Research Article

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Japanese university students' learning experiences through an adapted physical education academic course

https://doi.org/10.1515/mlt-2024-0001
Received March 7, 2024; accepted December 16, 2024; published online January 6, 2025

Abstract: The purpose of this study was to examine Japanese undergraduate students' learning experiences while taking an adapted physical education course. Participants (N = 6) were undergraduate students (second year/sophomore level) enrolled in an adapted physical education course, who took part in 60-min semi-structured interviews about their experiences in the course. A constant comparative analysis method was used to analyze the data, with three themes emerging: (a) *Learning experiences related to direct and indirect teaching in the adapted physical education course*, (b) *Learning problem-solving skills through developing positive chemistry with partners through practical sessions*, and (c) *Students' expectations from professors about the adapted physical education course instructions*. Findings indicate that student motivation in the adapted physical education course is significantly impacted by the instructional methods and educational design of the course. To enhance the quality of the adapted physical education class, the professor and students should negotiate and need clear and focused goals and objectives related to both the lecture and practical sessions.

Keywords: adapted physical education and sport; college teaching; andragogy; student expectations; practical sessions

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1 Introduction

According to Martin and Gagnon (2017), challenges exist related to college students being inadequately prepared when working with individuals with disabilities in sport and physical activity settings. Research also shows the physical education teachers are not prepared for the challenges of inclusive teaching (Alhumaid et al. 2022; Healy et al. 2019). In Japan, the number of colleges and universities focusing on adapted sport and physical education has increased in recent years (Fujita et al. 2014; Kanayama and Yamazaki 2010). More specifically, Kanayama and Yamazaki (2010) found that 13 % of elementary and 45 % of secondary teacher education programs have begun to integrate adapted sport and physical education as one of their elective course choices. Fujita et al. (2014) conducted a followed-up study that indicated 47.9 % of secondary physical education teacher education programs offer adapted sport and physical education courses for undergraduate students. Many academic programs integrate adapted sport and physical education courses into their curriculum, as there is a shortage of qualified personnel who have the knowledge and skills to work with individuals with disabilities (Fujita et al. 2014), including adapted physical education (APE) teachers, sport coaches, and athletic trainers. Therefore, it is critical to prepare university undergraduate students to understand the types and levels of disability, the behavioral characteristics of various disabilities, and content related to the social engagement of individuals with disabilities, offering this instruction in academic courses, such as APE and special education courses, to enhance the skills and knowledge of future service providers. Evidence also suggests that one-time introductory APE courses can foster positive attitudes towards individuals with disabilities and provide foundational groundwork to build skills to work effectively with individuals with disabilities (Beamer and Yun 2014; Case et al. 2021).

In order to prepare university undergraduate students to work with individuals with disabilities, Lieberman and colleagues (2024) shared that APE courses should contain content that includes instructional strategies, accommodations and modifications, universal design principles, tips on navigating the individualized education program, content about the least restrictive environment and placement decisions, and content related to behavior management and inclusion. Sato et al. (2022) suggest that APE courses provide opportunities for students to apply acquired knowledge and skills to real world scenarios. Most APE courses cover various types of disabilities including physical and intellectual disabilities, with the majority of APE courses focusing on mild and moderate levels of disability (Sato et al. 2022). Though it is important to cover content related to individuals with severe and profound disabilities, most APE courses are introductory courses. Introductory course objectives

are usually for undergraduate students to be introduced to content, but lack a depth of content, focusing more on the characteristics of mild and moderate disabilities, as well as disability awareness (Piletic and Davis 2010).

Best practice in higher education instruction is shifting from a teacher-centered to a student-centered approach (Matsuyama et al. 2019). Student-centered learning aims to foster a deeper learning processes and outcomes for students to become self-directed, lifelong learners (Hoidn 2017). Khoury (2022) states that this approach has a positive impact on student motivation, active engagement, and improves learning outcomes. While there has been a rapid expansion in the use of student-centered learning, congruently it has been difficult to implement this approach worldwide (Kerimbayev et al. 2023). In Japan, traditional methods of instruction, including classes being taught using teacher-centered methodologies where undergraduate students tend to be passive (Hyland 1994), have historically been the norm. In addition, the Japanese style of learning tends to be passive and teacher-centered (Hammond 2007; King 2013; Moxon 2009; Passero 1993), focused on listening and note-taking (Hammond 2007; Moxon 2009).

The Third Basic Plan for the Promotion of Education in Japan includes key objectives promoting critical thinking and problem-based learning (PBL), and strengthening teacher education (Pont et al. 2018). This plan emphasizes the importance of student-centered learning which includes PBL and active learning. Alongside this shift, Japanese education has also been pushing towards promoting inclusive education and more experiential learning (Ministry of Education, Culture, Sports, Science and Technology-Japan 2018). In the Ministry of Education, Culture, Sports, Science and Technology-Japan (MEXT)'s 2030 plan, competencies that enhance motivation to learn so that one can apply this learning to life are the focus. This includes acquisition of the knowledge and skills to be utilized in real life contexts; developing the ability to think, make judgements, and express oneself to respond in unexpected situations; and promoting independence to foster the growth and development of young adults who will become creators of the future in conjunction with society (MEXT 2018). King (2013) argues that lecture style teacher-centered learning disengages the student's interest, thus, promotion of student-centered learning can enhance student's skills, which is aligned with the goals of MEXT's 2030 plan.

PBL is a learning model that requires students to be critical in solving problems (Ariani 2020). It allows opportunities for students to address and respond to problems based on experience and provides encouragement and motivation to learn because it departs from providing the ideas to the students (Yasmini 2021). Implementing PBL into university courses can improve students' ability to think

critically and can strengthen students' independence in directing their own learning and discoveries, without teacher intervention (Safitri et al. 2023).

With the recent global shift from teacher-centered learning to a more student-centered learning approach, instructors at colleges and universities in Japan have begun to embrace new and innovative methods of instruction that encourage students to become active learners and develop problem-solving skills through PBL (Matsuyama et al. 2019). Many university students in Japan, such as physical education students, medical students, and foreign language learner students believe that knowledge alone is next to useless if it is simply memorized and believe that what is needed is how to operationalize what is learned in real-world situations (Painter 2018; Richardson et al. 2023; Sato et al. 2022). Currently, there is limited research that focuses on PBL at the university level for future physical education teachers or APE teachers in Japan. PBL was recommended as a professional development experience in research by Sato et al. (2022), who studied Japanese physical education middle school teachers. PBL was also addressed in research by Wilson et al. (2021), where it was suggested for use in APE courses alongside an experiential learning approach to prepare undergraduate students as prospective practitioners. Through this experiential learning approach, undergraduate students learn problem-solving skills as well as ways to apply course content to practical situations related to teaching and coaching, including building social skills when working with individuals with disabilities (Johnson 2022). Experiential learning focused APE courses help undergraduate students increase positive attitudes toward individuals with disabilities and minimize negative stereotypes through these concepts, as well as build confidence for working with populations with disabilities (Hodge et al. 2002).

2 Theoretical framework and purpose

This study used andragogy theory (Knowles 1989) as the theoretical framework. According to Knowles, andragogy is the art and science of adult learning, which applies to undergraduate students, as they gain knowledge and skills from professors and apply them to professional, hands-on settings. In this study, andragogy theory is applied not only to collecting concepts and ideas about how undergraduate students learn, but also to help understand what undergraduate students believed was beneficial in terms of course content and instructional strategies utilized in the APE course. Andragogy is derived from the terms *andro* (meaning man) and *agrourgous* (to lead). Adults learn differently than children, and Taylor and Hamdy (2013) explain that adult learners utilize the following six principles when bringing andragogy theory to life: (a) the need to know, (b) the learners' self-concept, (c) the role of the

learners' past experiences, (d) readiness to learn, (e) orientation to learning, and (f) motivation.

The first principle of andragogy theory, as applied to this research, is that undergraduate students need to understand why they are to learn information about APE and its importance to them. The second principle, as applied to this research, is the undergraduate students should be able to take responsibility for their own decisions and participate in self-directed learning which will motivate them to find the purpose of learning (Huang 2002). The third principle of andragogy theory, as applied to this research, is that the undergraduate students must use their prior experiences as a foundation for their learning and bring these experiences to their learning as building blocks. The fourth principle, as applied to this research, is the undergraduate student's readiness to learn, and ability to problem solve and use the tools and strategies presented in the APE course to solve critical issues and teach essential skills, specifically when working with individuals with disabilities (Sato and Haegele 2017). The fifth principle of andragogy is orientation to learning, in which the undergraduate student is motivated to demonstrate their own self-concept and ability to direct their own learning. For example, during practical sessions and/or hands-on experiences, undergraduate students need to solve problems and think on their feet to manage situations and meet academic standards in the APE course (Malik 2016). The last principle of andragogy, as applied to this research, is being motivated for learning, where undergraduate students can gain new knowledge and skills to build their intrinsic motivation in working with and interacting with individuals with disabilities in sport and physical activity settings.

Knowles et al. (2005) explains that andragogy theory moves away from the teacher-centered, traditional pedagogical model, which is professor-centered, and moves toward a model where undergraduate students learn as self-directed learners. In addition, andragogy theory helps adult learners elaborate, refine, and restructure new information with old existing knowledge (Knowles 1989). One example of self-directed learning that's supports student in elaborating and refining information is utilizing feedback from peers (Mandernach et al. 2006), which is applied in the APE setting as a tool that develops cognitive understanding, motivation, engagement, and interpersonal connection amongst students.

Because there is limited research that has examined undergraduate students' experiences with APE courses using the andragogy theoretical framework in Japan, the purpose of this study was to examine Japanese undergraduate students' learning experiences while taking an APE course. The research questions guiding this study were: (a) What are the experiences of Japanese undergraduate students in an APE course? and (b) How do the strategies of PBL within an APE course influence the Japanese undergraduate students' learning?

3 Methods

3.1 Research design

This study utilized a descriptive-qualitative design using an in-depth, semi-structured interview approach (Seidman 1998). A descriptive-qualitative design recognizes the subjective nature of the problem, the different experiences participants have, and the findings will reflect the initial research question (Bradshaw et al. 2017). The intent of using the interview method was to describe and explain Japanese undergraduate students' learning and to explore the meanings that they ascribed to their experiences. Unquestionably, interviewing is a powerful way to gain insight into educational and social phenomena experienced by individuals in educational contexts (Seidman 1998). Semi-structured interviews allow the researcher to acquire data not obtainable in any other way (Gay 1996). The lead author conducted semi-structured interviews with six Japanese undergraduate students enrolled in the APE course. This study sought to explore the participants' interpretations of their experiences in the APE course, including lecture and practical sessions.

3.2 Research site and participants

One Japanese public university (T-university) was the research site for this study. This site was chosen based on the university's program which is accredited by MEXT. T-university was chosen as the research site because it offers courses in Adapted Sport and Physical Education, and specifically offers an APE course that is the focus of this study. There are only a small number of universities in Japan that offer APE courses, so to build a case for other universities to potentially follow, this research focused on one of the universities that offer an APE course. Participants ($N = 6$) were undergraduate students (second year/sophomore level) enrolled in the APE course. The course is called the "Science of Adapted Sports," that is offered every fall semester at T-university. This course is offered as an elective course for undergraduate students in the school of physical education, health, and sport sciences at T-university, and is also open to students enrolled in other programs at the university (Table 1).

The "Science of Adapted Sports" course is a one credit hour course, consisting of five class days with each class day being 150 min, broken into two seventy-five-minute sessions per day (10 sessions in total). The course was divided into two lecture days and three practical activity days using hands-on practice sessions and skill

Table 1: Adapted physical education class description.

Class	Class Type	Class Description
Day 1	Lecture	This class provided knowledge on adapted sports philosophy and methodology; international classification of functioning, disability, and health (ICF); & practical examples of adapted sports and competitions
Day 2	Practical	This practical session allowed students to experience and understand goalball, visually impaired soccer, and visually impaired walking and running
Day 3	Practical	This practical session allowed students to experience using a wheelchair and participating in wheelchair rugby and wheelchair basketball
Day 4	Practical	This practical session introduced students to boccia, including visually impaired boccia
Day 5	Lecture	This class provided knowledge on activities that the university disability program currently has and the professors experience with adapted sports and individuals with disabilities

building. The two lectures were focused on the introduction of disability concepts and adapted sport, including content related to various disabilities, and content related to adapted sport. The activity sessions were broken down into three sessions, focusing on three specific sports: wheelchair sport activities; adapted sport activities for the blind and visually impaired, including goalball; and boccia sport activities and games. The lecture sessions were on the first and the last day; the practical sessions were on days two, three, and four.

The participants were Japanese second year undergraduate students at T-University who enrolled and participated in the “Science of Adapted Sports” course. Six individuals who participated and took part in all five lecture days served as participants in this study (Ms. Yamato, Ms. Urawa, Ms. Sagawa, Mr. Yoshizaki, Mr. Sasaki, & Mr. Furusato). None of the participants had experience in previously attending or being enrolled in an adapted physical education class upon entering the university and taking the course. Pseudonyms were used for participants to guarantee the protection of identity (Table 2).

Participants were selected using purposeful sampling and met the following factors: (a) participant was enrolled as an undergraduate student at T-university (the research site); (b) participant selected the adapted physical activity course, “Science of Adapted Sports”, as their elective; (c) participant participated in all five classes of the adapted physical activity course; and (d) participant completed the demographic survey. The demographic survey allowed the lead researcher to sift through students and find participants that met the sampling criteria.

Table 2: Participant's demographic information.

Pseudonym	Gender	Experience in adapted physical education course	Interaction with an individual with a disability
Yamato	F	No	None
Urawa	F	No	A part of a swim team with individuals with physical impairments
Sagawa	F	No	Family member with disability
Yoshizaki	M	No	None
Sasaki	M	No	Went to elementary school with someone with a physical impairment
Furusato	M	No	Friend with hearing impairment during elementary school

For this study, the undergraduate students enrolled in the "Science of Adapted Sports" course were identified and voluntarily agreed to participate in this study. Approval to conduct the study was granted by the Institutional Review Board at the university and signed consent forms were collected by all participants.

4 Data collection

4.1 Interviews

This study used semi-structured interviews that were organized using a set of predetermined open-ended questions (DiCicco-Bloom and Crabtree 2006). The interviews were conducted in Japanese, and the duration of the interviews was approximately 60 min. The interviews were conducted via online platform, Microsoft Teams, due to safety concerns related to the COVID-19 pandemic. The researcher interviewed participants on the basis of an interview guide that was comprised of fourteen open-ended questions. The subjects were interviewed about their experiences in an adapted physical education course, "Science of Adapted Sports", and the questions were carefully worded to ensure relevancy to the undergraduate student's course environment and experience. Sample interview questions include:

(a) What was your motivation for taking this adapted sports course. What was your first impression of the "Science of Adapted Sports" course?
(b) What left an impression on you during the "Science of Adapted Sports" course, and what did you find difficult in terms of learning?

(c) Have you taken an APE course or any disability related course before? If yes, what course did you take and why did you take it? If the answer is no, what was your interest in taking this APE course?

4.2 Translation process

Our research team utilized a cross-cultural translation technique shared by Banville et al. (2000) to take the data collected in Japanese to be analyzed and reported in English. This method involves a group of researchers translating the interview transcript individually, and then collaboratively. When using a cross-cultural translation technique, all researchers involved must be proficient in both languages, which in this case was Japanese and English. The translation process started with three Japanese-English bilingual researchers who translated the interview transcript individually. Once the individual translation was complete, the group of researchers convened to critically compare and discuss the translations and make edits as needed. The final stage of the process was to review a copy of the final translation and offer final comments and critiques.

4.3 Data analysis

A constant comparative method was used to systematically examine, refine, and interpret the data (Boeije 2010). This method of comparing and contrasting was used for practically all intellectual tasks during data analysis, including forming categories, establishing the boundaries of the categories, assigning the segments to categories, summarizing the content of each category, and finding negative evidence. The goal of the constant comparative method is to discern conceptual similarities, to refine the discriminative power of categories, and to discover patterns (Tesch 1990). To do this, the researchers independently coded the transcript from each interview, and then the researchers discussed the codes and their differences. Once the codes were established, the names of the thematic categories were discussed until consensus was reached. Furthermore, peer debriefing was conducted. Three peer debriefers reviewed the codes and thematic categories to ensure there was no potential of researcher bias.

4.4 Trustworthiness

Trustworthiness was established by conducting member checking and peer-debriefing. Member checking was used in this research to reduce the impact of

subjective bias (Patton 2002). The lead researcher mailed all copies of interview transcription data to the address of the participants and acquired acknowledgement of the accuracy of the data and the interpretations that established trustworthiness (Merriam 1998). Peer debriefing is a process of exposing oneself to a distinguished peer in a way paralleling an analytic session, with the purpose of exploring aspects of inquiry that might remain only implicit in the inquirer's mind (Patton 2002). For this study, one graduate student and one professor who had expertise in qualitative research participated as peer debriefers. The debriefers concurred with the interpretation of the data.

5 Results

The purpose of this study was to examine Japanese undergraduate students' learning experiences while taking an APE course. This study used andragogy theory as the lens through which to understand the students' voices and experiences. Three major themes emerged from the analysis: (a) *Learning experiences related to direct and indirect teaching in the APE course,* (b) *Learning problem-solving skills through developing positive chemistry with partners through practical sessions*, and (c) *Students' expectations from professors about the APE course instructions*.

5.1 Theme I: Learning experiences related to direct and indirect teaching in the APE course

All participants believed that the APE course lectures helped undergraduate students gain knowledge about topics, including disability types, disability levels, and disability sport; inclusion; and modification of physical activities for individuals with disabilities. However, in this course, the participants responded that many professors used direct teaching methods, which consisted of a one-way lecture format which minimizes participants' interactions with other students and teachers (Kanduboda 2020). Because of this one-way lecture format, the participants were hesitant to ask the professor clarification questions related to the content, including questions about disability related ethical and political issues. This hesitation stemmed from Japanese culture emphasizing silence as truthfulness, social discretion, and politeness (Albertson 2020). Participants felt that it was the responsibility of the professor to take the initiative to facilitate engaging interactions with the students. For example, Ms. Urawa said:

> When I took lecture of Parasport, the professor used direct teaching and taught me basic knowledge and skills about Parasport. I learned a lot, but my motivation regarding self-directed learning did not increase much. I think that I wanted to have good social engagement in the lectures, so that my motivation may be increased. We did not receive professors' checks for understanding about Parasport content, but it is common that professors kept teaching the lessons and contents, even without checks for understanding. I know the professor was knowledgeable about the content in APE, but I hope that lecture may be better, like when the professor used in-directed teaching methods (Ms. Urawa, interviews).

Ms. Urawa explained that it was important to become a self-directed and independent learner when she began to take APE lecture course. She went on to share that the lecture course is the key environment for the professor to create a positive and interactive learning environment, support student interactions, engage with subject knowledge, and develop a reflexive process for all students before participating in the practical sessions. Another participant, Mr. Furusato said:

> In the practical session of boccia, for example, I began to learn how to engage with other students. This course should use an indirect teaching method, so that students learn better in practical sessions. I started to compare lecture and practical session formats. For example, there are many people with disabilities who do not have grip strength. When I asked my partner, she told me how to grab a ball with three fingers, or two fingers. She showed me which angle and how far of distance I needed to throw. In the practical session, I think my learning experiences were different and it depended on partner and groups that made my learning differences so impactful between the lecture and the practical sessions. My partner allowed me to think what I can do for individuals with disabilities, a how I want to achieve my learning goals and objectives. In between these, I began to think what I must do in the practical sessions. I began to think about wanting to respect the human rights of individuals with disabilities. Practical sessions made me realize I am the one who does not say no to supporting differences and does my best to support individuals with disabilities (Mr. Furusato, interviews).

Also sharing about class partners and groupings, Mr. Yoshizaki explained that class arrangement is important, because many students prefer to stay in their familiar groups. Therefore, if he has various chances to interact with new partners, he may be able to develop his self-confidence and have better learning experiences in the APE course, demonstrating social engagement and dialogue with others during the physical activity sessions (Fuchikami et al. 2022). Mr. Yoshizaki explained:

> After taking practical sessions, I began thinking about having a disability as a characteristic and not a personality. I think student centered (indirect teaching method) helped me develop critical thinking skills which allowed me to become a problem solver and decision maker in the learning process. In this session, I realized that there are many things I cannot and can do. I think that it is a problem, but I should not think this way that having disability affects personal strengths. This was a completely wrong idea. This is one of the reasons that we should handle and treat disability as characteristics, not personality. I learned from this course (Mr. Yoshizaki, interviews).

Mr. Yoshizaki tried to investigate the meaning of terminologies and concepts and began to think critically about individuals with disabilities in the APE course. He believed that the practical sessions helped students improve critical thinking skills which allowed students to identify, analyze, synthesize, and evaluate new information through the learning experiences in the practical sessions of the APE course.

5.2 Theme II: Learning problem-solving skills through developing positive chemistry with partners through practical sessions

All participants revealed that they learned how to develop chemistry with partners and find problem-solution strategies using self-reflective and socially interactive practices during the APE practical sessions. During the practical sessions, participants recognized two primary objectives, first the understanding of different types of disability backgrounds and second, that there are multiple aspects of activity challenges that was recognized through communication with partners from the activities. For example, the professor assigned all students modified rules and routines in boccia and developed peer support systems for individuals with visual impairments during the practical session on boccia. In the session on boccia, the participants began to give thought on how to guide individuals with visual impairments to succeed in the practical sessions' activities. More specially, individuals taking part in visually impaired boccia struggled to see and communicate with other classmates, which led to the development of positive social interactions through experiential learning. All participants began to consider and choose either high or low contexts of explanation and guidance that led to problem solving strategies during the practical sessions. Ms. Urawa shared her experience of not understanding what her partner needed from her during the boccia activity, explaining:

> The boccia activity session was difficult. I served as peer support and assisted my partner with the blindfold, but I couldn't understand what my partner wanted from me. I had no idea how to give verbal prompts to lead my partner to succeed in the boccia game. I thought about it and found simple, clear, concise words about where to throw the ball including information regarding direction, distance, and throwing types. I hope it made sense when I explained the details, but I did not know how much information I needed to give. I also made sounds using a stick on the floor near the target which is called a jack ball (white). The other strategy I used was to observe other groups to learn how to guide. I think I need to step outside of the box, but no one gave me the right answers regarding how to guide, which allowed me to problem solve (Ms. Urawa, interview).

Additionally, the participants believed that it was important that they develop positive and social chemistry, referring to the emotional connection between two

people. When Ms. Urawa had positive chemistry, her learning became successful. Another participant, Ms. Sagawa, explained:

> During the APE practical sessions, I had opportunities to maneuver a wheelchair and learned the position of people with a physical impairment. I wanted to tell my partner who was going to support me and make sure I was safe enough. I was afraid that I lost balance during activity. I was nervous and was afraid about this because I did not trust my partner, so I had difficulties expressing myself to my partner. Although I was hesitant to ask, I had to tell them exactly what I needed. I found that uncertain chemistry with others made me struggle in my learning, because I was worried that my partner may think that I am selfish and a troublemaker when I request something. It is important to develop trust with my classmates (partners), but it may be difficult. I do not know how to properly develop positive relationships with my partners, but this practical session allowed me to think about how to negotiate and build positive chemistry with my partners (Ms. Sagawa, interview).

Ms. Sagawa felt that communication was extremely important for her to develop trust in relationships to overcome and solve situational problems through positive chemistry during the practical sessions. She felt that pairing students was an important task that enhanced students learning in practical sessions. In addition, the participants believed that empathy is an important factor that contributes and enhances participants' learning experiences, specifically related to developing positive chemistry. For example, Ms. Yamato shared:

> In the practical session, I felt that to develop positive chemistry with others, because empathy between partners is important in APE practical sessions. During the practical sessions, we tried a few different activities, and we had opportunities to share our thoughts and opinions through communicating with partners. As we know, sometimes, I agree with and/or disagree with other's opinions and thoughts, but building empathy helped me and I believe we need to minimize misunderstanding from communication and solve conversational conflicts. In the boccia session, I had to wear a blindfold; I needed to share how I felt and found mutual experiences and fears using relevant communication and developing empathy through the communication (Ms. Yamato, interview).

Ms. Yamato explained that all students must consider how to be the right partner for others. To become the right partner, she believed that students must develop empathy, which will then lead to positive chemistry in APE practical sessions.

5.3 Theme III: Students expectations from professors about APE course instruction

Theme three brings to light the feelings of participants about expectations in the APE course, specifically related to content and instructional strategies. Participants explained the concepts of (a) equality and equity, (b) safe support, and (c) choice

making strategies as key content areas that were valuable to cover. Understanding how to balance the concepts of equality and equity can impact behaviors towards individuals with disabilities (Sato et al. 2022). All participants felt that there were difficulties in expressing and receiving the 'right' messages from the professors and their partners, when they communicated with their partners about feeling safe and secure in the APE activities during the practical sessions. They also requested that their professors teach them how to find various resources to best support individuals with disabilities in increasing their motivation in adapted activities. Mr. Sasaki said:

> I think that the APE course should include more content about differences in the concept of equality and equity in the lecture and practical sessions. It is important to note how to treat individuals with disabilities, thinking on an equality or equity basis. If I expect individuals with disabilities to perform like us, this is equality. If we treat individuals with disabilities on an equality basis, we may expect high standard on them, because we do not care about unique needs, but in equity, we think about those unique needs and modify, and we also give extra care in motivating individuals with disabilities. Based on my academic background, I treated individuals with disabilities equally, and not on an equity basis yet. Therefore, I should learn how not to assume all individuals with disabilities in physical activities and disability sport settings are the same and they all have the same needs (Mr. Sasaki, interviews).

Mr. Sasaki explained that all students need to know that individuals with disabilities must meet the same standards for academic performance as others, but they may need extra care or a fairness approach to meet individuals' unique needs. Therefore, all students should understand the differences between the concept of equality and equity in APE classes. Another participant, Mr. Yoshizaki explained:

> Reflecting on the class, I hoped the professors would have occasionally given us feedback on the activities. Feedback should include safety components for individuals with disabilities. There is specific corrective feedback, but it depends on how to select it depending on the situations, so that the professor may be able to help me to think of various ways to select guiding practices that increase safe activities in adapted physical education and disability sport. Additionally, I wanted feedback on other ways to modify equipment or ways to secure safe activities. I also wanted professors to facilitate student-centered learning and group discussion that focused on safe activities and their key points in this course (Mr. Yoshizaki, interviews).

Mr. Yoshizaki expected to learn how to use general, specific, and corrective feedback during the practical sessions, to ensure safe activities for individuals with disabilities. Therefore, he felt it would be beneficial for the professors use a student-centered learning approach, which allows all students to engage in safe activities while receiving ongoing feedback from the professor. Additionally, Ms. Yamato expressed:

> I wanted the professors to cover practical lessons and good textbooks to use as resources on how to assist motivating individuals with disabilities in disability sport and physical activity settings in this course, because we do not know how to find educational resources. I am a caring person, but I also know that my caring behaviors do not always meet the unique needs of individuals with disabilities. Therefore, I want more resources so I can choose proper techniques on making the right choices in the practical sessions. I want to be knowledgeable about covering the interests of individuals with disabilities and how to make disability sports and adapted physical education more enjoyable (Ms. Yamato, interviews).

Ms. Yamato had difficulties in seeking various educational resources for enhancing the quality of her learning. It was important to have various options and choices of educational resources to help Ms. Yamato choose resources to solve unique problems and challenges in real life situations.

6 Discussion

The purpose of this study was to explain Japanese undergraduate students' learning experiences while taking an APE course. This study utilized the theory of andragogy (Knowles 1989) to determine how the course experiences benefitted the participants as adult-learners. Japanese undergraduate students' who enrolled in the course experienced a learning curve from the different teaching styles of the professors, learned problem-solving through practical sessions, and considered the various expectations they had of their APE course professors. Findings indicated that the students learned best through problem-solving and in-direct teaching strategies, with high levels of communication and collaboration with peers.

Japanese undergraduate students learned differently based on professors' direct (lecture) and indirect (practical session) teaching methods in the APE course. During the lecture, the professors shared their own knowledge as the undergraduate students wrote every word of the lecture and attempted to memorize the content presented by the professor. This direct teaching method is related to the banking model of education (Freire 2005). Freire (2005) explained that instead of communicating, the professors make deposits which the students patiently receive, memorize, and repeat. Therefore, undergraduate students were hesitant to share their opinions freely because there is an inherent agreement among students that a silent student is considered as obedient rather than the students who questions the teachers' opinions (Eggen and Kauchak 2006; Kalsoom et al. 2020). However, during the interview, students reflected on their learning experiences and realized that they learned better through various activities (e.g. inquiry lessons, project-based lessons, discussion, and hands-on experiences) when they communicated with others in practical sessions using in-direct teaching methods (Rüütmann and Kipper 2011). This study found that

through lectures and practical sessions in the APE course, students felt confident explaining the type of teaching they preferred, which involved clarity, level, pace, and structure in the lectures (Entwistle 2007) as well as in-direct teaching from the practical sessions. In andragogy theory, adult learners should be able to direct their own learning and tailor it to their own needs, which makes in-direct learning beneficial because it facilitates this type of autonomy (Merriam 2001). In the interviews, the students recognized that it was important to develop critical thinking processes which are essential in meaningful adult learning experiences. Fowler (1996) defines critical thinking as purposeful, reasoned, and goal-directed, involving problem-solving practices and decision-making practices where the students use and demonstrate their knowledge and skills. Therefore, an APE course should allow students to identify issues and concerns of disability sport and educational concepts, clear up their ambiguity and anxiety, ensure the information provided meets students' needs, and predict reasonable conclusions by the end of the lecture and practical sessions of the APE course (Moore 2010).

During the practical session, it is important for students to experience the adapted sport skills in the most authentic environment possible, including the use of equipment, such as eyeshades and sport wheelchairs, as this opportunity to try new things, and perhaps to be uncomfortable, may be significant in the growth and learning of the student. Learning from this discomfort, students develop empathy and an understanding of the complexity of the social and cultural depth of disability experiences (Leo and Goodwin 2014). Grenier et al. (2014) explains that it is important that disability sport (such as boccia and wheelchair basketball) be used as one of the instructional tools to promote differences and diversity in APE course curriculum, because this opportunity may promote the practice of reverse integration, which includes the participation of individuals with and without disabilities in sport. During the boccia activity, participants struggled to balance peer support and emotional support as they served as a guide for their partner. Because Japan is a high context culture, undergraduate students often use more indirect communication to maintain social harmony, and unintentionally do not give all information when spoken, which is different from a low context culture that speaks with explicit detail (Kim et al. 1998). This focus on social harmony at the expense of detailed communication builds frustration, exhaustion, and differences between peers, however through problem solving and building positive peer support, students gained hands-on experience in navigating this support during the practical sessions. As participants engaged with partners, they found mutual interests, personal reflection, reciprocal kindness, and shared values, which led to positive chemistry (friendship) through communicating with their peer partners in the practical sessions in the APE course (Campbell et al. 2015). In andragogy theory, the students need to engage in communication and conversational activities to create

meaningful dialogue and maximize their learning experiences with valuable, academic, and social outcomes (Storey and Wang 2017). Based on shared dialogue, the students may be able to develop trusting relations through exchanging feedback, sharing different perspectives from peers, and reflecting on their own dialogue.

In this APE course, the Japanese undergraduate students struggled to understand the concepts of equality and equity. The undergraduate students learned that giving students equal resources, opportunities, and experiences does not guarantee that they will reach equal outcomes in the practical sessions, because they did not know how to find and meet others' unique needs (Levinson et al. 2022). Therefore, the students expected and appreciated if their professors covered equity concepts, which are an intrinsic part of quality education and a key factor for students' academic success (Wood et al. 2011). According to Rawls (1999), in order to enhance equity concepts for undergraduate students, the professor should prioritize and begin to design lessons and course content based on students' interests.

Safe support concepts allow students to confidently communicate with individuals with disabilities to support them in physical activities. Students had difficulties in the Boccia session to apply safe support. According to Porsanger and Magnussen (2021), when individuals do not understand concepts on how to safely conduct the activities, they believe the best course of action is to exclude the individuals that may be at risk from the activities. These concepts are multifaceted, so critical thinking and modifications to fit the situation are necessary for the proper inclusion of individuals with disabilities. Professors should give students as many resources and practice opportunities as possible, to help them become confident to support individuals with disabilities by increasing self-esteem and self-efficacy (Maqsood and Ceravolo 2019).

This study indicated that students believed that professors should meet students' needs and provide additional resources as a choice making strategy in teaching APE. According to andragogy, all students need to engage one's readiness to learn, development of self-concept, motivation to learn, and experiences to share in adult learning (Sato et al. 2017). In an undergraduate course, it is important that professors give flexibility and choices to motivate their students and assess their own competency based on the results of students' learning (Garrison 1997). This means that the students and the professor are constantly negotiating and making choices relevant to meet their needs in APE (Song and Hill 2007). In this case, when the professor provides knowledge and resources as the choice making strategy, the students may be able to apply their knowledge and skills to real life settings. Therefore, it is important for professors to facilitate the learning by providing resources for building information literacy skills for students that may be beneficial for improving problem-solving skills in APE (Seidman 1998).

6.1 Study limitations

This study has two major limitations. First, this study had a small sample size. Due to this, the findings are not generalizable to all Japanese students who take an APE course. Nevertheless, the participants were purposefully sampled and interviewed, therefore there may be potential transferability to the context of APE courses in higher education. Second, the participants in this study were selected from one public coeducational research university in Japan and may not qualify as a diverse sample. Qualitative inquires usually use small sample sizes to reveal the unknown themes from the raw data to explain phenomena (Patton 2002). The purpose of using this approach for this research was to uncover common themes in Japanese university student's experience in an APE course.

7 Recommendations and conclusions

The following recommendations are intended to enhance and improve the quality of learning experiences for Japanese undergraduate students in an APE course. First, this study found that Japanese undergraduate students experienced learning between direct and indirect teaching while enrolled in the APE course. According to Gunersel and Etienne (2014) professor(s) of APE courses should facilitate and design the lessons based on two components: (a) core values of student-centered indirect teaching, and (b) inclusion of other professors from other fields (multidisciplinary approach). Professors need to embody the principles of student-centered indirect teaching and demonstrate their own core values about student-centered indirect teaching. If professors are unsure or not confident about their knowledge and skills, they should pursue professional development to better understand a variety of pedagogical methods and concepts (Fiorilli et al. 2020). The professors may invite guest lecturers or professors from different fields such as disability education or rehabilitation studies who may contribute and improve student learning.

Second, in order to develop positive chemistry (friendship) with peers through an APE class, this study recommends that peer evaluation be embedded into the course. Peer evaluation is defined as the process whereby students provide general, specific, and corrective feedback to fellow students about their tasks (Chin 2007). Peer evaluation may contribute to learners' behavioral and professional engagement because all peers have responsibilities to provide effective comments which lead to problem-solving behaviors rather than only providing general statements of lesson, tasks, and activities (Oncu 2015).

Lastly, Japanese undergraduate students may need to receive various types of feedback (e.g. corrective, timely, and criterion referenced) from professors in an APE course (Marzano et al. 2001). Professors need to learn four different types of feedback (timely, motivational, individual/personal, and manageable) that allow students to reflect and reach higher levels of achievement (Brown et al. 2013). To enhance student learning, professors must gain a broad understanding of how to strengthen their feedback capacities and how feedback improves their students learning (Selvaraj and Azman 2020).

The present study analyzed Japanese undergraduate students' learning experiences through an andragogy theoretical lens while taking both lecture and practical sessions in APE. The andragogy theoretical lens helped this study generate new knowledge of students' learning through various pedagogical practices in APE literature in higher education. More specifically, this study has significant potential for enhancing the quality of Japanese students' learning, based on using student-centered indirect teaching, hands-on learning, and peer support. Japanese universities should continuously use APE courses and encourage Japanese students to develop their problem-solving skills which may include individuals with disability in various sport and physical activity settings. Although this study focused exclusively on an APE course at one Japanese university, this study may contribute to how professors and students negotiate and create interactive a learning atmosphere and memorable moments in teaching and learning in higher education. This study may foster emotional understanding from other university professors' who may use this study to enhance their own APE course and content.

Conflict of interest: The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.
Research funding: We gratefully acknowledge the research funding support of the Institute of Health and Sport Sciences at University of Tsukuba.

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