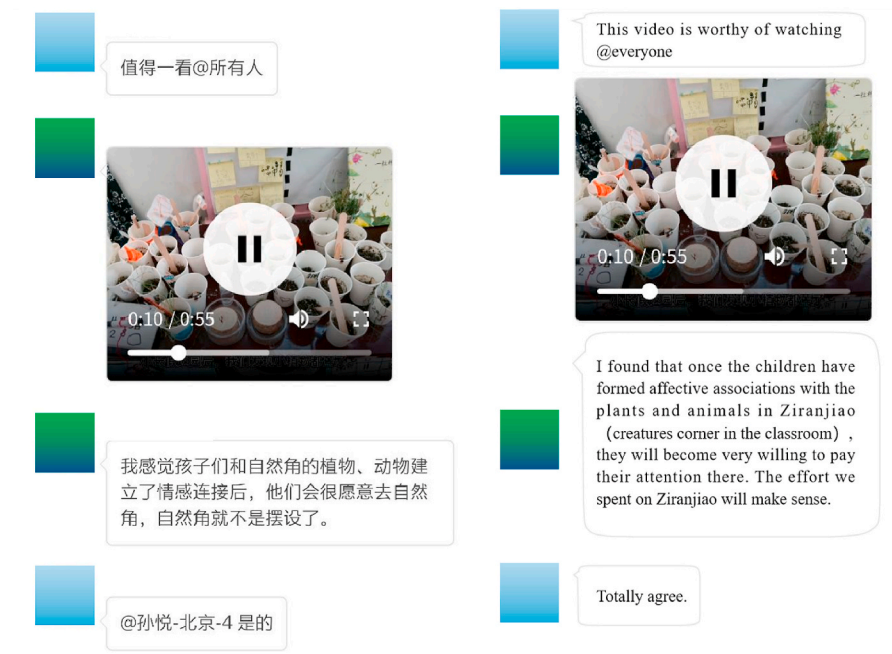


Fig. 6. Practice shared by short video.



Fig. 7. Practice shared to express happiness.

follow the official WeChat account, while others took a further step to formally join the WeChat group and be present in discussions or webinars. In the next stage, shared vision functioned more as a catalyst for letting teachers' real learning occur. Specifically, teachers began to spontaneously read, reflect on, and share pedagogical practices with the online community, rather than only lurking in the chat groups. We found that many teachers never attended any discussions or webinars after the first month of membership in this project. We place value on the second stage of activation because SECEE is an unofficial online community; teachers engaged in PD held here cannot earn credits or other tangible benefits.

The other aspect is collective behavior. Collective behavior in a WeChat group refers to particular activities teachers have engaged in to enhance the sense of solidarity within the online community. Take Fig. 8, for example, during the webinars, the mentor encouraged available participants to turn on their cameras and then hold up the books they have read, or the books they were going to read, and then they took a group photo via screenshot.

Additionally, engaged participants were invited to give a short speech during the webinar to show the other kind of ceremonial activities. T3 was once recognized because she has, for years, used her daily subway commute to read ECE-related books. In an interview, she reflected

Though I was shocked when the moderator invited me to give a short presentation, it was my pleasure to open my camera to share my experience about how to use fragmented time to read. I felt honored to interact with so many passionate ECE educators



Fig. 8. Group photo with books taken during an online video meeting.

The model effect was used to encourage teachers' engagement, as the webinars enabled them to learn together with model learners. As a result, these recognition activities effectively strengthened the communal sense of learning activities while also boosting teachers' engagement.

3.5. Supportive relationships

Supportive relationships within the theoretical framework of a PLC have been shown to include mutual respect among ECE teachers in a safe online community environment. The first sub-theme in the supportive relationship is *safe*. Teachers tended to share their real feelings in the WeChat group and to seek emotional support, even though their feelings were negative sometimes (see Fig. 9).

The teacher in Fig. 9 was a novice facing some difficulties in her workplace. Other members provided emotional support and understanding of her status, showing their belief in her abilities.

Additionally, we observed that teachers opened up about their experiences in their personal lives outside of work in the WeChat group, as Fig. 10 shows.

This teacher believed the online community was a safe place where she could share her sweet news. She saw the other members of the community as friends, so she was willing to tell them about her personal life.

The second sub-theme of supportive relationships is *mitigating isolation*. Involved teachers always mentioned that they felt isolated before participating in the online community. Their engagement with other teachers, principals, and student teachers in SECEE mitigated this sense of isolation. Chinese ECE teachers felt isolated because they found their work was not understood by their friends, or even relatives (see Fig. 11).

Teachers believed they were doing great work, but their career choice to become an ECE teacher was not supported by participants' relatives, or even their colleagues in the kindergarten.

We found that both novice ECE teachers and those with master's degrees in ECE faced workplace isolation. VF3 is a novice teacher working in a public kindergarten. In her interview, she said:

The problems novice ECE teachers face in their workplaces are not only because they are not professional enough, but also because we do not have enough experience to deal with some issues of interpersonal relations.

Interpersonal difficulties sometimes lead to conflicts or unequal treatment in work distribution, and without effective solutions to these issues, teachers' sense of isolation can grow stronger, and their engagement in teamwork and collaboration will weaken.

Engagement in SECEE mitigated teachers' isolation; this view was reflected in T3's interview:

If my posted reflection receives "likes" or comments from others, I would be so happy. Sometimes, you will feel your voice can be heard by others who have shared values about education with you.

T3 was the first teacher in her workplace to earn a master's degree. Before participating in SECEE, she suffered from isolation from her colleagues and over-expectation from her principals. We also found that supportive relationships could motivate teachers to become more interactive.

Furthermore, we found a reason why SECEE could mitigate teachers' sense of isolation, because relationships bonded the SECEE members with different positions or degrees in collaborative and supportive, rather than competitive, contexts. For some principals, supporting and helping young ECE teachers was the one of motivations for engaging in the online community, as P3 mentioned in an interview:

I just want to support more young teachers to be able to afford this job and feel they are respected. ... In fact, I have learned so much from these young teachers. These teachers are eager to invest extra time to improve their expertise. No doubt, they are pretty good guys.

We observed other similar episodes in which teachers received kind and useful advice from principals in the online community. Some teachers mentioned that they received more respect and emotional support from the online community than from their workplace.



Fig. 9. Emotional support from others in SECEE.



Fig. 10. Personal news shared in a chat group.



Fig. 11. Career choice to become an ECE teacher is not supported by families.

4. Discussion

To answer Research Question 1, “How do Chinese teachers engage in the online community based on WeChat?” we found that Chinese ECE teachers use the communicative features of WeChat to share their own content via multimedia with peers. We used the term “spectrum” to describe the engagement of teachers in the WeChat-based online community, because their engagement was developing and unsynchronized. This study found four key kinds of engagement based on participants’ action modes and interactivity: WCOA followers, lurkers, interactive members, and volunteers (see 3.1, Findings). Smartphones were the main device the teachers used to participate in online community activities, although a WeChat PC application is also available.

In answering Research Question 2, “How do Chinese ECE teachers construct the WeChat-based online community as a PLC?”, four main themes emerged from the data to describe how the PLC was shaped by the participants’ insightful practices. By using volunteer facilitators, the PLC’s leadership was both distributed and participative, which enabled novice teachers to gain experience mentoring peers in PD activities. Practices were shared using multimedia approaches. Teachers’ sharing behaviors were motivated by inquiring of others for help with issues in their classrooms, reflecting on readings in light of their own teaching experience, or communicating their happiness to other members of the online community. A sense of shared vision attracted teachers to gather in the online space and then activated their real learning, which occurred both online and offline. Additionally, participants used collective activities in webinars and chat group discussions to strengthen the communal sense of the group. Supportive relationships were formed based on mutual respect among teachers, principals, and student teachers. These supportive relationships built a safe environment where teachers were willing to share their negative feeling and personal news. They, in turn, received emotional support from the other members. The supportive relationships in SECEE also functioned to mitigate Chinese ECE teachers’ isolated feelings. This was not only because all the members of the online community have shared values related to the importance of ECE, but also because some engaged principals were very willing to support young ECE teachers.

In the theoretical framework of PLCs (see Table 4), one characteristic, “collective learning,” was not found in our study. Although the SECEE mentors claimed that teachers were learning collectively in the WeChat group, as designed via the reading project, the WeChat group investigated in this study did not go beyond providing teachers with a supportive and interactive environment. This

project was more effective for improving self-directed learning at the individual level (Louws et al., 2017). Questions remain about whether effective collective learning occurred in SECEE based on theoretical frameworks built before the digital era. Perhaps because we focused on a WeChat group aimed at reading specialized PD texts, it is possible that we still need to question one more step, whether the conventional perception of collective learning failed to guide us to understand collective learning via PLCs that have been shaped purely in the online context.

The first implication of this study is that two novel features emerged when the PLC for ECE teachers was shaped purely in the online context. One is that the shared vision of an online PLC may not be negotiated by all the members during the early shaping stage. In the online context, the group's shared vision may be designed by key members and then function as a magnet in the online space to attract teachers to join. In this study, the idea about PD project of reading based on a WeChat group was designed by the founder of SECEE. Based on her PhD project, she determined that, despite their strong consensus on the importance of professional reading, Chinese ECE teachers still lack the skills to effectively reflect on books' content and integrate it into their own teachings (Liu, 2018). In fact, most participants mentioned that their engagement in the WeChat group was motivated by their need to improve their professional reading. The other novel feature is that sharing practices in an online context could bring extra training on reflecting on one's teaching, because of the decentralized nature of the online context. Specifically, other participants would not know enough details about the children or the environment of their classrooms without their presentations. Thus, to effectively communicate with other members, the teachers needed to carefully reflect their practice, to gauge whether or not they had omitted some key information when presenting to the WeChat group.

The second implication of this study is that the social context of China influenced the shaping of the PLC for ECE teachers in several ways. The first type of influence is the position of ECE in China and the common use of top-down management; this creates a strong need for the emotional support of Chinese ECE teachers. Supportive relationships shaped many of the PLC's functions. The second type of influence is the social risk of self-disclosure during teachers' engagement in the online community. We found that many once-engaged teachers or principals generally grew silent as the online community grew. This was because they felt the need to be careful about what they said and did in the group, as their colleagues, or even supervisors, had also joined. This meant the online community may no longer have been "safe" for them. The paradox is that higher levels of engagement always mean teachers will find it easier to disclose themselves to others. Their engagement, then, contributes to the stronger influence of the online community, which results in more members seeking to join. However, this engagement also results in a growing social risk, since they have exposed or disclosed themselves. Consequently, they feel they must be careful, and the safest way to do so is to keep silent. The phenomenon remains to us a paradox in the shaping of online PLCs, since fresh, new members are crucial for the further development of online communities, while at the same time, engaged members are the core power behind the building of the group's communal and professional value. The balance is difficult to find, but vital to the success of the PLC in an online context.

Our study provides three suggestions for implementing SNS-based online communities as a new approach to PD. The first is that mentors should control the size of the group, or guide teachers to use the SNS's PC application when engaging in a hot discussion. Our findings reflect the question of the appropriate group size needed to support effective synchronous professional conversation. If there are too many people engaging in a discussion, it is problematic if the main device members use to discuss is their smartphone. For instance, a long and detailed message is likely to take up all the visible screen space. Thus, users may need to divide their attention to keep up with the new messages received while also scrolling back to the message they are interested in. This could lead to bad experiences when participating in the online discussion. The second is that the members involved could use the "cite" function to make the discussions based on chat groups effective. Take WeChat as example, users would receive a notification when their messages were cited by others during the streaming discussions in the WeChat group. This ensured that feedback from others could be always seen. The third suggestion is that a moderator is necessary for effective online discussion. This has also been suggested in previous studies (Chen et al., 2009; Gairín-Sallán et al., 2010). Moderators can maintain the flexibility to expand the schedule, if there appears a persistent brainstorm aroused by some topics, and help to control the pace of discussion.

5. Conclusion

This study focused on an unofficial online community for ECE teachers in China. The community was based on the Chinese social network service WeChat. This study explored how Chinese ECE teachers engage in the online community and shape this community as a PLC. We adopted digital ethnography as the research method for the study. Specifically, the first author conducted participant observation in the WeChat group and collected data. One of the main research findings was a spectrum for describing teachers' developing and unsynchronized engagement in the online community. Four typical behavior modes were identified. The other main finding of this study was that we described how a PLC for early childhood teachers was shaped purely in the online Chinese context. This finding provided a complementary perspective to existing Western contexts. We found four key features of the professional learning community formed by the participants. The present study suggests that novel features will emerge when PLCs are shaped in online and social contexts, such as early childhood education in China, and they will influence PLCs shaped in the online context. Additionally, this study provided suggestions for better adopting SNS-based online communities to improve teachers' PD. One of the two limitations of this study was that we did not have the right to join the operations team of the online community, which would have made it easier to collect data about its decision-making processes and management details. Thus, future studies should explore how to further improve the engagement of ECE teachers in virtual contexts. The other limitation was that we only investigated a WeChat group focused on a professional reading project for teachers. Further studies should expand the fieldwork to include other online projects with different aims for teachers' PD.

Author contribution

Weijie Zhou: Conceptualization, Methodology, Investigation, Writing-Reviewing and Editing, Formal analysis **Fuminori Nakatsubo:** Conceptualization; Validation **Jingchi Wu:** Software **Kun Liu:** Validation, Investigation

Data availability

The data that has been used is confidential.

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