

Japanese elementary teachers' experiences during online professional development regarding involvement of immigrant parents in physical education

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Takafumi Tomura

University of Tsukuba, Japan

Takahiro Sato 

University of Tsukuba, Japan

Ryan T Miller 

Kent State University, USA

Yu Furuta

University of Tsukuba, Japan

Abstract

The purpose of this study was to analyse Japanese elementary school teachers' learning experiences during professional development (PD) regarding immigrant parental involvement in physical education (PE) at public schools in Japan. Based on andragogy theory, this study used an explanatory case study research design. Nine Japanese elementary teachers participated in the study. Data were collected from digital portfolios about immigrant parental involvement in PE, self-reflective journal logs, and semi-structured online interviews. Three major interrelated and complex themes were constructed from the data analysis: (a) *digital portfolios as a problem-based learning tool*, (b) *transformative learning experience regarding communication with immigrant parents*, and (c) *the need for Kenshu (teacher training) for all elementary school teachers*. The findings suggest that the PD focusing on immigrant parental involvement in relation to PE allowed teachers to transform their practices and perceptions in order to minimize psychological, cultural, and social distance from immigrant parents. This study may help teachers, school administrators, and researchers develop new insights and motivation to integrate the concept of immigrant parental involvement regarding PE into the PD systems of public elementary schools in order to enhance teachers' problem-solving knowledge and skills.

Corresponding author:

Takahiro Sato, Institute of Health and Sport Sciences, Joint Master's Program in International Development and Peace Through Sport, University of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki, Japan.

Email: sato.takahiro.gf@u.tsukuba.ac.jp

Keywords

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Introduction

In the past decade, Japanese public schools have become increasingly ethnically, culturally, religiously, and linguistically diverse (Furuta et al., 2022). More specifically, the number of non-Japanese speakers in Japanese public elementary schools has increased by approximately 74% from 22,321 in 2010 to 38,739 in 2021 (Ministry of Education, Culture, Sports, Science and Technology, 2022). Despite this substantial increase, public opinion in Japan remains largely against increased immigration to the country, with a major reason being the preservation of Japanese cultural identity and values (Davison and Peng, 2021). As a result, immigrants to Japan may feel like cultural outsiders in schools and communities (Honda et al., 2016). In the context of schools, this can lead immigrant parents to have a decreased level of engagement in their children's schooling (Penner-Williams et al., 2021).

Recently, Tomura et al. (2022) studied Japanese elementary teachers' experiences with parental involvement of immigrant parents in relation to physical education (PE). In Japan, elementary school teachers expect parents to become their partners (Tomura et al., 2022). In order to build this partnership, Japanese elementary teachers often conduct home visits called *katei houmon*, where classroom teachers visit students' homes to have conversations with parents about school concerns, their children's talents and abilities such as physical and social skills, and the safety of their children at school, including during PE (Jabar, 2010). *Katei houmon* is an important task for Japanese elementary school teachers because they need to teach children aged from six to 12, which is also called primary education (grades one to six). Each elementary school teacher is required to teach Japanese, social studies, mathematics, science, life studies, music, arts and handicrafts, homemaking, moral education, and health and PE (health and PE are combined and considered one subject area in Japan) (Sato et al., 2020b). During *katei houmon*, teachers inform parents about important information (e.g. knowledge about child development) and/or actions (e.g. manners of interacting with their child or structuring the educational environment). In order to work with immigrant parents, Japanese elementary teachers must recognize differences based on cultural norms and upbringing. Without training, teachers might inappropriately interpret and respond to behaviours and statements by parents from different cultural and ethnic backgrounds (Hodge et al., 2012).

Tomura et al. (2022) found that Japanese elementary teachers faced cultural differences and communication barriers (e.g. language barriers) when they collaborated with immigrant parents concerning PE, creating challenges in offering an effective and safe learning environment in PE classes. Additionally, Tomura et al. (2022) found that elementary teachers were extremely anxious about how to inform immigrant parents about unexpected accidents and incidents during PE classes (e.g. sudden injury or illness). They sought assistance from colleagues (teachers, principals, school nurses, and school interpreters) to avoid miscommunication with immigrant parents about children's physical, psychological, or physiological state (Tomura et al., 2022). Therefore, it is critical that Japanese elementary teachers receive professional development (PD) training in order to gain knowledge and skills to overcome the multiple challenges with parental involvement of immigrant parents in relation to PE. However, there is limited research that has examined teachers' experiences with PD focusing on parental involvement of immigrant parents in Japan.

Several studies that investigated parental involvement of immigrant parents in Western countries (e.g. USA, Canada, New Zealand, and Cyprus) found that many elementary teachers struggle to overcome pragmatic, psychological, and cultural barriers (Antony-Newman, 2020; Hajjoteriou and Angelides, 2016; Koyama and Bakuza, 2017; Lin and Averill, 2022). For example, in some core subjects (e.g. mathematics and language), many teachers believe that immigrant parents should understand teachers' goals and objectives for all children and support their child's learning at home (e.g. by checking homework) (Thelamour and Jacobs, 2013). Moreover, due to language and cultural barriers, teachers may have difficulty in communicating with immigrant parents about their child's academic and social issues (e.g. behaviour problems and bullying) (e.g. Shea et al., 2016) or about ways to prevent life-threatening situations for their children (e.g. first-aid treatment, health concerns, and child sexual abuse) (e.g. Diaz and Fenning, 2017).

The purpose of PD is to focus on minimizing gaps and conflicts between emic (e.g. parent) and etic (e.g. teacher) perspectives (Galperin et al., 2022), so that teachers have a better understanding of the internal logic of why immigrant parents behave as they do and how teachers should respond and develop meaningful relationships with the immigrant parents in a certain academic subject (e.g. PE) (Smith and Sheridan, 2019). Therefore, the researchers in this study used several studies in other countries as samples of effective PD to gain insights about key elements. These samples included PD program design for enhancing parental involvement in Hoover-Dempsey et al. (2002) and teacher-family engagement and communication in Smith and Sheridan (2019) and Symeou et al. (2012). Moreover, we decided to use instructional tips for PD such as online debate about PE (Sato et al., 2017) and digital portfolios for Japanese elementary teachers (Sato et al., 2020b) in order to design the PD regarding parental involvement of immigrant parents in PE.

Rationale for designing the PD program

This study focuses on a problem-solving-based, online PD program addressing the problems and challenges voiced by Japanese elementary teachers in Tomura et al. (2022) regarding the parental involvement of immigrant parents in relation to PE. This study does not intend to suggest that this online PD program is the best approach for preparing teachers to build professionalism in parental involvement. Rather, the researchers developed the online PD program based on teachers' professional lives, personal interests, and individual learning needs. In constructing the PD program, we followed the criteria in the revised version of Bloom's taxonomy (Krathwohl, 2002), which is widely used in PD for in-service teachers. The taxonomy was originally developed to allow PD providers to form a basis for assessment as well as teaching through a series of hierarchical steps (Newton et al., 2020). More specifically, the revised Bloom's taxonomy included six levels of cognitive learning (remembering, understanding, applying, analysing, evaluating, and creating), which are helpful in assessing teachers' learning outcomes through PD.

As one example of successful PD for PE in Japan, elementary teachers have been able to shift their instruction in PE from 'teaching as telling' to 'teaching for understanding' through experience and learning in PD (Lewis and Takahashi, 2013). Japanese teachers typically emphasize *Hansei*, or self-critical reflection, more than external evaluations (e.g. checklist evaluation) in order to feel a sense of safety to analyse their weaknesses in PD (Lewis, 1998). In contrast, in other countries (e.g. the USA and UK), several studies found that PD opportunities helped teachers promote their readiness to use new knowledge (e.g. behavioural management, educational models, social justice, and diversity) for improving their teaching in PE (e.g. Sato and Hodge, 2017). More specifically, teachers seek practical ideas, skills, and strategies in relation to pedagogy

(e.g. motivational techniques and assessment strategies) that meet their professional needs. Therefore, it is crucial to design PD that meets teachers' individual needs (e.g. physical and psychological) and provides multiple learning materials that can be used in their professional settings. To do so, this study's online PD program included multiple PD instructional methods using visual aids and a digital portfolio within an online learning platform.

This study used an online learning platform as a web-based virtual educational frame because Japanese teachers have busy schedules and the online platform offered convenience and flexibility. Teachers could access the learning platform (e.g. to view videos and post on the bulletin board) whenever they had free time and from wherever they were (see also Dille and Røkenes, 2021).

Additionally, the researchers used visual aids to assist teachers' understanding in the PD program. According to Shabiralyani et al. (2015), there are several benefits of visual aids for elementary teachers, such as increasing motivation to learn, promoting creativity, and reinforcing the text. One example of visual aids in our program is original YouTube video clips which teachers could select according to their individual needs (see also Riley, 2017). Hodges et al. (2017) found that YouTube video clips supplemented PE teachers' learning in PD and changed their practices and perceptions. Another component was a digital portfolio that was a computer-based, purposeful collection of, and reflections on, teachers' professional experiences (Espinoza and Medina, 2021). Xerri and Campbell (2015) found that many teachers felt that a digital portfolio helped them to gain knowledge of analytical and interpretative records of reflection on their practices, values, and strategies, and helped enhance their critical thinking skills to identify their professional growth.

Theoretical framework and purpose

This study used andragogy theory (Knowles et al., 2020), which has been used in some previous studies investigating elementary teachers' PD experiences including lesson studies in PE (Sato et al., 2020a), context-specific PE in depopulated school districts (Tsuda et al., 2019), reflective learning through PE portfolios (Sato et al., 2020b), and traditional Japanese dance in secondary schools (Sato et al., 2021) in Japan. From these studies, establishing PD communities is a key factor that facilitates Japanese teachers' self-directed learning in various professional environments. Andragogy focuses on addressing the needs of adult learners and is theoretically different from children's learning (i.e. pedagogy) (Knowles et al., 2020). The term andragogy is derived from two terms: *andro*, meaning 'man' and *agourgous*, meaning 'to lead'. Based on andragogy theory, teachers need to understand how to become independent, self-directed learners who are responsible for their own personal growth in order to solve real-world professional problems (Knowles et al., 2020). Thus, the PD should focus on problem-centred learning that meets teachers' individual professional needs, abilities, and experiences. For example, immigrant parents from individualistic societies may be uncomfortable with Japanese teachers, who, because they come from a collectivistic society, tend not to praise their students individually. Such praise may be understood by teachers from collectivistic societies as spoiling their students (Trumbull et al., 2003). Thus, following andragogy theory, the online PD in this study included information about problem-solving regarding cultural differences and misconceptions.

Cochran and Brown (2016) suggest that instructors need to understand and apply principles of andragogy theory in order to provide an appropriate learning environment, particularly in an online format. First, *the learners need to know why they need to learn something*; that is, the teachers must understand the purpose of new learning before they undertake it (Cochran and Brown, 2016). Second, *the learners have a self-concept of being responsible*, which means that the teachers

take responsibility for their decisions in their learning. Teachers must be self-directed learners in order to take control of the methods and goals of learning (Knowles et al., 2020). Third, *the learners have valuable prior experiences*, which influence their professional learning when they connect their learning to prior experiences to develop a better understanding of the learning materials (Cochran and Brown, 2016). Fourth, *the learners are ready to learn*, which means that teachers perceive the relevance of the knowledge. They want to know how learning helps them better their professional lives, and they learn best when they know that the knowledge has immediate value for them (Taylor and Hamdy, 2013). Fifth, *the learners are motivated to learn when they are given authentic learning activities*, which means that teachers prefer to learn for real-life problem-solving purposes. For example, case studies assist teachers in gaining a sense of how to apply ideas, practices, and strategies to their work. Finally, *the learners are intrinsically motivated*, which means that the teachers have a strong desire to learn so that they can solve important problems in their life.

Additionally, during PD, teachers can experience transformative learning involving critical self-reflection to describe their assumptions, beliefs, and expectations about professionalism in PD (Ellison and Sato, 2021). According to Briese et al. (2020), PD can produce a significant impact or paradigm shift that affects teachers' subsequent experiences. Applying this to the present study, learning experiences during PD may change teachers' fundamental practices and perceptions regarding parental involvement of immigrant parents in relation to PE. Therefore, the purpose of this study was to analyse Japanese elementary school teachers' learning experiences during PD regarding immigrant parental involvement in PE at public schools in Japan. The following two research questions guided this study: (a) What were Japanese elementary school teachers' experiences of online PD in relation to interacting with immigrant parents regarding PE? (b) How did online PD learning experiences mediate Japanese elementary school teachers' perspectives of communicating, collaborating, and working with immigrant parents in relation to PE?

Methods

A descriptive–qualitative methodology using an explanatory case study design, which is also referred to as an interpretative case study (Merriam, 1998), was judged a suitable method and adopted in this study because this research method helps the researcher understand complex educational and/or social phenomena while maintaining the meaningful particularities of real-life situations (Yin, 2017). An explanatory case study was selected because the exploratory nature of this design was deemed appropriate for evaluating elementary teachers' reflective learning in online PE PD. Such a case study is used to develop conceptual categories or to illustrate, support, or challenge theoretical assumptions held prior to data gathering (Merriam, 1998). In this study, data were gathered from each selected teacher using digital portfolios, self-reflective journal logs, and online semi-structured interviews.

Participants

This study used purposeful sampling (Patton, 2002) to recruit nine Japanese elementary teachers (male = four; female = five) from eight public elementary schools. The inclusion criteria were that the participants: (a) were teachers in a Japanese public elementary school, (b) had experience teaching Japanese language learners in PE classes, and (c) had oral and/or written communication challenges with immigrant parents. The exclusion criterion was that teachers who were teaching at

private elementary schools were not included, because the PE curriculum and educational goals may be different from public elementary schools. The lead researcher confirmed all participants (Mr Satime, Ms Nogi, Mr Kitta, Ms Aze, Ms Morita, Mr Kujo, Mr Shin, Ms Tobaru, and Ms Nishi) met the purposeful sampling criteria through online personal conversations before the online PD program began. The nine participants' pseudonyms and demographic backgrounds are described in Table 1. This study was approved by the institutional review board of the lead author's university.

Online PD module content

Based on the findings of Tomura et al. (2022), we designed online PD module content focusing on three learning goals for participants: (a) reflection on prior experiences regarding parental involvement of immigrant parents, (b) theory-based learning regarding parental involvement of immigrant parents regarding PE, and (c) collaborative learning with other participants. The duration of the whole online module was 2 months (8 weeks); the activity content, schedule, and delivery methods are listed in Table 2.

There were four parts of the online PD module: creating digital portfolios, lectures, self-reflection logs, and evaluations of peers' digital portfolios. First, all participants learned how to create their own digital portfolio from the researcher (first author) through synchronous online meetings (60 minutes each) and email communication. All participants created at least two digital portfolios, which focused on different themes (e.g. challenges, strategies, and problem-solving). Second, all participants watched four original lecture videos (YouTube video clips) to learn the following concepts: (a) *teacher's attitude towards parental involvement of immigrant parents*, (b) *working with*

Table 1. Participants' demographic information.

Pseudonym	Gender	Years of teaching experience	Nationality of immigrant parents	First language of immigrant parents	Overseas experience (study or work)
Mr Satime	M	9	Brazil, Philippines, Peru, Nepal, Korea	Portuguese, Tagalog, English, Spanish, Nepali, Korean	No experience
Ms Nogi	F	8	Brazil, Philippines	Portuguese, Tagalog	No experience
Mr Kitta	M	3	Philippines, Spain, United States, China, Romania, Nepal	Tagalog, Spanish, English, Chinese, Romanian, Nepali	No experience
Ms Aze	F	5	Brazil, Peru, China	Portuguese, Spanish, Chinese	No experience
Ms Morita	F	3	China, Philippines, Nepal, Indonesia	Chinese, Tagalog, Nepali, Indonesian	No experience
Mr Kujo	M	12	China	Chinese	No experience
Mr Shin	M	10	Philippines	Tagalog	No experience
Ms Tobaru	F	4	Vietnam, Pakistan, India	Vietnamese, Urdu, Hindi	No experience
Ms Nishi	F	7	Spain, Peru, Bolivia, Brazil	Spanish, Portuguese	One month study abroad in the US (high school)

Table 2. Online module content.

Period	Content	Description	Delivery method
	Digital portfolio		
Week 1 to week 4	Creating a digital portfolio regarding parental involvement of immigrant parents in PE	The purpose of this session is to develop digital portfolios with the researcher through reflecting on their professional experience regarding parental involvement of immigrant parents in PE (e.g. practices, thoughts, and strategies)	Microsoft PowerPoint and Microsoft Teams
	Lecture		
Week 5 to week 8	Watching YouTube video clips (about 20 minutes for each)	The purpose of this session is to watch four video lectures to learn the concept of parental involvement of immigrant parents in relation to PE	YouTube and Google Classroom
	Self-reflection logs		
	Creating self-reflective journal logs (four times)	The purpose of this session is to reflect on their learning from the YouTube videos by creating self-reflective journal logs	Microsoft Forms
	Evaluations of peers' digital portfolios		
	Evaluating another teacher's digital portfolio	The purpose of this session is to read and evaluate another teacher's portfolio to gain knowledge about diverse situations of parental involvement and find ideas or strategies to solve one's own challenges with immigrant parents in relation to PE	Google Classroom

immigrant parents with diverse backgrounds in relation to PE, (c) communication strategies with immigrant parents regarding PE, and (d) developing a trusting relationship with immigrant parents. These lecture videos presented theoretical knowledge about diverse cultural values, beliefs, habits, and customs of immigrant parents in relation to PE (e.g. language, tradition, religion, social norms, morals, ethics, body image, and health), which the participants worked, as self-directed learners, to apply to solve their problems in their real work environment. Third, all participants were asked to create self-reflective journal logs after watching each video lecture by answering specific questions provided by the researcher (see the description of the *self-reflective journal logs* below). Fourth, all participants evaluated other teachers' digital portfolios at their own pace in their own time.

Researcher positionality

To review our viewpoints that potentially influence our interpretation of the data and the design of the online PD program in the study, we briefly describe our own positionality as researchers. The first author is a Japanese PhD student, and this study is part of his dissertation research. He is a former PE teacher at a kindergarten in Germany and has two and a half years of experience teaching

children of different cultural and ethnic backgrounds and interacting with their parents (e.g. German, American, and Chinese). The second author is a Japanese professor with a PhD, and he has advanced expertise related to diversity and social inclusion (e.g. teaching PE to English language learners) and teacher PD research (e.g. in-person and online PD for Japanese elementary teachers). The third author is an American associate professor with a PhD, and he specializes in English as a second language teacher education and PD. The last author is a PhD student, and she studied Japanese elementary teachers' positioning in teaching PE to Japanese language learners. Therefore, we acknowledge that we have similar and different teaching and research experiences. As a result of the study, we had several discussions and reached an agreement that the online PD program must provide the participants with a problem-solving-based learning experience because each participant encounters unique difficulties or challenges when they interact with immigrant parents from different cultural backgrounds in relation to PE.

Data collection

The data for the present study came from digital portfolios, self-reflective journal logs, and online semi-structured interviews.

Digital portfolio. The study used digital portfolios that were collaboratively developed by the participants and the researcher (first author). By developing their own digital portfolio focusing on parental involvement, the participants could reflect on and develop a deeper understanding of their practices, perceptions, and points for improvement (Black and Plowright, 2010). The portfolio included seven elements: (a) a problem that the teacher experienced, (b) strategies for solving the problem, (c) reasons for selecting the solutions, (d) the reaction of parents, (e) points a teacher should be careful about, (f) how to improve practices, and (g) a relevant story or idea (see Figure 1 as an example). To develop the digital portfolios, the lead author and the participants first held individual online meetings to decide on two or three portfolio topics based on their problem-solving experiences with parental involvement of immigrant parents in relation to PE. Second, the lead author constructed the digital portfolios based on information that was shared by the participants in the online meeting. Third, the lead author sent the constructed data file of the portfolios to each participant and asked them to review and revise the portfolios to eliminate any errors or misinterpretations. Finally, the lead author and the participants continued email communication until they agreed on the written content of their digital portfolios.

Self-reflective journal logs. To explore the elementary teachers' learning from the online modules, the study used a self-reflective journal log developed by Hodge et al. (2003). Reflective journaling is a common strategy in teacher education, aiming at allowing teachers to reflect on their learning experiences, including their personal thoughts, ideas, and feelings (Göker, 2016). All participants were asked to answer one or two questions after watching each video lecture. Example questions are the following:

1. What knowledge and skills do you need to improve to respond to the diverse cultural backgrounds of immigrant parents in order to promote their involvement in relation to PE?
2. What ideas or strategies would you like to apply in order to promote communication with immigrant parents in relation to PE?

Case Number 19: Handling unexpected accidents in PE class	
<p>What was the challenge?</p> <ul style="list-style-type: none"> I needed to explain to an immigrant parent how their child got injured in PE class, but there was a language barrier. <p>Solution ① Report to the parent immediately when their child is injured in an unexpected accident in PE class.</p> <p>ASAP!!</p> <ol style="list-style-type: none"> 1. Call the parent before the child meets their parent. 2. Using a school interpreter, explain to the parent in the parent's first language how the accident happened and what first-aid treatment the teacher performed. 3. Instruct the parent about any additional care that they should provide for the child at home. <p>Solution ② Exchange information about injuries in PE class with the school personnel.</p> <ul style="list-style-type: none"> Develop a mutual understanding about unexpected accidents in PE class with the school principal, school nurses, and school interpreters. School personnel must be ready to answer parents' questions about the accidents. <p>☆ Classroom teachers may not be able to talk to the parent in the daytime due to their teaching responsibilities.</p>	<p>Teacher's Reflection</p> <p>Why I decided to implement this strategy</p> <p>I believe that if teachers don't report children's injuries in PE class to parents, parents may feel that the teachers don't care about their children. To prevent complaints from parents, I believe it is crucial to report any injuries to parents as soon as possible.</p> <p>What teachers need to be careful about</p> <p>Suppose the school interpreter is unavailable when the teacher must explain to a parent about their child's injury in PE, and the teacher cannot fully explain it to the parent due to the language barrier. In this situation, the parent may remain frustrated until the next day, or their frustration may explode in the morning. So, teachers must have some communication strategies to solve the language issues with parents.</p> <p>Reaction of immigrant parents</p> <p>It is essential to report children's injuries in PE to their parents as soon as possible before the children talk to their parents. Immediate reports help parents feel a sense of safety for their children and they may appreciate your consideration.</p> <p>How to improve this strategy</p> <p>Although classroom teachers should communicate with parents as soon as possible when their children are injured in PE, teachers sometimes cannot do so due to their responsibility to teach other subjects. Therefore, building a mutual understanding among school personnel is vital so that other personnel can answer parents' questions if the classroom teacher is unavailable.</p> <p>Conclusion</p> <p>Injuries are common unexpected accidents in PE. So, it is essential to develop a relationship with children's parents to facilitate communication when it is necessary to share information about their children's health status.</p>
1	2

Figure 1. Example of digital portfolio.

Online semi-structured interviews. Online semi-structured interviews were the primary data source. All interviews were conducted individually after participants completed all online modules. The researcher asked all participants to answer 12 interview questions, which were developed by the lead author based on andragogy theory, and additional unstructured follow-up questions. Each interview lasted about 60 minutes. All questions included in the interview guide are listed in Table 3.

Translation process. All original data were collected in Japanese, and the researchers used the cross-cultural translation technique developed by Banville et al. (2000) and Hodge et al. (2013). This technique aims to maintain the uniqueness of two cultures in the collected data (from Japanese to English). In this study, all translators were fluent in both English and Japanese. In the translation process, three translators (first, second, and fourth authors) individually translated the original Japanese data (professional portfolios, self-reflective journal logs, and interview transcripts) into English. Later, they gathered the translations to discuss any differences until all translators reached an agreement. Revised translated data were sent to a bilingual faculty member (third author) in the United States to evaluate the translated data to make sure that the meaning of the translated and original data was the same. Finally, all four translators reached an agreement on all translated data.

Data analysis. The researchers used a constant comparative method (Boeije, 2010) to analyse the translated data. In this analytic method, researchers code each piece of descriptive data (e.g. an

Table 3. Interview guide.

Interview questions

1. Why did you decide to participate in the online PD program regarding parental involvement of immigrant parents regarding PE?
2. Which learning activities or contents of the online PD program were most memorable to you?
3. What challenges and problems did you experience regarding parental involvement of immigrant parents regarding PE before participating in the online PD program?
4. What do you think about how your new learning from the online PD program can contribute to solving the problems or challenges you face through parental involvement of immigrant parents regarding PE?
5. What did you realize when you reflected on your professional experience regarding parental involvement of immigrant parents regarding PE during the online PD program?
6. How did your new learning through the online PD program transform your values or perspectives, such as assumptions or stereotypes against immigrant parents?
7. How would you like to use the learning materials in this online PD program in your professional working environment?
8. What challenges do you think you may encounter when you try to apply your learning through the online PD program at your school?
9. What kinds of elements are important for you to promote collaboration with immigrant parents in order to provide a safer learning environment in PE for their children?
10. What do you think are the strengths and weaknesses of the online PD program?
11. What kind of teacher would you like to become in the future to further develop trusting relationships with immigrant parents?
12. To achieve your goal (answer to question 11), what knowledge and skills do you think you still need to acquire?

interview) inductively and then use each segment of the data to (a) compare with one or more categories to identify its relevance and (b) compare with other segments of data similarly categorized (Schwandt, 2015). The basic strategy of this analytical process is to do what its name implies and constantly compare pieces of data. More specifically, two researchers (the first and second authors) conducted an initial coding from the transcripts (including interviews, self-reflective journals, and digital portfolios) independently to identify each potentially meaningful piece of data and any differences were discussed until agreement was reached. The first author asked the other two debriefers (third and fourth authors) to review the coded data to reduce the effect of researcher bias. After the peer debriefing process, the second round of coding key terms (e.g. problem-solving, transformative learning, and motivation) was conducted by the first author based on the concept of andragogy theory (Knowles et al., 2020). In this process, some analysed codes were combined (similar terms such as *challenge* and *problem*). Moreover, all coded data from each participant were compared to discuss similarities and differences in order to group these codes into thematic categories, which were then refined into recurring themes (see Boeijie, 2010). Finally, all researchers reached an agreement on the themes that had been constructed.

Trustworthiness. Trustworthiness was established using three strategies: triangulation, member checking, and peer debriefing. First, triangulation is a strategy that uses multiple data sources in qualitative research to assess accuracy through the convergence of information from the different data sources (Carter et al., 2014). In this study, the researchers used digital portfolios, self-reflective

journal logs, and interview transcripts to establish triangulation. Second, member checking is a strategy that allows researchers to reduce the influence of subjective bias by developing mutual agreement between participants and researchers (Birt et al., 2016). The researcher sent copies of all original and analysed data to each participant for confirmation of data accuracy. Third, peer debriefing is a strategy to promote the credibility of analysed data by collaboratively reviewing and assessing the transcribed data, emergent codes and thematic categories, and final themes between qualified peer researchers (Janesick, 2015). In this study, one graduate student and one professor who have expertise in Japanese PE and qualitative research served as peer debriefers.

Results

The data analysis yielded three major interrelated and complex themes: (a) *digital portfolios as a problem-based learning tool*, (b) *transformative learning experience regarding communication with immigrant parents*, and (c) *the need for Kenshu (teacher training) for all elementary school teachers*.

Theme one: digital portfolios as a problem-based learning tool

All participants believed that digital portfolios were a useful problem-based learning tool because the portfolios helped them assess and evaluate their professional needs, personal interests, or school environment. According to Doig and Groves (2011), a PD portfolio is a collection of instructional materials, called *kyozai* in Japanese. It seems that these participants improved their critical thinking skills and developed a better understanding of how to interact with immigrant parents regarding PE. In the digital portfolios, they reflected on and tried to solve their challenges, issues, and concerns. They also felt it was beneficial to exchange and evaluate other teachers' portfolios because this helped them learn about other teachers' authentic cases, and they could examine practical ideas and strategies to maximize their learning. For example, Ms Tobaru explained:

I believe that exchanging digital portfolios among teachers helped me to find strategies of parental involvement in relation to PE. For example, I learned how to negotiate with immigrant parents when their children wore earrings and participated in PE class. In Japan, wearing earrings is prohibited by school rules. In my experience, there was a child from the United States who wore earrings in my colleague's classroom. Then, I felt that I had no idea how to request his/her parents to take their child's earrings off. [...] If I needed to find a strategy or solution by myself, it would take a lot of time to decide. But I believe that digital portfolios helped me reduce effort and time in making strategies. (Ms Tobaru, interview)

Ms Tobaru also said that she found digital portfolios much more useful learning materials than paper-based portfolios, because she could read the portfolios whenever and wherever she needed using her smartphone. Another participant, Mr Shin, learned through interacting with other teachers' case studies how to improve his practices in collaborating with immigrant parents in order to offer a safer learning environment in PE class. He explained:

I feel it was important for me to use case studies based on teachers' authentic experiences to learn how to collaborate with immigrant parents to prevent problems in PE. For example, I also learned that teaching immigrant parents about the concept of safety in Japanese PE is crucial. Because many immigrant

children have the risk of getting injuries in some physical activities that they have never experienced, such as gymnastics. I believe that immigrant parents are not supportive of their children if they don't understand the PE curriculum and health risk in PE class. [...] Therefore, I feel digital portfolios helped me to increase my motivation for problem-based learning. (Mr Shin, interview)

Mr Shin believed that digital portfolios help teachers to learn from other teachers' authentic experiences, reflect on their own experiences, and find out what they need to learn, how to improve their practices, and why learning is important for them, all fundamental concepts in andragogy theory (Knowles et al., 2020). Another participant, Ms Aze, believed that evaluating other teachers' digital portfolios helped her identify new challenges (e.g. religious considerations) she had never faced in her career. She explained:

I believe that problem-based learning through digital portfolios allowed me to learn about other teachers' experiences and strategies. I am supposed to rotate to a different school the year after next. I believe that teachers' concerns and challenges are influenced by characteristics of the immigrant population in each school. Namely, teachers need to adjust their parental involvement approaches based on parents' nationality, religion, and so on. Therefore, problem-based learning was important for me to gain knowledge and ideas to solve problems with diverse parents that I have not yet experienced. I believe that digital portfolios are valuable learning materials for my future career. (Ms Aze, interview)

In this study, the participants had experience at a variety of different (urban or rural) elementary schools (only Mr Satime and Ms Aze worked at the same school), and each school included immigrant parents from different nationalities, languages, cultures, socio-economic statuses, and so on. Ms Aze believed that teachers should become self-directed learners to identify their own learning objectives by learning from other teachers' experiences and becoming familiar with issues and challenges that she had not yet encountered (see also Onyon, 2012).

Theme two: transformative learning experience regarding communication with immigrant parents

All participants reported they had experienced transformative learning through this PD program regarding the concept of communication with immigrant parents about PE. Transformative learning is a process in which teachers transform problematic assumptions and expectations (e.g. mindsets and meaning perspectives) (Mezirow, 2018). In this study, the video lectures allowed the participants to self-reflect about their feelings, beliefs, assumptions, and perspectives on their practices of communication with immigrant parents. For example, they believed it was crucial to learn the concept of high-context and low-context cultures, which may cause miscommunication between Japanese teachers and immigrant parents. Japanese teachers, who come from a high-context culture, use implicit communication and nonverbal cues; thus, if immigrant parents come from a low-context culture, they may rely more on explicit verbal messages. More specifically, Japanese teachers may assume certain information is common or understood, but the immigrant parents may have different experiences and need clearer explanations and guidance from the Japanese teachers (Tong and Yuqing, 2020). Therefore, all participants realized that immigrant parents in their class might misinterpret teachers' explanations (e.g. about PE supplies, children's growth, and achievement in PE) because these explanations are grounded in Japan's high-context culture. Therefore, they found it necessary to transform their communication styles and methods based on the needs of immigrant parents. For example, Ms Morita explained:

This PD program helped me to reflect on my experiences and transform my assumptions about the concept of communication with immigrant parents related to PE. For example, I often face challenges in explaining terminologies in PE. But I have never found out why the immigrant parents of children in my class don't understand what I say. When I watched one of the YouTube video clips, I learned there is a linguistic difference between teachers and immigrant parents due to high-context and low-context cultures. [...] In order to build mutual communication with immigrant parents regarding PE, I feel I need to apply communication methods such as the ABCD model from now on. (Ms Morita, self-reflective journal logs)

Ms Morita learned how to apply the audience, behaviour, condition, and degree model (ABCD model; Bloom, 1956) in providing direct, explicit, and clear information to immigrant parents related to PE. More specifically, she believed that the ABCD model helped her to bridge high- and low-context cultures with immigrant parents by overcoming communication barriers by creating clearer and more explicit oral and written communication.

Another participant, Mr Kitta, believed that it was beneficial that the PD introduced how to use Information and Communication Technologies (ICT) as an idea to overcome different communication cultures. He commented:

When I learned about high-context and low-context cultures, I finally found the reason why I felt that communication with immigrant parents must be clear and straightforward. [...] I should use ICT to overcome language and cultural barriers with immigrant parents. Before participating in this PD program, I was hesitant to use ICT when I communicated with immigrant parents because I assumed using ICT was difficult. I believe teachers must use ICT to provide verbal communication in relation to PE, which is translated and clear for immigrant parents. Also, ICT is helpful for teachers to use visual aids such as pictures and videos to explain PE supplies and swimming classes that the parents are not familiar with in their culture. (Mr Kitta, interview)

Mr Kitta found that ICT (e.g. translation and visual aids) helped him minimize cultural gaps with immigrant parents when he explained things unique to the Japanese PE context. Another participant, Mr Satime, also reflected on his professional experiences and realized ICT was an essential tool for teachers without school support (e.g. school translator). He explained:

I believe that teachers should learn the concept of high-context and low-context cultures to transform their ways of transmitting information to immigrant parents. The YouTube video allowed me to question my assumption that there was no problem in communication with immigrant parents in relation to PE. Then, I realized that I have given immigrant parents little information related to PE so far. [...] I believe teachers who work without school support must use ICT in communication with immigrant parents. However, I think there are some challenges to use ICT in my school due to the lack of teachers' technology skills and prohibited functions due to ethical reasons such as privacy protection and prevention of illegal activities. (Mr Satime, self-reflective journal log)

Mr Satime appreciated that the concept of high-context and low-context cultures was included in the video lectures. He believed that many elementary school teachers must improve their technology skills and create official ethical guidelines within their schools (e.g. rules, objectives, and strategies) in order to enable them to integrate ICT into their communication with immigrant parents.

Theme three: the need for Kenshu (teacher training) for all elementary school teachers

All participants believed that this PD program would be valuable and beneficial for all elementary school teachers (e.g. novice teachers, advanced teachers, and school administrators) in order to reformulate their practices and motivation regarding parental involvement of immigrant parents in relation to PE. They said that there were limited PD opportunities to learn the theoretical knowledge regarding parental involvement of immigrant parents in their careers. In Japan, *Kenshu* (teacher training) is one of the main strategies of PD for elementary school teachers. For example, the so-called 'lesson study' (commonly included in *Kenshu* by Japanese teachers) has played an important role for Japanese teachers to refine their knowledge of teaching in PE through colleagues' and mentors' feedback and suggestions (Sato et al., 2020a). Typically, lesson study involves a group of teachers meeting regularly to discuss the implementation of research lessons in teachers' own classrooms. In this study, all participants felt that it was crucial to design future *Kenshu* that helps teachers develop their knowledge base and practical skills regarding parental involvement of immigrant parents in order to become ready to work with immigrant parents from diverse backgrounds. For example, Ms Nishi believed that the topic of cultural awareness must be included in *Kenshu* for beginner teachers and school administrators. She explained:

I believe that this PD program must meet elementary school teachers' unique needs as a part of *Kenshu* project. Especially, I think it is valuable learning for beginner teachers because they have lack of knowledge and skills to solve unexpected cultural conflicts with immigrant parents at school events such as the sports festival. I am saying this because they had never had such training when they were teacher candidates as university students. [...] Unfortunately, some school administrators have stereotypes and prejudice towards immigrant parents. Therefore, it is important for them to improve their cultural awareness to facilitate involvement of immigrant parents. (Ms Nishi, interview)

Another participant, Mr Kujo, shared his motivation to apply online learning materials similar to those used in this PD program (digital portfolios and YouTube video clips) to lesson studies as a part of school-based PD (*Konai-Kenshu* in Japanese) at his school. He explained:

I would like to use digital portfolios and YouTube video clips when I plan a lesson study for my colleagues in the future. This year, I am responsible for organizing lesson studies as a part of *Konai-Kenshu* regarding multicultural education. But there are limited collaborative learning opportunities among teachers in my school so far. So, I believe that online learning materials from this PD can help me promote discussion among my colleagues to learn about immigrant families' cultural, racial, ethnic, and social backgrounds. I believe that this PD will help me create another lesson study for elementary school teachers to share, exchange, and discuss their knowledge, experiences, and practices regarding involvement of immigrant parents relating to PE. (Mr Kujo, interview)

Mr Kujo believed that this PD program helped him to gain ideas about how to create another lesson study to provide his colleagues with collaborative PD opportunities to learn new knowledge (e.g. cultural characteristics and perspectives of diverse immigrant parents) while exploring and discussing teachers' ideas and plans regarding parental involvement of immigrant parents in PE.

Ms Nogi believed that the formal PD workshops for novice teachers (first to third years of teaching experience) must include practical content about social justice and diversity (e.g. equality, equity). She explained:

I feel that my school district's formal PD program for beginner teachers must include the topic regarding parental involvement of immigrant parents related to PE. For example, the concepts of equality, equity, and social justice may help them reformulate their practices with immigrant parents. [...] Unfortunately, some teachers may be unable to access PD opportunities within their schools due to their school administrators' lack of motivation and effort. Therefore, I believe that the Prefectural Boards of Education need to provide equal PD chances for in-service teachers through formal PD programs. (Ms Nogi, interview)

In Japan, elementary teachers are legally obligated to attend formal PD programs organized by the Prefectural Boards of Education for 25 days a year (Hanamoto and Kishida, 2013). Therefore, Ms Nogi believed that such formal PD programs should include content regarding parental involvement of immigrant parents in relation to PE for the benefit of teachers who lack school-based PD opportunities.

Discussion

The purpose of this study was to analyse Japanese elementary school teachers' learning experiences during PD regarding immigrant parental involvement in PE at public schools in Japan. The study found that Japanese elementary teachers had positive learning experiences through accessing online learning materials (e.g. digital portfolios and YouTube video clips) that helped them find strategies to solve problems, overcome challenges, and reduce concerns in their professional lives. The online PD program helped teachers be self-directed learners, analyse their learning needs, select learning materials, and evaluate their PD experience (see also Rubenson, 2011). Based on andragogy theory, real-life learning experiences during this online PD program are immediately applicable to the teachers' professional responsibility for facilitating the involvement of immigrant parents in relation to PE.

This study found that the teachers believed that they need PD opportunities that help them become reflective teachers who can assess their comprehension and skills in order to work effectively with immigrant parents from culturally and linguistically diverse backgrounds and that digital portfolios helped them prepare to apply this new knowledge to their professional lives (Knowles et al., 2020). According to Cervero (1988), in andragogy, reflective learners demonstrate their ability to reflect in action, which involves being able to solve ill-defined practice situations in which they are more certain about the most appropriate action to pursue. They need to engage in reflective practices and use their repertoire of past experiences to make sense of the current situation and plan future actions. For example, Japanese teachers should learn how to minimize conceptual gaps between teachers and parents as well as conflicts regarding safety in PE classes (Tomura et al., 2022). We suggest that future PD programs be designed so that teachers may be able to accomplish their unique learning objectives of solving complex real-life problems (Knowles et al., 2020) regarding immigrant parents in relation to PE, such as PE curriculum, health risk behaviours (e.g. risky physical activities), common illness risks (e.g. heatstroke), and nutrition education (e.g. maintaining physical strength) (see also Flory et al., 2013). Further, teachers should also become self-directed learners who continuously study the process of decision-making regarding children's health risks in PE class. To do so, through PD experience, Japanese teachers need to

develop an understanding of diverse habits (e.g. rituals, fasting, clothing, and manner of prayer) and beliefs (e.g. faith, precepts, ethics, and morals) in immigrant parents' social and cultural contexts (Jafralie and Zaver, 2019).

The teachers in this study acknowledged that it was valuable to learn the concept of high- and low-context cultures and how this affects their interpersonal communication, in order to find clues to minimize the linguistic context gap with immigrant parents in relation to PE. For example, teachers in high-context cultures such as Japan depend on physical or social context, and the message is transmitted less explicitly through verbal codes (e.g. words); nevertheless, immigrant parents in low-context cultures expect more explicit, direct, and non-personal verbal communication (Bai, 2016). Following andragogy theory, writing behaviour goals and objectives helped the teachers express their ideas more explicitly in order to bridge communication differences between high- and low-context cultures (Knowles et al., 2020) which includes the four components of the ABCD model (Bloom, 1956). These components are: (a) the *audience* is who (e.g. mother, child, and teacher) will achieve the objective, (b) observable expected *behaviour* that the audience will perform, (c) the *conditions* (circumstances or environment) under which the audience will perform the expected behaviour, and (d) the *degree* to which the audience needs to perform (e.g. time, quantity, or quality).

As one example of the learning through PD lessons, all teachers learned the revised Bloom's taxonomy, which includes the six components of (a) remembering, (b) understanding, (c) applying, (d) analysing, (e) evaluating, and (f) creating, as a key tool to analyse and create an original framework of communication styles (Newton et al., 2020). As a result of this study, we suggest that the ABCD model and Bloom's taxonomy can help teachers minimize the gap and conflict between high- and low-context cultures between the teachers and immigrant parents, so that they could have explicit and effective verbal communication.

According to Giannoukos et al. (2015), transformative learning is widely used in PD following andragogy theory and encourages teachers to demonstrate critical reflection on their past experiences and identify either functional or dysfunctional instances based on new learning. In this study, the YouTube video clips allowed the teachers to gain insight into how to integrate ICT and minimize the gap in cultural context between emic (insider) and etic (outsider) views between the teachers and immigrant parents in relation to PE. Technology-integrated PD in andragogy theory produces a paradigm shift that motivates teachers to apply ICT in real life in order to promote social inclusion of immigrant parents and increase parents' motivation to support their children (e.g. Fraile et al., 2018). In order to develop teachers' readiness to use ICT, we suggest that Japanese teachers learn how to secure digital safety in communication with immigrant parents, such as preventing ethical violations (e.g. cyberbullying) and protecting the privacy of teachers and parents (Tomczyk, 2019). To do so, PD programs should include interactional activities among teachers (e.g. role play and discourse) that allow them to experience transformative learning to reduce their hesitation to use ICT (Mezirow, 2018).

The Japanese elementary teachers in this study believed that PD providers (e.g. teachers, school administrators, and school districts) must be aware of the necessity to introduce the concept of parental involvement of immigrant parents into existing *Kenshu* (teacher training in Japanese) opportunities for Japanese elementary teachers. Following andragogy theory, teachers' readiness to learn is influenced by various cases, conditions, and situations (e.g. school environment, working years, and professional responsibilities) (Knowles et al., 2020). For example, lesson study is the main component of school-based PD (*Konai-Kenshu* in Japanese) in Japan. According to Kihara et al. (2020), PD using lesson study aims for Japanese elementary teachers to be able to modify their

teaching through collective observations and reflections among all teachers to address the issues of their competence, confidence, and motivation. In order to facilitate collective study about parental involvement of immigrant parents among teachers, lesson study's learning process can be used in PD programs: (a) identifying specific issues, (b) planning with other teachers, (c) observation of the lesson by other teachers, and (d) post-lesson discussion with a lesson study group member. This type of training offers teachers opportunities to learn not only instructional knowledge but also various behavioural components (Hanamoto and Kishida, 2013). Therefore, we suggest that future formal PD programs be reformed to allow teachers to develop comprehensive knowledge and skills to facilitate parental involvement of immigrant parents in relation to PE.

Study limitations

This study has two major limitations. First, the number of participants was small. In this study, the researchers were able to find different perspectives from teachers with diverse backgrounds, including classroom teachers. However, there were only a few participants from each background. Obtaining more participants with diverse professional responsibilities would enable us to better understand the unique PD experiences. Second, there were no principals or vice principals involved in this study. In Japan, principals and vice principals typically have a greater depth of understanding of their school environment and have a stronger connection with immigrant parents. Therefore, it might be beneficial to include principals and vice principals in future research to gain a unique perspective regarding PD needs for Japanese elementary teachers.

Recommendations and conclusion

The following recommendations are intended to promote the quality of PD for elementary teachers.

First, elementary teachers must engage in developing their own digital portfolios in order to store and share their experiences, practices, and strategies regarding parental involvement of immigrant parents in relation to PE. To do so, school administrators should invite experienced mentors who have in-depth knowledge and skills in portfolio development, so that they may be able to train elementary teachers as reflective professionals (Xerri and Campbell, 2015). Additionally, national-level institutions (e.g. in Japan, the Ministry of Education, Culture, Sports, Science and Technology, 2018) must incorporate an online platform that helps teachers to exchange and find digital portfolios based on their learning needs (e.g. immigrant parents' characteristics).

Second, school districts need to offer digital competence workshops for Japanese elementary teachers and school administrators in order to help them to prepare and learn how to use ICT in communication with immigrant parents. These types of workshops need to include several topics, such as: (a) information and data literacy, (b) communication and collaboration, (c) digital content creation, and (d) safety (Vuorikari et al., 2022). In the workshops, the school districts may need to motivate school administrators to establish ICT policies that include clear objectives and rules to help them feel a sense of safety to incorporate ICT tools in their schools.

Third, school districts need to establish formal PD programs focusing on parental involvement of immigrant parents which are combined with relevant academic subjects that need cultural and ethical considerations (e.g. PE, moral education, health education, music, and arts). In Japanese elementary schools, one teacher is assigned to teach all the academic subject areas. The teacher may be able to share their knowledge and skills (which they learned in classroom teaching) and how they design dance lessons, rhythmic physical activities, and visual aids (e.g. art materials)

for their PE class with parents (Sato et al., 2020b). For example, these programs should include social justice and diversity-related topics (e.g. diverse backgrounds of immigrant parents, high- and low-context cultures, and culturally responsive strategies) to help teachers respond to parents' expectations or concerns appropriately. Inviting university professors and researchers to speak about theoretical knowledge (e.g. the concept of parental involvement, cross-cultural communication, and political issues) may be useful for elementary teachers to learn how to improve their practices.

Online PD focusing on parental involvement regarding PE is a way for teachers to start to transform their practices and perceptions in order to minimize the psychological, cultural, and social distance from immigrant parents. In future research, researchers need to develop research data that link teachers' learning from PD about culturally appropriate behaviours (e.g. communication with immigrant parents and accepting their diverse cultural backgrounds) with actual interactions with immigrant parents. To enrich PD opportunities, we hope that this study will contribute to PD providers (e.g. teachers, school administrators, teacher educators, researchers, and Prefectural Boards of Education) to develop new insights and motivation to integrate the concept of immigrant parental involvement regarding PE into the PD systems of public elementary schools in order to enhance teachers' problem-solving knowledge and skills.


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ORCID iDs

Takahiro Sato  <https://orcid.org/0000-0003-3358-0809>

Ryan T Miller  <https://orcid.org/0000-0001-8556-1859>

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Author biographies

Takafumi Tomura is a doctoral student specializing in physical education, health, and sport sciences at the University of Tsukuba, Tsukuba, Ibaraki, Japan. His research focuses on physical education professional development, parental involvement in physical education, diversity, and social inclusion in physical education for preschool children and adolescents.

Takahiro Sato is a Professor at the Institute of Health and Sport Sciences and Chair of Joint Master's Program in International Development and Peace through Sport at the University of Tsukuba, Tsukuba, Ibaraki, Japan.

His scholarship and research focus on multicultural physical education, disability studies, inclusion in sport, and diversity in higher education.

Ryan T. Miller is an Associate Professor in the Department of English at Kent State University, Kent, Ohio, USA. His research focuses on second-language teacher education and second-language literacy development.

Yu Furuta is a doctoral student specializing in physical education, health, and sport sciences at the University of Tsukuba, Tsukuba, Ibaraki, Japan. Her research interests include culturally responsive pedagogy, teacher professional development, and sport for development to contribute to diversity and social justice in physical education and sport.