CLASSROOM TEACHERS' PERCEIVED KNOWLEDGE AND PRACTICES IN TEACHING FUNDAMENTAL MOTOR SKILLS AND STUDENTS' MOTOR COMPETENCE: A PRACTICE-BASED PROFESSIONAL DEVELOPMENT PROGRAM

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ABSTRACT

CLASSROOM TEACHERS' PERCEIVED KNOWLEDGE AND PRACTICES IN TEACHING FUNDAMENTAL MOTOR SKILLS AND STUDENTS' MOTOR COMPETENCE: A PRACTICE-BASED PROFESSIONAL DEVELOPMENT PROGRAM

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The study aims to (1) investigate the changes in classroom teachers' experiences related to the teaching of FMS, (2) determine the proportion of teachers who effectively implement the targeted instructional tasks associated with FMS instruction, (3) identify teachers' preferred learning methods and support needs for enhancing the quality of physical education classes, and (4) examine the developmental changes observed in students as a result of their participation in the program. In this study, a mixed-method research design was used to answer the research questions. A total of 16 female classroom teachers and 211 students participated from two schools in Ankara. Data were gathered through weekly reflections from teachers, interviews with teachers, PE class observation, and students' motor competency by using the PLAYbasic tool. Findings revealed that (1) teachers gained knowledge about FMS, PE curriculum literacy, material literacy and they positively improved their attitudes toward teaching FMS, and facilitator played an important role for teachers during the

program, (2) teachers followed a consistent PE routine for teaching FMS throughout the program, (3) teachers wanted to improve their teaching strategy at the beginning of the study, they tended to give the role to students in the following weeks in scope of empowered teaching and learning (4) students not only improved their motor competency level but also changed their attitudes toward PE lesson, engagement in activity, improved understanding PE concept. In conclusion, this study adds to the existing body of research by showing how professional development focused on FMS can positively contribute not only teachers' development but also their students in PE class.

Keywords: *Physical Education and Game Class, Classroom Teachers, Practice-Based Professional Development, Motor Competence, Facilitator*

ÖZ

SINIF ÖĞRETMENLERİNİN TEMEL MOTOR BECERİLERİN ÖĞRETİMİNE İLİŞKİN ALGILADIKLARI BİLGİ VE UYGULAMALAR İLE ÖĞRENCİLERİN MOTOR YETERLİKLERİ: UYGULAMA TEMELLİ MESLEKİ GELİŞİM PROGRAMI

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Bu çalışmanın amacı uygulama temelli mesleki gelişim programı boyunca (1) sınıf öğretmenlerinin temel motor beceri (TMB) öğretimi ile ilgili deneyimleri araştırmak, (2) TMB öğretimi ile ilişkili hedeflenen görevleri uygulayan öğretmenlerin oranını belirlemek (3) öğretmenlerin beden eğitimi derslerinin kalitesini artırmak için tercih ettikleri öğrenme yöntemlerini ve destek ihtiyaçlarını belirlemek ve (4) programa katılımlarının bir sonucu olarak öğrencilerde gözlemlenen gelişimsel değişiklikleri incelemektir. Bu çalışmada, araştırma sorularını yanıtlamak için karma yöntem araştırma deseni kullanılmıştır. Ankara'daki iki okuldan toplam 16 sınıf öğretmeni ve 211 öğrenci katılmıştır. Veriler, öğretmenlerden alınan haftalık yansıtıcı günlükler, öğretmenlerle yapılan görüşmeler, beden eğitimi dersi gözlemleri ve öğrencilerin motor yeterlilikleri PLAYbasic aracı kullanılarak toplanmıştır. Bulgular, (1) öğretmenlerin temel motor beceri, beden eğitimi müfredat okuryazarlığı, materyal okuryazarlığı hakkında bilgi edindiklerini ve bu becerilerin öğretimine yönelik

tutumlarını olumlu yönde geliştirdiklerini, ayrıca kolaylaştırıcının program boyunca öğretmenler için önemli bir rol oynadığını, (2) öğretmenlerin program boyunca temel motor becerileri öğretimi için tutarlı bir beden eğitimi rutini izlediklerini, (3) öğretmenlerin çalışmanın başında öğretim stratejilerini geliştirmek istediklerini, ilerleyen haftalarda güçlendirilmiş öğretme ve öğrenme kapsamında öğrencilere rol verme eğiliminde olduklarını ve (4) öğrencilerin sadece motor yeterlilik düzeylerini geliştirmekle kalmayıp, aynı zamanda beden eğitimi dersine yönelik tutumlarını, aktiviteye katılımlarını ve beden eğitimi kavramlarını anlamalarını geliştirdiklerini ortaya koymuştur. Sonuç olarak, bu çalışma, temel motor beceri odaklı mesleki gelişimin sadece öğretmenlerin gelişimine değil, aynı zamanda beden eğitimi dersinde öğrencilerine de olumlu katkılar sağlayabileceğini göstererek mevcut araştırma literatürüne katkıda bulunmaktadır.

Anahtar Kelimeler: *Beden Eğitimi ve Oyun Dersi, Sınıf Öğretmeni, Uygulama Temelli Mesleki Gelişim, Motor Yeterlik, Kolaylaştırıcı*

To my family

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LIST OF ABBREVIATIONS

FMS	Fundamental Motor Skills
PD	Professional Development
PE	Physical Education
PBPD	Practice-Based Professional Development
PEG	Physical Education and Game
MoNE	Ministry of National Education
PAC	Physical Activity Cards
CK	Content Knowledge
PCK	Pedagogical Content Knowledge

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CHAPTER 1

INTRODUCTION

1.1. Background of the Study

Fundamental motor patterns are observable performances encompassing locomotor, and object control (Gallahue et al., 2014). Based on the one-dimensional models for classifying movement, the fundamental motor skills (FMS) are categorized in the functional aspects of movement into manipulative and non-manipulative (Burton & Miller, 1998). However, the more common categorization involves locomotor, object control, and balance (Gallahue & Donelly, 2007; Gallahue et al., 2014). Locomotor skills involve moving the body from one place to another, such as running, galloping, and walking. Object control skills comprise various forms of manipulation, including throwing, catching, and striking. Balance skills entail maintaining body position relative to the force of gravity (Gallahue et al., 2014).

Fundamental motor skills play a significant role in the lives of children. These skills have been found to have a dynamic and positive relationship with physical activity, positively correlating with fitness levels and body mass index (Stodden & Goodway, 2007; Linus et al., 2015; Lopes et al., 2011; Lubans et al., 2010), and physical activity engagement (Barnett et al., 2010; Malina, 1996). Thus, FMS are the foundational abilities necessary for participating in physical activities, whether organized or unorganized, across the lifespan (Clark & Metcalfe, 2002). In addition to physical benefits, FMS enhances affective (e.g., psychological well-being), social (e.g., prosocial behavior), and cognitive (e.g., mental health) development of children (Bailey, 2006; Bailey et al., 2009; Lubans et al., 2010). Despite the numerous benefits associated with developing FMS, studies have consistently shown limited proficiency

in FMS among children and adolescents in both international literature (Bolger et al., 2020; Dobell et al., 2020; Goodway et al., 2019; Erwin & Castelli, 2008; Hardy et al., 2010; Lopes et al., 2012; Larson et al., 2021; Morgan et al., 2013) and national literature (Taş & Hürmeriç, 2021; İnce, 2019).

Children develop FMS through physical activity (Stodden & Goodway, 2007) or free play (Butcher & Eaton, 1989). However, FMS cannot be adequately acquired solely through active participation (Logan et al., 2011; Riethmuller et al., 2009). Therefore, it is essential to teach these skills to children during their primary school years, recognized as the optimal developmental period for acquiring them (Gallahue et al., 2014). This underscores the significant role that primary school years play in children's overall development (Decorby et al., 2005). Many countries rely on primary school teachers to develop these skills in physical education in primary schools (Fletcher et al., 2013; Tsangaridou, 2016; MoNE, 2018).

The quality of physical education (PE) in primary school has been extensively criticized in literature by various researchers (Griggs, 2007; Harris et al., 2012; Morgan & Bourke, 2008a; Morgan & Hansen, 2008b; Petrie, 2010; Rainer et al., 2012). Studies involving classroom teachers have revealed several concerning findings, including a lack of knowledge about the PE curriculum (Decorby et al., 2005), challenges in preparing appropriate plans for students (Griggs, 2007; Morgan & Hansen, 2008b), deficiencies in content and pedagogical knowledge (Kirk, 2005). Similar findings were found in national literature as well, classroom teachers showed low confidence levels when teaching PE (Ulu et al., 2019), often ignored teaching motor skills (Yon, 2018), and had negative attitudes toward PE (Arslan & Altay, 2009) and they have limited knowledge about the PE lesson (Civril-Kara et al., 2022). Furthermore, there exists a restricted array of undergraduate courses concerning PE within teacher training programs, as noted by the Higher Education Council (n.d.) in Turkey. Consequently, classroom teachers often lack comprehensive knowledge about PE lessons (Decorby et al., 2005; Feucette et al., 2002).

One of the effective ways to develop in-service teachers is through professional development (PD) programs. The PD programs are designed to enhance teachers' classroom practices and attitudes and to systematically improve their teaching methods

(Guskey, 1986). According to Guskey (1986), three key factors influence the effectiveness of PD: teachers' attitudes, their classroom practices, and student achievement. Effective learning takes time and occurs gradually, suggesting that PD programs should be ongoing (Guskey, 1986), and provide sustained support to teachers about their work (Guskey, 2002). These programs facilitate the sharing of ideas among teachers and encourage the integration of those ideas into classroom practice (Stoll et al., 2006). Overall, PD programs play a crucial role in teachers' development (Ball & Cohen, 1999; Derri et al., 2014; DuFour, 2004; Harris et al., 2011; Ko et al., 2006; Lee et al., 2019; McLachland et al., 2017; Petrie, 2010; Sallis et al., 1997; Sum et al., 2018; Till et al., 2011; Tsangaridou, 2012; Yoon et al., 2007).

Professional development programs are not only for teachers' development but also for students' achievement (Ball & Cohen, 1999; Borko, 2004; Borghouts et al., 2023; Patton & Parker, 2014; Sum et al., 2018; Stefanour et al., 2020; Yoon et al., 2007). Professional development for teachers affects student achievement in three consecutive steps; first, PD develops teachers' knowledge and skills in their particular subject. Second, these teachers have a positive effect on classroom teaching. Thirdly, high-quality classroom teaching impact on students' achievement (Yoon, 2007). To reach students' development, a PD has to be well organized in terms of theory, planning, design, and implementation (Yoon, 2007) and teachers ought to have the motivation, belief, and skills to apply the PD programs in the classroom (Borko, 2004).

Although many studies are addressing PD in the literature, some form of PD is often deemed inadequate for teachers (Borko, 2004). Professional development should contain continual progress in teachers' learning and teaching practices. However, many traditional PD approaches are top-down, one-day events, or off-site courses (Ball & Cohen, 1999; Clarke & Hollinsworth, 2002). These programs are often conducted away from the school environment, disconnecting teachers and students from their contexts (Patton et al., 2015). Conversely, contemporary approaches emphasize that learning is an active process, wherein learners connect new ideas with existing ones. Darling-Hammond and colleagues (2017) offer a comprehensive framework for effective professional development (PD), outlining key components essential for meaningful teacher growth. PD should (a) include teachers' content knowledge and

pedagogical content knowledge, (b) be based on teachers' needs and interests, (c) acknowledge teachers as active learners, (d) support collaboration, (e) be ongoing, (f) be supportive, (g) use models and modeling of effective practices, (h) offer feedback and reflection, (i) be facilitated with care (not domineering), (j) improve students' learning outcomes, (k) include opportunities for collaboration within learning communities.

One approach to the aforementioned PD is Practice-Based Professional Development (PBPD), as proposed by Ball and Cohen (1999). The PBPD emphasizes that the content of PD should align closely with teachers' existing knowledge and classroom practices. It provides teachers with opportunities for purposeful learning and development while actively engaging in their instructional contexts (Herro et al., 2019). By participating in PBPD, teachers make sense of their classroom experiences and generate knowledge-in-practice (Cochran-Smith & Lytle, 2001), recognizing that valuable knowledge is embedded within teaching itself (Villegas-Reimers, 2003).

In essence, as Ball and Cohen (1999) suggest, knowledge being situated in practice implies that it must be acquired through practice itself. Additionally, Darling-Hammond and McLaughlin (1995) underscore the importance of linking content knowledge with daily experiences, contextual needs, and expectations for effective learning. In other words, the PBPD prioritizes teacher development over mere acquisition of knowledge (Harris et al., 2012). Thus, the PBPD is centered on fostering teachers' development of knowledge, understanding, and skills essential for effective educational practices, with an emphasis on supporting classroom implementation (Harris et al., 2015).

There are six important characteristics in PBPD: (1) the collective participation of teachers within the same school with similar needs, (2) designing PD around the characteristics, strengths, and needs of students in these teachers' current classroom, (3) addressing teachers' content knowledge needs, including pedagogical content knowledge, (4) providing opportunities for active learning and practice of the new methods being learning, including opportunities to see examples of these methods being used and analyze the work, (5) using of materials and other artifacts during PD that are identical to those to be used in the classroom, (6) offering feedback on

performance while learning and before using these methods in the classroom so that understandings and skills critical in implementation are developed (Ball & Cohen, 1999).

The purpose of this study was to explore the contribution of a ten-week practice-based professional development program on classroom teachers' instructional practices and student development in the context of teaching FMS. Specifically, the study aims to (1) investigate the changes in classroom teachers' experiences related to the teaching of FMS, (2) determine the proportion of teachers who effectively implement the targeted instructional tasks associated with FMS instruction, (3) identify teachers' preferred learning methods and support needs for enhancing the quality of physical education classes, and (4) examine the developmental changes observed in students as a result of their participation in the program. Through these aims, the study seeks to provide valuable insights into how professional development can contribute to their teaching practices and student outcomes in PE.

1.2 Significance of the Study

There are several significant of this study which are explained in the following: Effective PD initiatives provide ongoing support to teachers, often facilitated within the school environment (Bates & Morgan, 2018; Darling-Hammond et al., 2017; Poekert, 2011). Teachers who receive support from facilitators during their PD are more likely to appropriately apply theory into practice (Darling-Hammond et al., 2009; Darling-Hammond et al., 2017), improve their instructional practice (Knight, 2008), and experience positive effects (Darling-Hammond et al., 2009; McKeown et al., 2016; Kohen & Borko, 2022). One type of contemporary PD program is PBPD. This program plays a crucial role for teachers who struggle to translate theoretical knowledge into classroom practice (Jeram & Davids, 2020). One of the core features of PBPD is its emphasis on the teacher as an active learner with facilitator support. This approach ensures that teachers not only gain knowledge but also have ample opportunities to apply and practice what they learn during the program and received feedback from the expert/facilitator. Through hands-on activities and real-world teaching scenarios, teachers are able to strengthen their understanding and refine their

instructional skills, ultimately leading to more effective teaching practices in the classroom (Ball & Cohen, 1999; Borko et al., 2010; Jeram & Davids, 2020). Although various PBPD program were conducted across diverse educational literature (e.g., Harris et al., 2012; McKeown et al., 2016; McKeown et al., 2019; McKeown et al., 2023; Fishman et al., 2017; Osborne et al., 2019; Herro et al., 2022; Hirsch et al., 2020; Kohen & Borko, 2022; Thomas & Drew, 2022). Additionally, it has been suggested for application in other settings such as PE, music, and art (Hirsch et al., 2019). Thus, there exists a notable gap where the PBPD framework remains unutilized in PE literature. This endeavor marked a pioneering effort to introduce PBPD into the context of PE, potentially enriching this field with novel perspectives.

Although several PD studies were conducted for classroom teachers in the PE literature (e.g., Coulter & Woods, 2012; Edwards et al., 2019; Harris et al., 2011; Miller et al., 2016; Petrie, 2010; Simpson et al., 2022; Till et al., 2011,) studies related to teacher education have predominantly concentrated on secondary education, as evidenced by Perry and Booth (2021), Parker et al. (2022) and Tsangaridou (2012). This bring several limitations, stated in PE literature, for classroom teachers. For instance, classroom teachers face various challenges, such as a lack of knowledge about the PE curriculum (Decorby et al., 2005), deficiencies in content and pedagogical knowledge (Kirk, 2005), low confidence in teaching PE (Ulu et al., 2019), and classroom teachers tended to ignore FMS components (Yon, 2018). Thus, this gap in the literature underscores the need for more studies and tailored PD programs that address the unique challenges and requirements of classroom teachers, ensuring they are adequately prepared to foster and encourage active lifestyles among students. In order to achieve needs aforementioned above, this study focused on teachers' knowledge of teaching FMS and their classroom practices. Additionally, the program tried to enhance teachers' PE curriculum literacy, material literacy, and FMS teaching knowledge.

In addition to PD program for teachers, a PD program for teachers, providing PE, with a specific focus on FMS should be prioritized, as highlighted by Lander et al. (2015). Fundamental Motor Skills are foundational elements that significantly contribute to lifelong participation in physical activity and other psychological benefits (e.g., Bailey

et al., 2006; Gallahue et al., 2012). By equipping teachers with the knowledge and skills to effectively teach FMS, students might develop the necessary skills (e.g., Yoon, 2007) to engage in various physical activities throughout their lives, thereby promoting long-term health and well-being. Although various benefits of FMS development that was stated in the PE literature and many researches related to FMS intervention for children, there is a lack of research on teacher education related to FMS teaching and applications knowledge in the PE literature. Therefore, this gap in literature limits our understanding of how teachers acquire and apply FMS-related pedagogical skills in PE settings, especially for primary school years. This study provides valuable insights into the strengths and weaknesses of FMS training approaches for teachers and might inform the development of more effective PD programs for classroom teachers. By addressing this gap, this study aims to contribute to the growing body of knowledge on teacher education in PE, ultimately supporting better instructional practices for FMS teaching practices for teachers and improved student outcomes in FMS development.

In summary, there is a need to enhance classroom teachers' understanding of FMS, improve their teaching practices, and develop their students' FMS levels. Pioneering studies suggest that effective PD programs for teachers should be ongoing, supportive, content focus, offer feedback, sustain duration and inclusive (Darling-Hammond et al., 2017; Hunzicker, 2010), and require continued assistance throughout the process (Guskey, 1986; 2002). This study considered previous studies' recommendations and addressed a critical gap in literature, both nationally and internationally.

1.3 Research Questions

The study aimed to address the issues mentioned earlier by following research questions.

1- How do classroom teachers experience participating in a ten-week practice-based professional development program focused on FMS teaching?

2- What proportion of classroom teachers demonstrate the desired instructional tasks for teaching FMS following participation in a ten-week practice-based professional development program?

3- What are the classroom teachers' preferences for learning in physical education and game class throughout a ten-week practice-based professional development program?

4- How does students' level of FMS change across grade levels following their teachers' participation in a ten-week practice-based professional development program, as measured pre- and post-test?

5- Following participation in a ten-week practice-based professional development program, how do the classroom teachers perceive their students' progression of motor skills?

6- How do qualitative and quantitative data complement each other?

1.4 Definition of Terms

Curriculum Literacy: Curriculum literacy is the ability to recognize, select, revise, and facilitate the use of high-quality curricula. It requires educators and educator preparation programs to shift from merely developing curriculum to becoming smart users of it—capable of both effectively evaluating and implementing curricula (Education First, n.d.).

Facilitator of the Professional Development Program: The primary function of the facilitator is to assist teachers in improving their beliefs, knowledge, and practices (Patton & Parker, 2014).

Fundamental Motor Skills: These skills are basic motor patterns when children are able to walk independently and move without any support. These skills are observable movement in locomotor (running, galloping, skipping), object control (throwing, catching), and stabilizing (balance walk; Gallahue et al., 2014).

In-Service Teachers: A teacher who is certified or currently working in an educational setting is referred to as an in-service teacher (Karen & Greenblatt, 2018)

Literacy: It is an ability to learn at school and be integrated into society (Australian Curriculum, n.d.)

Material Literacy: Material literacy in the context of this study refers to a teacher's ability to effectively read, understand, and apply instructional materials aligned with the physical education curriculum.

Motor Competence: Motor competence refers to the degree to which children can perform fundamental motor skills, which are essential gross movements used throughout life for daily activities (Haywood & Getchell, 2009).

Motor Development: Continuous change in motor behavior as a result of interaction among tasks, individuals, and environments during life (Gallahue et al., 2014).

Perceived Knowledge: Perceived knowledge is defined as the extent of persuasive information one believes they possess in a particular direction regarding a target stimulus (Tormala & Petty, 2007)

Practice-Based Professional Development: It is a framework related to the professional development of teachers offered by Ball and Cohen (1999).

Professional Development: Teachers who increase their knowledge, skills, teaching practice, and emotional growth by experiencing any activities such as formal, structured seminars on in-service days to everyday or informal discussions (Desimone, 2011).

CHAPTER 2

LITERATURE REVIEW

This literature review includes six sections; (1) fundamental motor skills (FMS), (2) role of physical education in school (3) physical education in Türkiye, (4) professional development programs, (5) the practice-based professional development (6) the role of the facilitator.

2.1 Fundamental Motor Skills

Motor development undergoes continuous changes in motor behavior throughout the lifecycle due to interactions among individuals, their environment, and the tasks (Gallahue et al., 2014). They engage in within the individual domain reside aspects of heredity, biology, innate traits, and inherent characteristics, whereas the environment comprises experiences, learning, nurturing influences, and external factors (Gallahue et al., 2014). Additionally, the task dimension encompasses physical and mechanical factors. It is crucial to understand that development is a lifelong process, extending beyond childhood (Gallahue et al., 2014). Movement encompasses any observable changes in the position of body parts, perceivable by others. Commonly used descriptions of movement include movement patterns, fundamental motor skills (FMS), and sports skills (Gallahue et al., 2014; Stodden & Goodway, 2007)

Fundamental motor skills serve as the cornerstone for developing the motor abilities necessary for participation in a wide range of activities, both organized and unorganized, across the lifespan (Gallahue et al., 2014). These skills encompass a variety of movements, including locomotor skills such as running and sliding, object control skills such as throwing and kicking, and stability skills including balance and twisting (Stodden & Goodway, 2007).

Mastering these skills during childhood is paramount for fostering holistic development encompassing physical, cognitive, and social domains (Bolger et al., 2020; Bailey et al., 2009; Lubans et al., 2010). For instance, proficiency in FMS opens up diverse avenues for engagement in various activities, sports, and games, promoting an active and healthy lifestyle (Barnett et al., 2016; Fisher et al., 2004; Foweather et al., 2014; Okely et al., 2001; Webster et al., 2019; Stodden et al., 2008; Stodden & Goodway, 2007). Additionally, the acquisition and refinement of these skills contribute to cardiovascular health and the maintenance of a healthy weight status (Lubans et al., 2010).

It is believed that FMS can be acquired naturally by children, although this may not be the case (Clark, 2007; Goodway & Branta, 2003; Stodden & Goodway, 2007). Free play (Butcher & Eaton, 1989) and structured play in PE (Honrubia Montesinos et al., 2023) improve FMS levels in children. However, these skills are more likely to be achieved through proper practice and encouragement (Gallahue et al., 2014).

In addition to the importance of FMS practice and encouragement, age (grade in school) is an important factor for FMS proficiency among children (Bryant et al., 2014; Bolger et al., 2018). Physical growth plays a significant role in learning movement patterns (Ulrich, 2000). If children with natural maturation, receive sufficient feedback and practice, older children demonstrate better FMS levels than younger counterparts (Spessato et al., 2013). In the literature, studies showed that older children demonstrated significantly higher motor competence scores than younger children both in locomotor and object-control skills (Bolger et al., 2018). Bryant and colleagues (2014) older children showed better skill in throwing and catching skills, it might be concluded that the greater proficiency is affected by feedback, practice, and age. Similar results were reported by other studies (Booth et al., 1999; Spessato et al., 2013). Thus, there should be a level of response between age and FMS (Bolger et al., 2018) and FMS should be encouraged, practiced, and promoted by intervention in educational settings (Bolger et al., 2020) based on the level of individual competence (Clark, 2007; Stodden et al., 2008).

Goodway and Branta (2003) suggested that childhood is the optimal time for the development of FMS. The proficiency of most motor skills age is around six years (Gallahue & Ozmun, 2006). In other words, children in secondary school during PE are supposed to demonstrate motor competency (O'Brien et al., 2016) Thus, competency in these skills is deemed a primary school objective of the PE curriculum in many countries (MoNE, 2018; NASPE, 2004). These skills are acquired during childhood and are subsequently refined into sports-specific skills later in life (Lubans et al., 2010; Stodden et al., 2008). Conversely, children who fail to acquire these skills within the school environment are "left behind" similar to how they might lag in other academic subjects (Clark, 2007). In other words, without the development of FMS, children may become discouraged from being physically active, which can exacerbate the situation.

2.2 Fundamental Motor Skills Models

In motor development literature, various models explained the role of FMS. Each model contributes to the understanding of the progression and developmental mechanism of FMS. These models are; the Progression of Motor Proficiency Model (Seefeldt, 1980), the Mountain of Motor Development Model (Clark & Metcalfe), the Conceptual Model of Development Factors Influencing Physical Activity (Stodden et al., 2008), and the Hourglass Model (Gallahue & Ozmun, 2006). All models claim that FMS is the foundation of specialized movement skills and all have unique perspectives for understanding the FMS. These models share common points in explaining the motor development journey of individuals. However, the hourglass model is the most widely used in the field of motor development, offering general guidelines for motor skill acquisition.

In the Hourglass model, motor development is explained as a sequential progression of movement skills throughout the lifespan. The model consists of four phases: reflexive, rudimentary, fundamental, and specialized movement phases (Gallahue & Ozmun, 2006; Gallahue et al., 2016). Reflexes are involuntary movements that are essential for survival. By utilizing reflexes, infants gather information from their environment. The next step is the rudimentary movement phase, which includes the

first voluntary movements, such as crawling, creeping, and sitting. This phase is predictable in terms of the movements observed and their timing. The third step is the FMS phase, where children explore a variety of movements. This phase is critical during early childhood. The final step is the specialized movement phase, where children apply FMS in a range of sports and activity settings (Gallahue et al., 2016).

2.3 Dynamical System Theory

Various factors influence the development of FMS, including the environment, socioeconomic status, parental influences, climate, and school context (Stodden & Goodway, 2007). One human development theory that explains how these factors impact learning is *Dynamic Systems Theory* (Caldwell & Clark, 1990; Gallahue et al., 2016) which is based on the work of Bernstein (1967). The word '*dynamics*' is used in the theory because learning is nonlinear and discontinuous which means learning can occur at a different pace due to environmental or individual features. In other words, development is a "continuous-discontinuous" process (Gallahue et al., 2016). These systems continuously interact and adapt to each other, making motor development highly individualized. This theory highlights that development is not predetermined but rather shaped by the dynamic interplay of these constraints, with each child progressing uniquely depending on their interaction with the surrounding context.

This theory explains learning through various concepts such as behavioral attractors, phase shifts, and constraints. Each concept offers a unique perspective on the complexity of motor learning development. According to Newell (1984), many factors influence learning in the systems called constraints (Figure 1). This can be affordances or rate limiters. For instance; environmental constraints are external factors related to the physical and social surroundings that can affect movement. These include things like weather conditions, lighting, surface texture, space, and even social or cultural expectations. Individual constraints are personal characteristics, both physical and psychological, that can impact movement. These include factors like body size, strength, flexibility, coordination, motivation, and cognitive development. Task constraints are related to the specific requirements of the task or activity itself. These

include the rules of the activity, the equipment used, and the specific goals of the movement.

In conclusion, this constraints-led approach helps teachers understand why students struggle with movements and how to adapt their instruction. By recognizing these constraints, teachers can modify the environment (e.g., changing the playing surface, or size), individualize tasks (e.g., adjusting equipment size or type), or modify activities' rules based on students' needs. This allows for more effective, inclusive teaching practices.

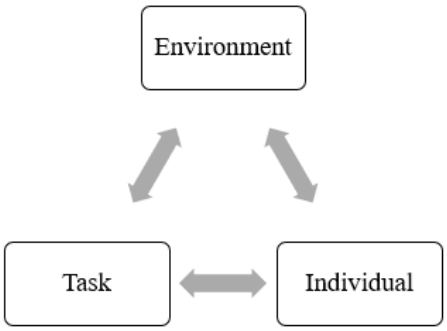


Figure 1. *Constraint Model of Newell (1984)*

2.4 Fundamental Motor Skills Studies

In this section, FMS studies were synthesized. Despite the important role of FMS skills in children's holistic development, many studies reported low levels of FMS proficiency among children and adolescents in the literature (Bolger et al., 2018; Duncan et al., 2019; Foulkes et al., 2015; Morgan et al., 2013; Stodden & Goodway, 2007). Following are the findings of the studies; researchers, in their literature review study, investigated 64 articles about FMS levels of children (3-10 years) worldwide (including USA, China, Canada, Australia, European countries, and eastern countries). The findings revealed that children aged three to five typically demonstrate an "average" level, while those aged six to eight and nine to ten tend to exhibit a "below average" level. Moreover, children, commonly, do not reach appropriate competence levels of object control (Bolger et al., 2021). Another systematic review (n = 28)

involving four to five years-old children found that the majority of scientific studies from Australia, England, Ireland, Norway, USA, Canada, eastern and middle European countries indicated children have low levels of FMS proficiency (Dobell et al., 2020). These findings are supported by original research. For instance, A study in the literature indicated that children (aged 5-11 years) across the world are not reached the desired level of mastery in FMS level (Griffiths & Billard, 2013). Another study, conducted with youth participants by O'Brien and colleagues (2016), measured 242 first-year post-primary youth's nine FMS by using TGMD-2 and the Victorian FMS manual. They found that only 11% of participants were scored as either mastery or near mastery for the skills. Most of participants were failed to be mastery across the FMS test, although the participants were expected to achieve mastery in all skills (O'Brien et al., 2016). Another study, which was conducted with 6917 students across Australian elementary and high school, indicated that low-level of FMS competence among students were identified (Hardy et al., 2012). Furthermore, the level of FMS competency has decreased in various populations over the past decades, including preschoolers (Roth et al., 2010), and primary school students (Mombarg et al., 2023). In detail, a study evaluated the trend between years of children's FMS level, they identified that not all but some skills were demonstrated by children worse in the present years (Roth et al., 2010; Tester et al., 2014; Vardorpe et al., 2009). Overall, the FMS level of students in international both review and original research showed a low level of FMS competence (Bolger et al., 2020; Bolger et al., 2018; Dobell et al., 2020; Duncan et al., 2019; Foulkes et al., 2015; Morgan et al., 2013; Stodden & Goodway, 2007).

On the other hand, research conducted in the National literature indicates a scarcity of cross-sectional studies focused on assessing children's FMS levels. This represents one of the major limitations in the national literature. Below are several examples from FMS-related studies in the national context. A literature review by Mülazımoğlu-Ballı and Hürmeriç-Altunsöz (2022), which analyzed 17 studies involving children aged three to seven years, indicated that majorty FMS studies' programs had a positive effect on children's motor competency levels. However, in some of these studies, the selection of experimental samples, instructional approaches, and theoretical frameworks and instructor, providing the intervention, were unclear. Additionally,

several studies had small sample sizes. Although the authors concluded that existing literature are valuable for the contribution to the literature, both the quality and quantity of FMS studies need to be improved at the national level. The following studies did not directly assess children's FMS competency level, they might provide valuable insights for the understanding the FMS level of children in the national level. For instance, Boz and Aytar (2012) conducted a study using the TGMD-2 to evaluate preschool children's FMS levels. They found that five to six-year-old children scored low in both locomotor and object control skills. Another study, conducted by Yaman and colleagues (2015), investigated the effect of creative drama on children aged four to five. They assessed motor competency through pre- and post-tests, finding that more than half of the children showed normal motor competency in the pre-test. Similarly, Pişkin and colleagues (2020) used the Deutscher Motor Test to assess children's motor competence and found that more than half of the children demonstrated low levels of motor competence. Furthermore, in the secondary school research in motor competence literature, a study indicated that children in sixth and seventh grade were at an "emerging level" rather than "proficient" in FMS proficiency (Taş & Hürmeriç-Altunsöz, 2021). This means that children perform the basic sequence of skills but often make major errors while doing it. However, based on their age and grade level curriculum expectations, they are expected to perform these skills, locomotor, object control, and balance with only minor errors or show high proficiency while doing it. Additionally, children are expected to move with music in a synchronized way (e.g., MoNE, 2018). It might be concluded from the national literature that K12 students had limited motor competency levels (e.g., İnce, 2019). Overall, because of that limited study in the PE national literature, it is difficult to identify students' FMS levels. However, existing literature showed that children had low levels of FMS and boys had better FMS levels compared to girls. Because interventions for FMS have a significant effect on children's FMS levels (Logan et al., 2012; Morgan et al., 2013), FMS intervention studies are needed in educational settings (Bolger et al., 2020; Logan et al., 2012).

2.4.1 Age Difference in Fundamental Motor Skill Studies

The development of FMS in children is affected by a complex interplay of biological factors, environmental factors, and social factors. Among these, age emerges as a critical determinant, as FMS typically follows a developmental trajectory in which proficiency improves with maturation, increased physical activity opportunities, and exposure to structured movement experiences. Age-related differences often reflect variations in physical growth, neuromuscular coordination, and cognitive understanding of movement tasks, all of which contribute to children's FMS proficiency. Thus, it can be concluded that age is an important factor for FMS proficiency among children (Bryant et al., 2014; Bolger et al., 2018). Based on the the motor development literature, Bolger and colleagues (2018) measured FMS of primary school children (n = 203) by using the Test of Gross Motor Development – 2. According to their results, older children showed significantly higher motor competence skill in both locomotor and object-control scores. In another study which was conducted by Bryant and colleagues (2014), primary school children (n = 281) were measured in eight FMS skills (run, hop, gallop, jump, balance, kick, throw, and catch). The study concluded that age had a significant effect on skill competency. In other words, older children showed higher motor competence level than younger children except kicking skills. Another study, conducted by Spessato and colleagues (2013), measured 1248 children (aged 3-10 years). The result showed that both in locomotor and object control, older children showed higher motor competence level than younger counterparts. Overall, the motor development literature shows that older children tend to have higher levels of motor competence compared to younger children. However, although age is often considered an important factor in the development of FMS, Gallahue and colleagues (2014) emphasized that FMS development is age-related but not age-dependent.

2.5 Role of Physical Education

High-quality education, which includes appropriate skill development for students, gender equality, and adequate school infrastructure and equipment, is recognized as a human right (UNESCO, n.d.-a). UNESCO has stressed the importance of enhancing

the quality of education across all school subjects (Education 2030 Framework for Action, 2019), as this is essential for individuals to integrate successfully into society (OECD, 2012). Physical education (PE) is one of the key subjects in schools, and it has the potential to become the cornerstone of future education.

High-quality PE increases the PA of students, promotes mental health, and decreases inequality among children (UNESCO, n.d.-b). In other words, PE positively contributes to children's development in various domains, including physical, social, and emotional growth (Bailey, 2006, Hardman & Marshall, 2000; OECD, 2019; SHAPE, n.d.). More specifically, PE fosters cognitive skills, affective skills, leadership skills, decision-making abilities, social relationships, and emotional development (Bailey et al., 2009; Bailey, 2006; Morgan & Bourke, 2008) and academic achievement (United Nations, 2015). Thus, PE programs in schools are viewed as critical strategies for promoting daily physical activity (Tsangaridou, 2016) and instilling this habit during the formative years of schooling (Hills et al., 2015) and for enhancing cognitive and emotional development (Bailey et al., 2009).

For students to get benefits from PE class, the class (well-designed PE) should include a program for direct students' needs, keep them active during PE time, emphasize knowledge and skills for the activity, and contain enjoyable experiences for all students (SHAPE, n.d.). In addition, because all settings are different, these features should be adapted to specific situations, conditions, and circumstances (UN, 2015). However, there are concerning reports indicating that the time allocated to PE in schools has been decreasing, and its status as an important school subject is perceived to be low (DeCorby, 2010). Globally, in 29% of cases, PE is often skipped for other subjects in the school curriculum, additionally, PE is considered a non-essential course (Hardman & Marshall, 2000) by teachers (Rainer & Jarvis, 2020) and by students (Stolz, 2013) in some countries. This issue is evident in schools across Canada, the United States (DeCorby, 2010), Türkiye (Özcan & Mirzeoğlu, 2014), and China (Jin, 2016).

2.5.1 Classroom Teachers in Physical Education

Physical education is recognized as crucial, promoting a healthy lifestyle and supporting individuals physically, socially, mentally, and emotionally (Bailey et al., 2009; DeCorby, 2010; Morgan & Bourke, 2008). However, the quality of PE in primary school is criticized by many researchers (Griggs, 2007; Harris et al., 2012; Kirk, 2005; Morgan & Bourke, 2008; Petrie, 2010; Rainer et al., 2012).

Morgan and Hansen (2008) identified two factors that influence teachers' ability to deliver PE programs in primary schools. These factors include (1) teacher-related factors such as confidence, interest, content knowledge, attitudes toward physical education, experiences, and qualifications, and (2) institutional factors such as time constraints, equipment availability, quality of facilities, class size, funding, and stakeholders' attitudes toward physical education (Morgan & Hansen, 2008). Considering teacher-related factors, studies have shown that several challenges arise when teaching PE in primary schools, particularly among teachers. These challenges include limited subject content knowledge, inadequate pedagogy of PE (Tsangaridou, 2012), lack of confidence, and insufficient teacher training (Morgan & Bourke, 2008). Additionally, there is a deficiency in motor skills and understanding of tactics, rules, and techniques required for teaching various activities (Petrie, 2010). Furthermore, classroom teachers often receive limited PE courses during their undergraduate education (Graber et al., 2008; Fletcher et al., 2013; Xiang et al., 2002).

Overall, classroom teachers have limited knowledge of teaching PE (DeCorby et al., 2005; Morgan & Bourke, 2008; Tsangaridou, 2012), which serves as a major barrier to effectively teaching PE (Petrie, 2010). To address these challenges within the primary school context, studies have indicated that PE courses at the undergraduate level and practice teaching opportunities can enhance teachers' skills and provide valuable learning experiences. It is crucial for teachers to not only develop self-efficacy and confidence but also acquire the necessary qualities for teaching PE (Fletcher et al., 2011). Consequently, in-service teachers often lack sufficient knowledge and experience in physical education thus, in-service teachers require support through PD programs (Coulter & Woods, 2012; Darling-Hammond et al.,

2009; Good & Weaver, 2003; Honrubia Montesinos et al., 2023; İnce, 2019; Knight, 2002; Sato et al., 2020).

2.5.2 Physical Education in Primary School in Türkiye

Physical education classes were provided by classroom teachers in Türkiye (MoNE, 2018). In the National literature, several studies related to classroom teachers and physical education were conducted. Although classroom teachers perceive PE as beneficial for students' development (Şentürk et al., 2015). More than half of classroom teachers perceive they cannot teach PE at an appropriate level (Pehlivan et al., 2015) and they provide low-quality PE in terms of PA level (Yon & Saraç, 2022). They have low confidence levels while teaching PE (Ulu et al., 2019). They ignore teaching motor skills (Yon, 2018) and they have negative attitudes toward teaching PE (Arslan & Altay, 2009). Additionally, primary school students, generally, play unstructured games in PE class time without teachers' supervision (Tel et al., 2016). Overall, PE tends to be ignored in school (Kaya et al., 2022).

The findings pointed to several main topics in the literature: PE is not taught at the appropriate level because of several reasons; (1) classroom teachers perceived themselves as having limited knowledge of teaching PE classes (Arslan & Altay, 2009; Aytekin, 2022; Bozdemir et al., 2015; Çivil-Kara et al., 2017; Yılmaz, 2020), (2) They also indicated that schools have limited equipment and infrastructure for teaching PE (Aytekin, 2022; Bozdemir et al., 2015; Demirhan et al., 2009; İçel & Oğuz, 2023; Pehlivan et al., 2005; Tel et al, 2016; Yılmaz, 2020) and they indicated safety issues in infrastructure while teaching PE (Aytekin, 2022), (3) PE class is considered as a backup for other classes (Tel et al., 2016; İçel & Oğuz, 2023; Şentürk et al., 2015). Generally, in classroom teachers' opinion, PE classes should be taught by PE specialists because of PE teachers' knowledge, and awareness about PE class (Çivil-Kara et al., 2017; Pehlivan et al., 2005; Şentürk et al., 2015; Yılmaz, 2020). In conclusion, PE class plays an important role in students' development. However, classroom teachers have limited content knowledge and limited experiences for teaching PE lesson in school (Arslan & Altay, 2009).

2.6 Physical Education Curriculum in Türkiye

The K–12 Physical Education curriculum in Türkiye has been updated as part of the Turkish Century Education Model; however, the revised version has not yet been released (MoNE, 2023). The last K12 curriculum was updated in 2018 (MoNE, 2018). This curriculum adopts a student-centered, constructivist approach, with a focus on student wellness (İnce, 2019). Within the National PE curriculum, three main objectives (Figure 2) are outlined: motor competency, health and active lifestyles, and life skills (MoNE, 2018b). Under the motor competence objective, FMS is considered. These skills are taught in the 'Physical Education and Game' (PEG) course from first to fourth grade in primary school, led by classroom teachers. The curriculum allocates five hours for first to third grades and two hours for fourth grade (MoNE, 2018a). Specifically, students are expected to learn FMS, health-related skills, rules, and tactics through engaging in games and physical activities. Moreover, these skills should be taught while considering students' developmental needs, physical abilities, social dynamics, and the school environment (MoNE, 2018a).

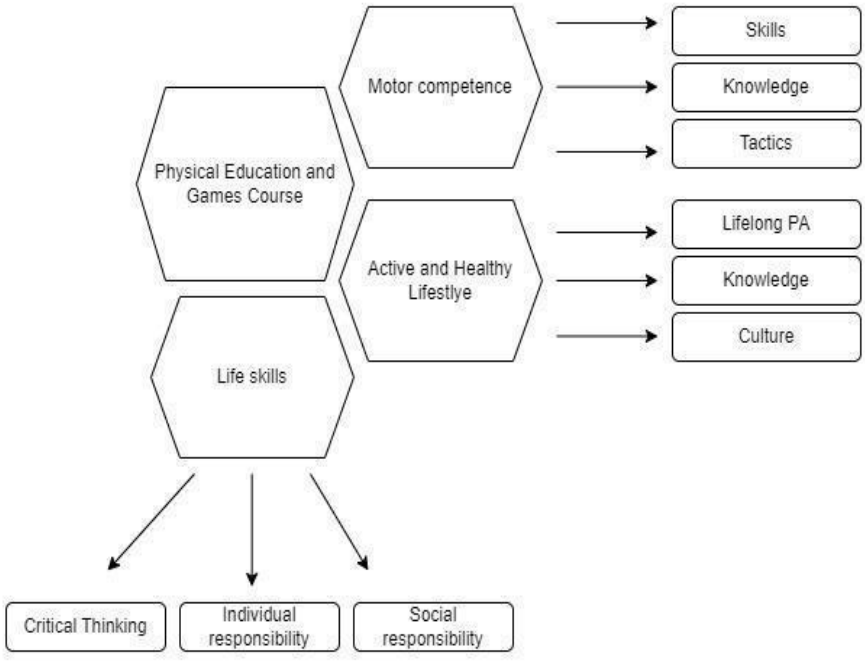


Figure 2. *Curriculum Objectives of Physical Education and Game Class*

2.7 Professional Development

Professional development is fundamentally about teachers' continuous learning, understanding how to acquire knowledge, and transforming the knowledge into practice (Avalos, 2011), ultimately enhancing classroom instruction and student achievement (Yoon et al., 2007). According to Ball and Cohen (1999), PD can occur through a variety of formal and informal activities based on teachers' experiences. These activities encompass a range of experiences aimed at enhancing teachers' knowledge and teaching abilities, including seminars, conferences, group discussions, co-teaching arrangements, lesson reflections, study groups, and workshops (Desimore, 2011). Professional development plays a role as one of the key components in improving the quality of schools (Desimore, 2011) and enhancing the competence of teachers (Lumpe et al., 2012), factors that heavily influence school policies (Borko, 2004; Lumpe et al., 2012). Moreover, as suggested by Borko (2004) and Darling-Hammond and colleagues (2017), PD has the potential to enhance instructional practices, teacher behaviors, and student learning outcomes, offering additional benefits beyond teacher learning and school quality enhancement.

Bechtel & O'Sullivan (2006) emphasized that PD should focus on three crucial factors: maintaining high standards in education, involvement with subject matter professional organizations, and research on teacher learning, as there is often a lack of knowledge in these areas. Studies have indicated that initial teacher education alone cannot provide sufficient acquisition of all necessary propositional knowledge and practical "know-how" (Knight, 2002). It is essential for teachers not only to stay updated with educational theory and practice but also to continually enhance their effectiveness throughout their careers (Good & Weaver, 2003). However, teachers often struggle to change their practices independently (Sinelnikov, 2009), with 94% seeking assistance from other teachers within their schools (Good & Weaver, 2003). Therefore, if quality learning opportunities are deemed important for students, teachers should be offered similar opportunities for PD (Borko et al., 2010). Professional development for teachers is a critical factor in preparing, training, and cultivating highly qualified educators (Good & Weaver, 2003), ultimately contributing to educational

improvement (Guskey, 2002) and playing a significant role in school transformation (Darling-Hammond et al., 2009).

Professional development plays a significant role in the aforementioned components, a considerable number of PD programs are one-shot workshops, top-down designed by administrators and imposed on teachers for implementation (Tannehill et al., 2021). These programs typically aim to inform teachers about specific information and skills without fostering ongoing development and practice (Clarke & Hollinsworth, 2002). Due to their one-shot nature and "sit and get" format, such workshops are often less effective, as the information gained is less likely to be retained and incorporated into daily routines (Hunzicker, 2011, p. 177). Moreover, these traditional approaches often lack connections to classroom practices and fail to help teachers bridge the gap between theory and practice within the school environment (Borko et al., 2010). Consequently, these types of professional development initiatives are inadequate for supporting teacher development (Borko, 2004).

On the contrary, research suggests that high-quality PD may significantly enhance teachers' skills and enable them to effectively apply knowledge in practice (Borko, 2004). Such PD opportunities also facilitate collaboration among teachers (Good & Weaver, 2003) and support not only the acquisition of teaching knowledge but also reflection on practice and the integration of theory into practice (Darling-Hammond & McLaughlin, 1995). This is crucial because when teachers participate in high-quality PD, positive changes are more likely to occur in their teaching practices (Coulter & Woods, 2012). Effective PD encompasses multiple components, and researchers designing such programs should carefully consider these factors to foster the development of teachers, their practices, and ultimately, their students.

The study suggests that PD programs should incorporate several key features, including being supportive, job-embedded, instructional-focused, collaborative, and ongoing (Hunzicker, 2011). For instance, when PD is supportive, researchers should tailor the program to address the specific needs of individuals within the school community. This includes addressing the learning needs of specific classrooms, grades, or even individual students, and ensuring that the content is appropriate for

various learning styles. When teachers feel supported in their professional growth, they are more likely to be open to change and willing to try new strategies. Moreover, both the process and the outcomes of the professional development program are equally important for fostering teacher support (Patton et al., 2015). Furthermore, job-embedded professional development should be seamlessly integrated into teachers' daily responsibilities. This means that teachers should be able to apply what they learn directly to their classroom practices, making the learning experience more relevant and impactful.

An additional consideration is that PD, when instructional-focused, should directly enhance student learning outcomes (Hunzicker, 2011). Moreover, Desimore (2011) highlighted several essential components of effective PD, including content focus, active learning, coherence, duration, and collective participation. Content focus involves emphasizing subject matter content and understanding how students learn that content effectively. Active learning implies that teachers should not merely passively receive information during PD sessions but should actively engage in the learning process themselves. This active engagement provides them with opportunities to learn and apply new knowledge and skills directly. Thus, these features should be present in any program related to the PD of teachers (Desimore, 2011).

Bates and Morgan outlined seven essential elements crucial for designing effective PD initiatives. Firstly, they emphasized the importance of maintaining a content focus, ensuring that the PD aligns closely with the specific subject matter content relevant to teachers' needs and students' learning. Secondly, they underscored the significance of active learning, advocating for engaging teachers in participatory activities rather than passive information absorption. Thirdly, they highlighted the necessity of fostering support for collaboration, providing opportunities for teachers to collaborate with colleagues, share insights, and learn from each other's experiences. Additionally, they stressed the value of presenting models of effective practice, offering examples of successful teaching strategies for teachers to emulate and adapt in their classrooms. Moreover, they emphasized the importance of coaching and expert support, advocating for personalized guidance from instructional leaders or university faculty to support teachers' professional growth. They also emphasized the need for feedback

and reflection, incorporating mechanisms for teachers to receive feedback on their practice and engage in reflective processes to enhance their teaching. Finally, they underscored the significance of sustained duration, advocating for PD activities to be sustained over time to facilitate meaningful and lasting impacts on teacher practice and student learning. Notably, Bates and Morgan's approach differed from other studies by explicitly including coaching and expert support as distinct elements in their framework.

Darling-Hammond and colleagues (2017) refined the core features of effective teacher development based on existing literature. They identified seven key elements that should be integral to such programs: (1) a focus on content, (2) active learning, (3) support for collaboration, (4) the use of models and modeling, (5) provision of expert support, (6) inclusion of feedback and reflection, and (7) sustained duration. Additionally, they introduced some specific strategies, including school-based coaching and mentoring for new teachers. They highlighted the growing popularity of school coaching programs, emphasizing their effectiveness in supporting teacher development (Darling-Hammond et al., 2017).

In conclusion, PD programs incorporating the majority, if not all, of the aforementioned components, serve as potent sources of efficacy for teachers, facilitating improvements within and beyond the school environment. Moreover, it is imperative to prioritize well-designed PD initiatives aimed at fostering a holistic teaching and learning system capable of meeting the diverse needs of the 21st century (Darling-Hammond et al., 2017).

2.7.1 Professional Learning Communities

The idea of developing professional learning communities (PLC) is considered a trending issue (DuFour, 2004). It is widely used in the physical education (Parker & Patton, 2017) and a part of the educational world (Stoll & Louis, 2007). Although there is no universal definition of PLC (Stoll & Louis, 2007) and it is used by using various terms (Dufour, 2004), some researchers define professional learning communities as inclusive and mutually supportive groups of people with a collaborative, reflective approach (Thornton & Cherrington, 2019). Stoll and colleagues (2006) defined PLC

as a group of people who share ideas, examine their practice, and develop students' learning. It is not all about teachers' learning but also about learning in the community context. In addition, it is not simply that students are taught but also ensure that they learn, teachers have to work together to achieve the objectives for all, and teachers focus on the objectives that aim to reach (Dufour, 2004). Thus, the key purposes of PLC are students' achievement and teacher effectiveness (Stoll et al., 2006), and school development (Antinluoma et al., 2021).

The research agrees regarding the fundamental traits of an effective PLC (DuFour, 2004). In the study by DuFour (2004), he suggested researchers focus on learning together rather than teaching, working collaboratively, and emphasizing accountability. In other words, he stated three big ideas; (1) ensuring students learn is the primary goal of formal education, not just ensuring they are taught. (2) Teachers who are creating a professional learning community understand that to fulfill their shared goal of learning for everyone, they must cooperate. Consequently, they establish frameworks to encourage a culture of cooperation. (3) Results are used by professional learning communities to assess their efficacy. Another research identified five essential features for a PLC: (1) it should be a group of people who support each other, (2) the group of people with shared values, visions, and goals, (3) people learn collectively, (4) shared their practice and (5) get supported (Vangrieken et al., 2017). Vescio and colleagues (2008) organized their findings of review in terms of features of PLCs; (1) collaboration, (2) student learning, (3) teacher authority, and (4) teacher's continuous learning. To clarify these features, PLC includes a collaborative activity that includes encouraging, sharing, reflecting, and taking risks to change. Effective PLCs are linked with the student's achievement. In terms of authority, teachers can make their own decisions regarding both the process of their learning and aspects of school governance. Considering continuous learning, PLCs support teachers in the long term, not a one-shot workshop. Whitcomb and colleagues (2009) claimed that respect and trust are essential features of a productive learning community. Because teachers take risks and engage in challenging situations when they feel in a safe environment.

Studies indicated that PLCs have a positive impact on school improvement (Stoll et al., 2006; Vescio et al., 2008), teacher practices, and students' outcomes (Antinluoma et al., 2021; Bloam et al., 2005; Katz & Early, 2010; Louis & Marks, 1998; Owen, 2005; Stoll & Louis, 2018; Thornton & Cherrington, 2019). For instance, Louis & Marks (1998) investigated the effect of the professional community on the intellectual quality of student performance, and classroom organization. They gathered both qualitative and quantitative data from 24 elementary, middle, and high school learning communities. They found that PLC has a positive effect on student achievement and classroom organization. Another study by Vescio and his colleagues (2008) aimed to overview the features of professional learning communities. They reviewed 11 studies on the impact of PLCs on teachers and students. They summarized the findings of the review; as teachers become more student-centered, their involvement in learning communities affects their methods of instruction. Additionally, the learning communities foster greater cooperation, student learning, teacher empowerment, and ongoing learning, all of which enhance the teaching culture. In addition, when teachers attend the PLCs, their students get benefits.

Considering the PLCs in the PE literature, a scoping review focused on learning communities by Parker and colleagues (2021), studies about learning communities have been increasing in recent years. Learning communities' studies related to PE teachers dominate the literature however, a lack of knowledge exists in primary/elementary school teachers. One of the biggest limitations is that although studies mentioned the theory, their communities were not theoretically aligned with the theory (Parker et al., 2021).

In conclusion, PLCs are used in the literature in a variety of terms within education thus, it is necessary to define these terms which are used (Parker et al., 2021). Although PLC is important for sustainable improvement (Stoll et al., 2006), context, local factors, education, and other differences should be considered while conducting (Antinluoma et al., 2021).

2.7.2 Theoretical Framework

The theory of professional education indicates that education should be learned in and from practice otherwise, “to propose otherwise would be like expecting someone to learn to swim on a sidewalk” (Ball & Cohen, 1999; p. 12). Additionally, most PDs are superficial, and disconnected from curriculum and learning, and teachers are exposed to vague terms and language instead of reality. Thus, they suggest a contemporary approach to teachers’ PD; two main components, are important, (a) PD should be supportive of teachers and enable them to encourage learning, and (b) teachers need to resist conservative lessons by becoming agents.

2.7.3. Practice-Based Professional Development

A Practice-Based Professional Development (PBPD) see figure 3 below, offered by Ball and Cohen (1999), suggests that PD should immerse teachers in the types of practices. They aim to promote, ensuring that the content directly addresses teachers' knowledge and its application in the classroom. Essentially, this approach enables teachers to bridge the gap between theory and practice, providing them with opportunities to receive feedback on their classroom performance (Hirsch et al., 2019). PBPD is crucial as teachers often struggle to translate theory into classroom contexts (Jeram & Davids, 2020). By consciously integrating theoretical knowledge into practice, teachers engage in deep learning and mitigate the theory-practice dichotomy (Jeram & Davids, 2020). This approach fosters a more seamless integration of learning experiences, enhancing teachers' effectiveness in the classroom

Ball and Cohen (1999) argue that knowledge acquisition must occur through practical application, emphasizing that effective teacher education should incorporate both academic components (Forzani, 2014). In this type of PD, researchers identify suitable activities, select or create appropriate materials, and utilize these resources to facilitate teachers' learning experiences (Osborne et al., 2019). Practice-based PD can manifest in various formats, including teacher learning lab teams, inquiry groups, book studies, teacher research groups, school-based professional communities, peer observation teams, lesson study teams, and action research groups, as highlighted in the literature

(Pella, 2015). These diverse formats cater to different learning preferences and contexts, enabling teachers to engage actively in their PD journey.

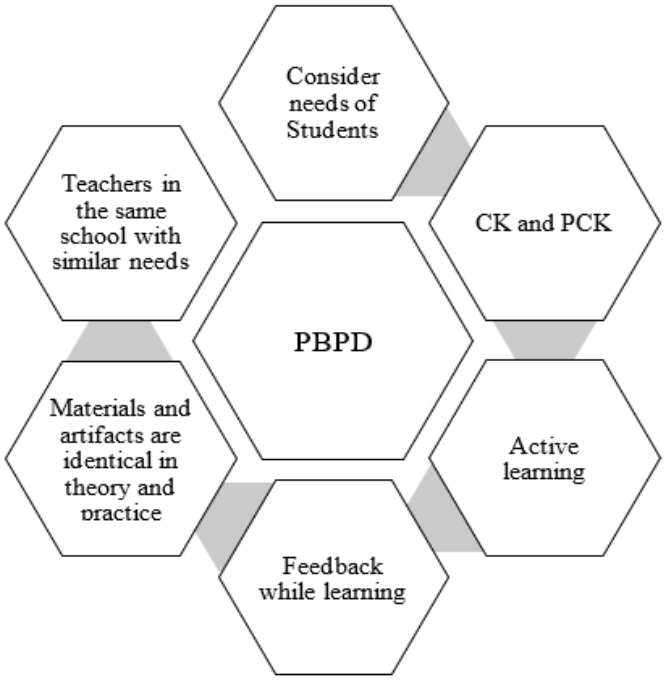


Figure 3. *Practice-Based Professional Development Program Components (Ball & Cohen, 1999)*

PBPD initiatives play a significant role in fostering long-term teacher development, enhancing their skills, and effectiveness, and ultimately improving student outcomes (Gettinger et al., 2008). A substantial body of literature supports the efficacy of PBPD in bolstering in-service teachers' knowledge and skills relevant to their roles (Harris et al., 2012; Hirsch et al., 2019). Several studies (Table 1 below) related to PBPD include;

In the study conducted by Harris and colleagues (2012), a PBPD framework was employed with second and third-grade teachers (n = 20) and their students (n = 262). The study aimed to investigate the effects of PBPD on the implementation of Self-Regulated Strategies Development (SRSD). The program was intensive and provided ongoing support to teachers after the PBPD program. The outcomes of the study were focused on students' performance in story writing and opinion essays. The results revealed significant improvements in both story writing and opinion essays among

students. However, no significant differences were found in the length of the essays, including both story and opinion essays.

In the study by McKeown and colleagues (2016), the effectiveness of PBPD for self-regulated strategy development (SRSD) in writing was investigated. Employing a mixed methods approach combining qualitative, quantitative, and single-case methods, the study included coaching support for teachers to offer feedback. Following their participation in the PBPD program, teachers implemented SRSD in their classrooms with coaching support. The study involved three teachers and their students who provided consent. Researchers measured the implementation of SRSD by teachers and assessed students' responses to writing tasks. The findings indicated that teachers successfully adapted SRSD instruction in their classrooms, with two teachers highlighting the necessity of coaching for implementing changes in writing instruction. Moreover, students demonstrated an increase in their scores from the pre-test to the post-test, indicating improvement in their writing skills as a result of the PBPD program.

In the study conducted by Fisherman and colleagues (2017), the PBPD program's effect on scientific discourse practices among both teachers and students was investigated. The study comprised two groups, referred to as cohorts one and two, with a total of 44 classroom teachers initially participating (although seven were later dropped from the study due to health issues). The research was structured into three parts: an institute component (for both cohorts), a practicum part (exclusive to cohort one), and a follow-up session (for both cohorts). The findings revealed that teachers made significant improvements in their science discourse practices, and these improvements were reflected in the progress of their students as well. The study highlighted the significance of combining a five-day program with follow-up sessions for teachers' development. However, the researchers were unable to definitively conclude whether the practicum session had a significant effect on teachers' development.

In the study by McKeown and colleagues (2019), the effects of a PBPD writing intervention were investigated among third-, fourth-, and fifth-grade classroom

teachers through the implementation of Self-Regulated Strategy Development (SRSD). The study involved providing teachers with a two-day program focused on persuasive writing, aimed at teaching them how to utilize SRSD for persuasive writing instruction. Two groups were included in the study: an experimental group consisting of 11 teachers and their students (n = 318), and a control group comprising 14 teachers and their students (n = 367). The researchers concluded that students who received SRSD instruction demonstrated superior performance compared to those in the control group, as evidenced by higher scores in holistic assessment, analytic assessment, and increased composition length.

In the study, Kohen and Borko (2022) initiated the Hollyhock Fellowship Program, a two-year PD initiative comprising a two-week summer course held at the Stanford University campus. Following the program, researchers provided online coaching support to teachers during the program and throughout the first academic year. The study involved 18 high school mathematics teachers as participants. Researchers evaluated the instructional quality of the teachers' classroom discourse and observed that half of the teachers demonstrated improvements in their instructional discourse, with none experiencing a decrease in their scores. The introduction of online coaching support was identified as a facilitator of positive changes in teachers' classroom discourse.

In the study, Thomas and Drew (2022) examined the outcomes of a three-year PBPD project aimed at enhancing middle school teachers' comprehension, efficacy, and proficiency in instructional shifts through a university partnership. The study involved 42 middle school teachers from 12 school districts. After the three-year PBPD initiative, researchers observed that teachers demonstrated an improved understanding of, appreciation for, and application of instructional shifts aligned with the Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) for literacy. Additionally, teachers exhibited an increased implementation of Disciplinary Literacy (DL) goals as part of their instructional practices.

In the study, Herro and colleagues (2022) examined the impact of a faculty-in-residence (FIR) program within a school-university partnership at a middle school

focusing on STEAM education. The researchers aimed to understand how this partnership influenced teachers' instructional practices. Employing a case study approach, they sought to explore the effects of FIRs on teachers' development. Data were collected through pre- and post-questionnaires, observations, research logs, and follow-up questions. The study concluded that the PBPD increased instructional decision-making and practices for teachers in STEAM settings. Additionally, the university-school partnership was found to be beneficial for STEAM education.

Table 1. *The Practice-Based Professional Development Studies in The Literature*

Authors	Purpose	Instruments	Field	Results
Harris et al., 2012	To provide a comprehensive investigation of teacher and student outcomes for SRSD through PBPD.by coaching support	Observation, writing prompts and outcome measures, story elements, holistic quality, length,	4th grade classroom teachers and students	Coaching has a positive effect on teachers and their attitudes. The overall class showed sig. Improvement in writing from pre to post.
McKeown et al., 2016	To prepare students for STAAR test writing assessment by the SRSD method	Writing prompts for informational and persuasive Implementation fidelity	4th grade classroom teachers and students	The method has a statistically significant effect on students' prompt adherence, elements, and holistic scores. The teachers implemented SRSD with high fidelity.
Fisherman et al., 2017	To investigate the impact of PBPD on the scientific discourse practices of teachers and students.	Science Discourse Instrument and video segments.	44 classroom teachers and their students	All teachers and students showed significant improvements in their science discourse practices after attending the PBPD program.
McKeown et al., 2019	To investigate the effects of PBPD on writing in 3rd, 4th, and 5th grade classrooms.	Writing prompts, persuasive element scores, length, descriptive measures, fidelity, and social validity	25 English arts teachers	Students in the experimental group showed better performance than students in the control group in holistic, analytic scores and length of composition.

Authors	Purpose	Instruments	Field	Results
Osborne et al., 2019	To investigate three versions of the program by comparing the changes in teachers' and students' classroom discourse.	Videos and students' assignments	57 teachers from 3rd, 4th, 5th grade	All groups showed significant improvements after the program. However, neither a group with practice nor a group with a revised program showed additional improvements.
Kohen & Borko, 2022	To investigate the effect of online coaching on teachers' classroom discourse	PLATO observation tool for teachers and classroom discourse	18 high-school math teachers	Teachers improved their classroom discourse. The teacher used more specific references while teaching.
Thomas & Drew, 2022	To investigate the effect of a three-year PBPD on disciplinary literacy practices	Students' and teachers' actions with the survey	42 middle school teachers	Teachers improved their understanding and instruction more than before. In addition, teachers' self-reports showed an increase in their DL goals.
Herro et al., 2022	To understand how a program affects teachers' instructional needs through PBPD.	Questionnaires, observation tools, follow-up, questions, e-mail, logs	Steam School	In conclusion, PBPD can be used in a variety of contexts. Teachers and students gained benefits from lessons.

In the study, Herro and colleagues (2022) investigated a faculty-in-residence (FIR) program within a school-university partnership in middle school at a STEAM school. They tried to understand how this school partnership shaped their instructional practices. They used a case study approach to understand better how FIR affects teachers' development. Data was gathered by pre-post questionnaires, observation, research logs, and follow-up questions. In conclusion, PBPD increased instructional decisions and practices for teachers in STEAM settings and university-school partnerships are beneficial for STEAM education.

2.8 Facilitator Role in a Professional Development Program

Facilitation is defined as guiding and supporting teachers' learning by an expert in their practice (Darling-Hammond et al., 2017). In PD programs, the primary function of the facilitator is to assist teachers in improving their beliefs, knowledge, and practices (Patton & Parker, 2014).

In the field of education, the facilitator role of PD stands as a cornerstone for fostering continuous growth and effectiveness among teachers. Studies indicate that effective PD encompasses various factors, with coaching or facilitation being a key aspect of the school environment (Bates & Morgan, 2018; Darling-Hammond et al., 2017; Kohen & Borko, 2022; Poekert, 2011).

Numerous studies have shown that teachers who receive school-based facilitation during PD are more likely to effectively apply theory into practice compared to those engaged in traditional professional development (Darling-Hammond et al., 2009). Moreover, teachers have reported positive effects from online facilitation (Kohen & Borko, 2022) and facilitation interventions (McKeown et al., 2016). This support is vital as learning is a gradual process (Guskey, 1986), and providing teachers with the necessary support for learning is essential for their development (Guskey, 2002). Educators at all levels require time and embedded support to effectively implement new practices (Guskey & Yoon, 2009), which may prompt their reflection (Poekert, 2011).

In conclusion, the facilitator role of PD emerges as a component in effective education. By providing ongoing support, guidance, and opportunities for growth, PD facilitators empower teachers to thrive in their roles, ultimately benefiting students. As education continues to evolve in response to changing needs and advancements, the facilitator's commitment to fostering a culture of continuous improvement remains essential, ensuring that educators are equipped with the knowledge, skills, and support they need to succeed in their class.

2.9. Summary

Based on the literature, PE has numerous benefits for cognitive, psychological, and physical development. However, PE in primary school is not the desired level and does not meet the curriculum expectations. Therefore, students cannot get benefits from PE classes. There are several reasons that PE is taught low quality, defined as individual and institutional factors in the literature. Individual factors are teachers' knowledge, practice, motivation, etc. To overcome these factors, teachers' development plays a significant factor. Professional development is one of the ways to develop teachers in the scope of program aims. In a PD, teachers participate in a program, that has different lengths, that focuses on specific topics. In the literature, the current PD program is criticized because of its features. For instance, researchers suggested that the contemporary PD program has to have several features which are the content of the program should be specific. The program should consider teachers as active learners. The learning cannot be individual but collaboration is necessary for the learning. The expert or facilitator's support should be included for teachers' development. The feedback and reflection should be held during the program and the duration of the program should be longer than one day or one session. One type of PD program is PBPD that program consists of these features above. It provides teachers with opportunities for purposeful learning and development while actively engaging in their instructional contexts and teachers make sense of their classroom experiences and generate knowledge-in-practice recognizing that valuable knowledge is embedded within teaching itself.

In the PE literature,

- PD studies have predominantly concentrated on secondary education. However, there is a notable scarcity of research specifically targeting PD for classroom teachers.
- Existing PD programs focused on other domains of PD rather than FMS which should be prioritized because of the lifelong participation, and cognitive and psychological benefits.

In summary, there is a need to enhance classroom teachers' understanding of FMS, improve their FMS teaching practices, and improve their students' FMS levels. Pioneering studies suggest that effective PD programs for teachers should have several features that were mentioned above. This study considered previous studies' recommendations and addressed a critical gap in the literature, both nationally and internationally.

CHAPTER 3

METHOD

This chapter contains sections that present an overview of the research methodology used in this study including the description of the overall design of the study, participants and settings, data collection instruments, data collection procedure, process of the program, pilot study, PBPD program, framework, data analysis and treatment integrity and the facilitator role in the program.

3.1 Overall Design of the Study

In a mixed-method research design, data are gathered from different sources to answer research questions holistically (Mertens, 2019). According to Creswell and Clark (2017), mixed-method research designs have three core designs. Explanatory and exploratory sequential mixed method research designs each have two parts after one another. The third design is the convergent mixed-method research design in which quantitative and qualitative data are collected simultaneously but independently of each other, then findings are merged and interpreted in the discussion section as depicted in Figure 5 (Creswell & Clark, 2017). In this study, a mixed-method experimental research design was applied.

From the quantitative aspects of this study, a quasi-experimental one-group pretest-posttest design see Figure 4 (e.g., Shadish et al., 2002) was used. From a qualitative research perspective of this study, case study research was used.

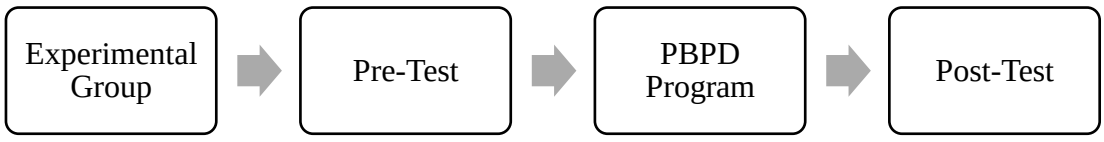


Figure 4. *A Quasi-Experimental One-Group Pre-and Post-Test Design*

In this study, qualitative and quantitative data were collected independently and analyzed within a quasi-experimental study and purposefully integrated and merged the results obtained from both types of data to answer the mixed-method research question.

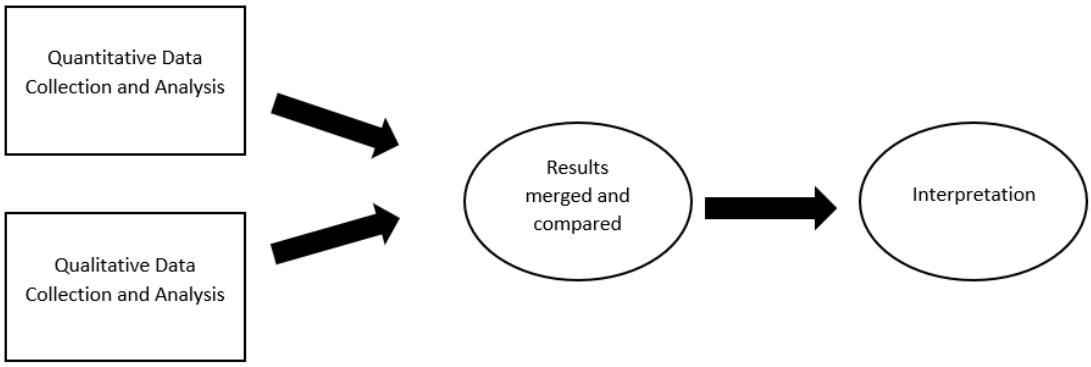


Figure 5. *Convergent Mixed Method Design (adapted from the mixed method book by Creswell & Clarke, 2017)*

3.2 Settings and Participants

The PBPD program was conducted in two primary schools in Ankara during the spring semester of the 2022-2023 educational year. These two primary schools were public schools and had similar facilities for teaching PE and game classes. For instance, both schools had no gymnasium but rather multipurpose halls which students used for activities when the weather was not appropriate for outdoor activities. They also had limited equipment for PE classes. The two schools had limited space in the school garden when two or three classes had PE and game classes at the same time. This implied that teachers did not have the opportunity to use multipurpose halls whenever they wanted or needed them for PE and game classes. Although the surface of the school garden was hard, there were many lines for different activities to play and to construct games and activities. At the beginning of the study, the facilitator provided some equipment to teachers for PE and game classes such as tennis balls, softballs, two balance boards, and two different types of training cones.

The sample consisted of a hierarchical structure with classroom teachers and their students. A purposive sampling methodology was used in the study, which is a non-random sampling method (e.g., Fraenkel et al., 2012).

The inclusion criterion was that teachers could only be included when they taught first, second, and third-grade classes as the first three grades had five hours of PE game class per week but the fourth-grade classes had two hours of PE and game class per week. Participation was totally voluntary. As a result, sixteen female classroom teachers from two schools participated in the study. The information about teachers, their school, gender, years of experience, and the number of students in their class, number of weeks they attended the program were given in Table 2. After a teacher agreed to participate in the study, all students in the teacher's class were invited to participate in the study.

Table 2. *Teachers' Demographic Information*

Participants	School	Gender	Experience (year)	# of students	# of weeks
P1	A	Female	36	23	10
P2	A	Female	33	23	9
P3	A	Female	38	22	9
P4	A	Female	23	19	9
P5	A	Female	30	18	9
P6	A	Female	37	19	10
P7	A	Female	30	12	9
P8	A	Female	30	15	10
P9	A	Female	26	15	10
P10	B	Female	23	30	9
P11	B	Female	21	23	10
P12	B	Female	20	26	10
P13	B	Female	20	31	10
P14	B	Female	21	29	9
P15	B	Female	17	33	10
P16	B	Female	33	25	10

Note. "# of weeks" shows the number of weeks teachers participated in the PBPD program. "# of students" means the number of students teachers have in their class.

3.3 The Practice-Based Professional Development Program

In this section, the PBPD framework and which components of this study corresponded to the features of the framework were explained step by step.

3.3.1. Theoretical Framework Integration to the Study

According to the framework of Ball and Cohen (1999), six features are needed to focus on when designing an effective professional development program. These are 1) collective participation during the program with teachers, 2) a focus on students' needs, 3) increasing content knowledge and pedagogical content knowledge of teachers, 4) materials that are used in the program should be identical with practice/real life practices, 5) to give opportunity for teachers to learn theory and practice actively, and 6) and feedback while learning. All these features were considered by the PBPD program in this study. In Table 3 below, the characteristics of the framework and equivalent in the PBPD program were presented. For instance, Ball and Cohen (1999) indicated that a PBPD should contain the collective participation of teachers who have similar needs. In response to this, teachers who have limited knowledge about teaching FMS in PE classes were chosen. Another one was that a PBPD program should focus on teachers' content and pedagogical content knowledge. Thus, teachers were taught FMS which is one of the main outcomes PE curriculum, and how to teach these skills in the class environment. The last example is that a PBPD should contain feedback for teachers during their development. Thus, all teachers one by one were supported during the whole program whether they were in the first week or the last week and both on or off-site.

Table 3. *The Characteristics of Practice-Based Professional Development Adapted from Ball and Cohen's work (1999)*

Characteristics in the Framework	In this Program
Collective participation of teachers within the same school with similar needs	Teachers meeting for PE and game classes with similar needs.
Basing PD around the characteristics, strengths, and needs of students in these teachers' current classroom	Students' FMS level
Attention to content knowledge needs of teachers, including pedagogical content knowledge	FMS knowledge and how to teach it
Opportunities for active learning and practice of the new methods being learned, including opportunities to see examples of these methods being used and analyze the work	Discussion about their teaching practice and support by facilitator

Characteristics in the Framework	In this Program
Use of materials and other artifacts during PD that are identical to those to be used in the classroom	Learning how to use Dynamical System Theory and observation
Feedback on performance while learning and before using these methods in the classroom so that understandings and skills critical in implementation are developed	Support by facilitator on and offsite (Observation and notes from practice)

3.4 The Process of the Study

The study had four steps; (1) it began with needs assessment which called as a pilot study. (2) Then, the developed pilot study was implemented. (3) After the pilot study, the PBPD study was developed based on the notes of the facilitator. (4) In the last step, the PBPD program was implemented (see Figure 6).

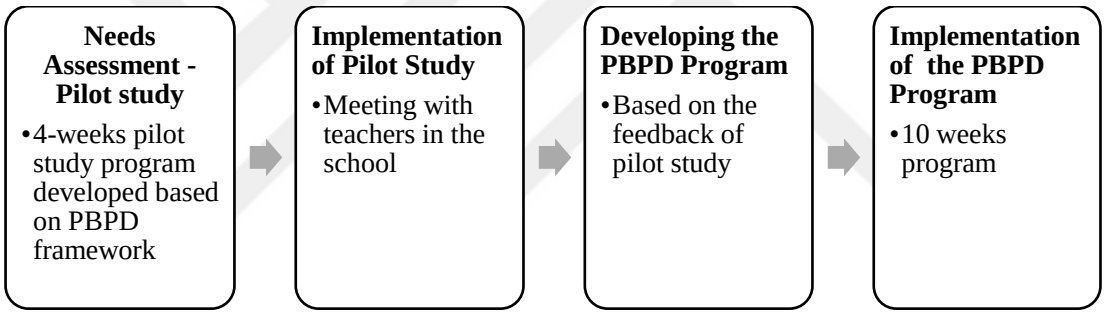


Figure 6. *The Whole Process of The Whole Study Including the Pilot Study, Main Study and Their Development*

3.5 The Needs Assessment - Pilot Study

The 4-week - PBPD pilot study was designed jointly by the facilitator and a field expert in the PE department at Middle East Technical University for needs assessment. The main aim was to determine the process, the strengths and limitations of the program, and which part of the program could be improved or removed from the program of the PBPD program.

3.5.1 Participants of the Pilot Study

A pilot study was conducted in one public school in Ankara (an urban area). This school, its teachers, and children was not part of the PBPD program. In that school 15

classroom teachers participated in the study. The number of students per class was around 25-30.

3.5.2 Settings of the Pilot Study

The school had limited infrastructure for physical activity and sport. It had a big school garden, but not a gymnasium. However, it had one multipurpose room in the school building on the ground floor which was used for PE class in the wintertime. Although the ceiling in the room was low, the surface was covered by tatami and it was around 150 m^2. Thus, teachers had the opportunity to do PE and game classes in this room.

3.5.3 Implementation of the Pilot Study

In the pilot study, the facilitator met with classroom teachers in the school environment for consecutive four weeks. The meetings were scheduled after the teachers' class and each meeting lasted for around 2 hours. The content of the pilot study was presented Table 4 below.

The main topic in the first week was how to read physical activity cards (PAC) that are provided tools by the MoNE. The PAC includes FMS and games that can be useful for teachers in PE. In addition, the cards give clues for teachers to increase or decrease the complexity of the activities. Teachers were asked questions about their physical education and game class. Examples are; *"What is your attitude toward PE class?", "What do you do in PE class?", "What do you think about the curriculum of PE?".* Then, the PE and game curriculum, its aims, and objectives were explained to teachers in 20 minutes. Then, one expert did warm-up activities with all the teachers. At the end of the first week, each teacher gained knowledge on how to read those cards and where to look, how to diversify the activities based on those cards.

In the second week, the facilitator reminded teachers of the first week's activities and asked some questions related to the first week's topics. For instance, *"What did we learn last week?", "Did you apply some activities in your class?".* Then, some activities related to the first week's topic and warm-up activities were done. During these activities, some cases were included in practice by the facilitator to decrease or increase the difficulty of tasks. While adding cases, teachers were asked how they

would manage these situations. Thus, they could find an opportunity to think about how they manipulate tasks, environment, or individuals. In each situation, teachers tried to find solutions and expressed their ideas to the group. It helped teachers to cooperative learning and construct knowledge in real situations. After this activity, they were divided into dyads. Each teacher had a partner. These partners showed some skills to each other and they evaluated their partners' skills. In the last activity of the second-week meeting, facilitator wanted the teachers to look at movement concepts (spatial awareness, effort, and relationship) and wanted them to brainstorm about the movement concepts in their groups. Thereafter, these concepts were explained by the facilitator and two different activities were done related to movement concepts to the group.

In the third week, teachers were reminded and asked questions about movement concepts that they experienced last week. Then, they explained the space awareness, effort, body awareness, relationship with objectives and motor relationship in the example that was provided to them last week. After that, the teachers engaged in some rhythm activities. In each activity, teachers manipulated the task, and individual and environmental variables to make the activity easier or harder. These activities took about 45 minutes. Lastly, the facilitator prepared evaluation cards for each fundamental motor skill that is taken part in the Test of Gross Motor - 2 (TGMD-2). This process aimed to help teachers analyze each skill and understand the sequence of the skill. Each teacher got one evaluation form and had a partner. With a partner, they moved from one station to another station and they did skills such as running or throwing skills. In these stations, they evaluated their partner and learned which criteria were important in specific skills. For instance, they learned arms move in opposition to legs in running skills, or arms bent and lifted to waist level at takeoff in the gallop. At the end of the session, discussions were held about what we did and the evaluation of the FMS process with all teachers and they reflected their opinion.

In the last week, teachers learned FMS terms in the PE curriculum. Therefore, at the beginning of the session, they were asked to read the PE curriculum in terms of FMS outcomes for each grade. Teachers recognized a similar outcome for each grade and the outcome is getting more difficult as the grade increases in the curriculum. For

instance, the first outcome in first grade is “perform locomotor movements”. The first outcome in the second grade is “perform locomotor movements with increasing accuracy”. This took 15 minutes. Then, rhythm and games were played. After each game, teachers make the game easier or more difficult. They learned how to modify games related to specific situations that were presented by the facilitator. For instance, they were asked how they could modify this game if they had limited balls or if they had more students than this game. Furthermore, teachers were asked to make connections between curriculum outcomes and game objectives. At the end of the session, teachers created a game by themselves and presented it to the whole group.

Table 4. *Content of The Pilot Study*

1. Week	2. Week	3. Week	4. Week
- Introduction of PE curriculum - PAC materials - Activities related to PAC - Reflection from teachers	- Warm-up - Dance activities - PAC materials - Movement concepts - Cool down - Reflection from teachers	- Warm-up - Movement concepts - FMS and critical components - Cool down - Reflection from teachers	- Warm-up - Connection of Curriculum, PAC materials, and FMS - Cool down - Reflection on the whole program

3.5.4 Result of the Pilot Study

Based on the results, it was revealed that teachers had major problems and concerns about reading and understanding PE curriculum. For instance, teachers struggled to understand the curriculum, describing it as unclear and difficult to read. They also lacked experience with the PAC and were unsure how to use them. Most had limited game literacy and frequently requested new PE games. Some teachers viewed PE merely as free time for students to play.

3.6. Information About Developing the PBPD Program

The PBPD program was developed in several steps; First of all, the PBPD studies in the literature regardless of the context (subject such as math or STEAM in the

literature) were reviewed. Based on the content and the length of the program, the first draft was uncovered. In the second step, the needs assessment - the pilot study was done (explained above).

In the third step, expert opinion was taken for the content of the program. Then, the PBPD was constructed. For instance, the PBPD program started with teaching games and PE routine which is critical for PE class. Then, the philosophy of FMS, and motor development models was put in the second week. After that, FMS was introduced with movement concepts. Last two weeks, object control and locomotor skills with balance skills were planned to be introduced.

In the last step, the qualitative survey was filled out by teachers at the beginning of the program. This form consisted of six questions. Based on the qualitative survey, the facilitator tried to understand what teachers know about the PE lesson and curriculum based on their answers. In other words, the content of the program was re-organized. For instance, teachers had limited knowledge about the PE curriculum objectives. They struggled with reading and understanding the PE curriculum. Thus, the facilitator focused on the PE curriculum during the first five weeks (see the whole program below Table 5) and made connections between FMS and PAC with the PE curriculum. Additionally, facilitator emphasized more about the PE curriculum, its objectives, and outcomes than it was planned. During the PBPD program, they were given some examples of the class objectives and connection with the curriculum.

There is an ongoing debate in the literature regarding the appropriate length of programs. In this study, both FMS interventions and PD programs from the literature were considered.

First of all, PD programs vary in duration and intensity. For instance, one study provided approximately 100 hours of PD within a month, while another distributed the same number of hours over a longer period (Yoon, 2007). Additionally, several studies in the national literature provided around six weeks (approximately 12 hours) of PD to PE teachers and found significant effects on both teachers' and students' achievement (İnce et al., 2020; Hünük et al., 2013). Overall, around 14 hours of PD have been shown to positively affect student outcomes (Yoon, 2007).

Secondly, regarding FMS interventions, the optimal length has not been clearly identified (Johnson et al., 2023). In the literature, there is limited consensus on the appropriate duration needed to support FMS development in young children. Some studies have implemented nine-week interventions (e.g., Robinson, 2011; Robinson & Goodway, 2009), while others have used twelve-week programs (e.g., Valentini & Rudisill, 2004). Johnson et al. (2023) emphasized that any FMS intervention is more beneficial than no intervention, and that the duration or dose alone is not the most critical factor in determining effectiveness. Based on these considerations, the current program was designed to last 10 weeks (approximately one academic semester).

Table 5. *Content of The Ten-Week Practice-Based Professional Development Program*

Week		Topic	Content of the Meetings
1	**T**	Introduction of program PE curriculum Critical Components of PE PE routine	The PE curriculum and materials were introduced. PE, warm-up, and cool-down routines, as well as the rules of the gymnasium, were all explained.
	P	Warm-up/ Cool down PE class activities PE games	Teacher practice of PE-related activities. Facilitator demonstration of activities within an entire PE class.
2	**T**	Motor development theories Dynamical system theory Hourglass model Age classification	The theories of motor development and the dynamical system theory were explained. The facilitator explained how teachers should classify students based on their age and the effect of age.
	P	Physical activity cards, with a focus on the dynamical system theory.	Activities from the PAC booklet were practiced during the practical component. Activities were selected from PAC and the level was adapted through application of the dynamical system theory.
3	**T**	PE curriculum, FMS and movement concepts (relationship with objects, people and space, body, spatial and effort awareness)	FMS and the relationship with objects, people and space, body, spatial, and effort awareness were discussed. It was explained to teachers what is meant by movement concepts and what they are for.
	P	Physical activity cards	Activities related to movement concepts were performed in PAC and the movements were explained during exercise.
4	**T**	Object control and Balance skills	Catching, kicking, throwing overhand and rolling underhand, dribbling, and balance skills were considered with the use of video footage.

Week		Topic	Content of the Meetings
	P	Activities related to Object Control and Balance Skills	Activities related to object control and balance skills were performed and it was emphasized which criteria (critical elements) in object control and balance skills should be focused upon.
5	**T**	Locomotor and Balance Skills	Locomotor (running, galloping, hopping, leaping, jumping, crossover exercise, walking) and balance skills were considered with the use of video footage.
	P	Activities related to Locomotor and Balance skills	Activities related to locomotor and balance skills were performed and critical elements of locomotor and balance skills were emphasized.
6		Teacher support with a facilitator	Teachers were supported by the facilitator during the PE class. The facilitator provided feedback during the class and assisted teachers during the activities.
7		Teacher support with a facilitator	Similar contents were applied as in week 6
8		PE class observation and feedback	Teachers were observed by the facilitator who provided feedback at the end of the PE class.
9		PE class observation and feedback	Similar contents were applied as in week 8
10		PE class observation and feedback	Similar contents were applied as in week 8

Note. **T***: Theoretical part,* **P***: Practical part*

3.7. Implementation of the Practice-Based Professional Program

The PBPD program was split into three sections which were the first five weeks, the second two weeks (sixth and seventh), and the last three weeks (eighth, ninth, and tenth week) which was presented below in Figure 6.

In the first five weeks, an external observer followed the schedule of that week for following the same topics and doing the same activities for both groups in the meetings. The meetings had theoretical and practical sessions. Thus, teachers learned topic theoretically and then practiced it by doing it. The meetings lasted for approximately two hours. The purpose of meetings was (a) to discuss their teaching experiences and teaching PE and game class, (b) to understand the philosophical background behind growth and motor development, (c) to remind the PE curriculum's main outcome, (d) to improve their knowledge about FMS and how to teach it, (e) to practice what teachers learn in the meeting. Each week has a different focus directly

related to motor development objectives in primary school PE (MoNE, 2018). For instance, teachers have explained the goal of the program and introduced the program in 10 minutes in the first week. Then, they were informed about the curriculum, its objectives, and components of the PE during the theoretical part. Then, they were introduced to warm-up and cool-down activities and games related to a topic in the theoretical part. After they did activities, the facilitator asked them to think about which component of motor skills might be developed.

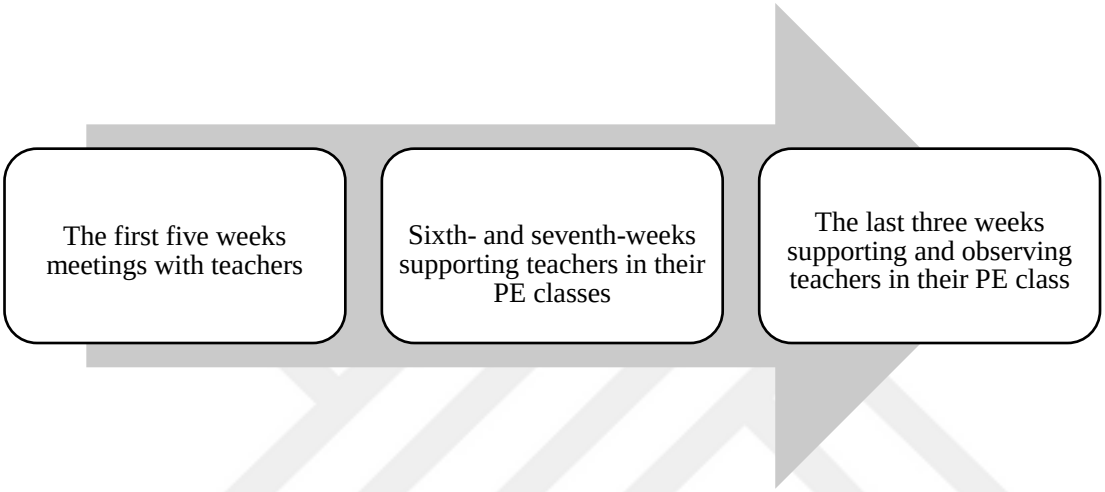


Figure 7. *The Timeline of the PBPD Main Program*

In the second week, the philosophical background of motor development was introduced to teachers, what motor development is and its theories, what hourglass model is, what Dynamical System Theory is, and how to manipulate the environment, task, or individuals. In the practice part, they learned how to read PAC (an example of PAC is given in appendix D) and find an activity in terms of motor development while playing games and doing activities. The fourth and fifth weeks focused only on object control skills, locomotor skills, and balance skills. In theory, they watched videos for each skill such as hopping or jumping skills and they were provided cards in which the teacher should focus on critical elements in specific skills. Then, they practiced these skills in the second part and played games to improve these skills. While practicing these skills, teachers took an instructor role whether other teachers did the skills right or wrong, if it was wrong, the teacher warned other teachers about the skills. Thus, these practice parts were important for all teachers to take an instructor role, and

make connections from theory to practice and these were preliminary work while teaching these skills in the school environment.

After the five weeks of meetings, the facilitator supported teachers as active participants in their classes in the sixth and seventh weeks and gave them feedback during and after class about their practice. The main purpose of these two weeks was to support teachers about what they learned in the first five weeks and try to bring these theories into practice. The facilitator participated in classes but did not guide teachers on what to do. In addition, the facilitator took notes about teachers and their practices to tell them about the pros and cons in terms of their PE class practices. All teachers followed the objectives of their PE curriculum. The facilitator gave some idea about the process which one was appropriate or which one might be improved. For instance, teachers choose a card from PAC that starts with warm-up activities. They taught one or two skills. In the beginning, they informed the students about the skill that they chose, then the skill was shown by the teacher. The teacher created an appropriate environment for students to train in that skill. Then, the teacher created a game related to the skill. At the end of the class, they got reflections from students about the class and did cool-down activities. Teachers were not criticized about their class practice but they were given advice about the process and encouraged to improve themselves. All teachers were supported two times one by one in the sixth and seventh weeks.

In the last session of the program (eighth, ninth, and tenth), the main purpose was to give feedback and improve teachers' class practices. The facilitator observed teachers' classes from outside not participating in class, took field notes about the class, filled the observation form out, and gave feedback about their class at the end of the class. All teachers were observed three times one by one in those weeks.

3.7.1 The Facilitator's Role in this Program

Throughout the PBPD program, I served as the facilitator, assuming a multifaceted role that was crucial to the success of the PD program. My primary responsibility was to construct a proper PD program for primary school teachers and guide and support participating them in enhancing their knowledge and instructional practices related to

teaching FMS. This facilitation role extended far beyond simply delivering content; it involved building trusting relationships with teachers, understanding their unique classroom contexts, their students' needs and offering continuous, context-specific support tailored to their needs.

From the beginning of the program, I was actively involved in designing and structuring the professional learning sessions to ensure they were relevant, practical, and directly applicable to the teachers' experiences. The content was grounded in real classroom challenges and aligned with curriculum expectations, making the PD not only meaningful for them but also immediately useful for the teachers involved.

During the first five weeks of the PBPD program, my role as the facilitator was to lay a strong foundation for teachers' understanding of FMS while fostering a supportive and collaborative learning environment. In the theory sessions, I introduced key concepts related to FMS, including their developmental importance, components (locomotor, object control, and stability skills), and their place within the PE curriculum. My approach emphasized connecting theoretical knowledge to real classroom experiences, using examples, videos, and case discussions to help teachers make sense of abstract concepts. I encouraged open dialogue, posed reflective questions, and facilitated group discussions that allowed teachers to critically examine their current beliefs and practices. This phase was essential for building a shared language around FMS and aligning teachers' understanding of its pedagogical relevance.

In the practice sessions (first five weeks) that accompanied the theoretical components, I actively demonstrated how FMS could be taught in engaging, developmentally appropriate ways. I modeled instructional strategies, classroom management techniques as having PE routine, and inclusive adaptations, while explaining the rationale behind each teaching decision. Teachers were invited to participate in activities as learners, allowing them to experience the tasks from a student's perspective and reflect on their instructional impact. I provided immediate feedback, guided them in adapting activities to suit different age groups and ability levels, and encouraged peer observation and discussion. These sessions were not only hands-on

but also served as a space for experimentation, where teachers could build confidence in applying theory to practice with my ongoing support and guidance.

In the last five weeks, I maintained ongoing contact with teachers through regular follow-ups, observations, and individual consultations. These interactions allowed me to provide timely feedback, address emerging questions or concerns, and offer encouragement as teachers experimented with new instructional approaches. I was intentional in creating a supportive environment where teachers felt safe to try, reflect, and revise their practices. This iterative process of practice and reflection was key to promoting deep and sustained professional growth.

Moreover, I played an active role in collecting insights from teachers' experiences, classroom observations, and informal discussions before and after their PE class, which informed the continuous refinement of the program content. This responsiveness ensured that the PD remained relevant and adaptive to the evolving needs of the participants.

Overall, my role as facilitator was to act as a guide and collaborator—helping teachers connect new learning to their own practice, fostering a culture of shared learning, and ultimately contributing to improved educational outcomes for their students.

3.8 Data Collection Instruments

In this study, different data collection instruments were used in the study: interview, observation, reflection and a motor test. The following sections provide details about these techniques (see the 3.11 data analysis section for research questions, data collecting tools, and its analysis).

3.8.1 Interview with Teachers

Interviews were conducted to explore participants' thoughts on a specific situation (Fraenkel et al., 2012). Interviews provide rich, detailed insights into participants' experiences (Braun & Clarke, 2013; Briggs, 1986). In this study, semi-structured interviews were used at the end of the study with all sixteen teachers.

This interview aimed to understand the teachers' perceived knowledge of teaching FMS, attitudes toward FMS, and their experiences related to facilitator support during the whole process. All interviews were done face-to-face and were audio-recorded. Each interview lasted for around 40-45 minutes. The whole interview questions were presented in the appendix C. While constructing the questions two qualitative experts and one researcher's opinions were taken. These are sample questions; *"When you think about before and after this program, are there any changes in your knowledge about teaching motor skills in PE and game class? If so, what kind of changes". "The first five weeks of this training were theoretical and practical training with you, while the other five weeks were the process of the facilitator supporting you in the classroom environment/practice. Did this have any benefit for you? Can you tell me about the process?" and "Did this training have an impact on your class practice? If so, what kind of impact did it have? Can you give an example?".*

3.8.2 Class Observation

The purpose of the class observation aimed to understand teachers' PE class practices. All teachers' PE classes were observed three times (total 48 observation) in the last three weeks by the facilitator. The Observation tool include 12 behaviors. Some of them are warm-up, cool-down, demonstrating a skill, physical prompt, task (skill) definition etc. (see the appendix C for the observation tool). The scoring system was dichotomous (i.e., behavior was either performed or not). Scores were not calculated as a maximum total; instead, each behavior was reported as the percentage of teachers who demonstrated it.

In this study, the researcher took a nonparticipant/observer as a participant role (e.g., Creswell, 2013). Thus, the researcher stayed out of the group and watched and took field notes from a distance.

The observation form was adapted before the study, originally designed by Hürmeriç-Altunsöz and Goodway (2016). The adaptation process was follows; some items such as equipment availability were removed from the original observation form. The adaptation of the observation included manipulation of the environment, individuals, or tasks by applying dynamical system theory in-class activities, as well as an

explanation of the skills at the beginning of the class, and opportunities for repetition. Adaptations to the original observation instrument were deemed necessary because (1) the main aim of the PBPD program was to examine teachers' FMS teaching practices. Equipment availability and type of teachers' feedback were out of the scope of the main aim of the PBPD program, (3) manipulation of the environment, explanations and repetition of the skill, game-like situations and structure of the sessions were necessary for FMS teaching and an explicit part of the provided content in phase one (e.g., Gallahue et al., 2012; Goodway et al., 2019; Newell, 2020).

The content validity of the adapted observation form for this PD program was confirmed by two experts in PE, selected for their extensive experience and knowledge in FMS teaching and assessment. These experts carefully reviewed the form to ensure that it accurately reflected the essential components of FMS instruction and that it was appropriate for capturing relevant teaching practices. The adapted observation form (see appendix C) includes 12 well-defined teaching behavior, specifically designed to assess whether teachers demonstrate behaviors during PE lessons. This ensures that the form is not only aligned with the content of the PBPD program but also provides a reliable measure of teachers' FMS teaching practices for this study.

For observation of teaching practices, the facilitator filled out class observation forms to document teaching practices in the last three weeks (phase three). In order to ensure inter-rater reliability of the observation forms, an external observer independently observed 11 out of the 48 sessions during these observation weeks, resulting in a substantial observation inter-rater observer agreement (K = 0.62; Landis & Koch, 1977).

3.8.3 Weekly Reflection

The aim of the weekly reflection was to understand teachers' preferences what they learn during the program and follow their development process. This weekly reflection has three questions. The questions were written based on the focus of the PBPD program; (a) *How would you evaluate your physical education and game class for this week?* (b) *Which part of your PE class did you do well?* (c) *Which part of your PE class do you want to improve for the future?* In addition to these three questions, the

last part of the reflection asked the teacher which days teach PE classes in the school and which component of PE in terms of FMS.

3.8.4 PLAYbasic

The aim of the PLAYbasic was to evaluate students' motor competence level. PLAYbasic tool (CS4L Society, 2014) is a short form of PLAYfun, used in a national context (Taş & Hürmeriç-Altunsöz, 2021). This tool consists of locomotor, object control, and balance with five different FMS which are run, hop, overhand throw, kickball, and balance walk. The tool uses a 100 mm visual analog system and has four categories which are initial (0-24), emerging (25-49), competent (50-74), and proficient (75-100). The first two stages are considered developing, the last two stages are considered acquired. Zero point means that the participant does not perform the skill, a hundred point means that the participant performs and achieves all criteria about the skill without any age restriction. This visual analog system evaluates the whole process and helps researchers eliminate errors while evaluating the process (Mertler, 2001).

Studies in the literature have shown strong correlations between PLAYbasic and PLAYfun ($r^2 = .742$, $p < .001$) and overall correlations ranging from r = .83 to .90 (Caldwell et al., 2021). Both tools also showed moderate-to-large correlations with BOT-2 (r = .19–.59, $p < .05$) and CAMSA (Stearns et al., 2019). Based on the study's results, the PLAYbasic tool provides valid and reliable scores for evaluating the FMS of children.

Before applying the PLAYbasic evaluation form, an external observer and the facilitator got training before evaluating students. In total, the external observer and the facilitator observed students in the sample (see table 6 for the numbers). The external observer had no experience beforehand. In the first step, he had training with the workbook for three hours. Then, videos related to PLAYbasic skills were examined one by one. After that the external observer spent time in school settings for five hours. During school settings, the external observer and the facilitator evaluated and shared their ideas about the skills of students to make a consensus among their ratings. Inter-rater reliability was used before applying the PLAYbasic (Table 6 below). Below all

Intraclass Correlation Coefficient of inter and intra-rater reliability values with students' number were presented.

To assess the validity of the PLAYbasic instrument, content validity was examined through expert evaluation. Content validity ensures that the instrument adequately represents the domain it is intended to measure and includes a sufficient sample of relevant content (Fraenkel et al., 2012). If an instrument does not appropriately capture the essential aspects of the construct or presents items in an unclear format, valid results cannot be obtained.

For this study, experts in the field of PE and motor development were consulted to evaluate the relevance, clarity, and comprehensiveness of the items within the PLAYbasic tool. Specifically, two experts with experience in PE, motor competence assessment, and child development was chosen. Then, experts reviewed the tool to determine whether the items effectively captured fundamental movement skills and aligned with the intended measurement objectives. In the last step, experts assessed each item based on clarity, relevance, and appropriateness

Table 6. *Intra- and Inter-Rater Reliability Table of Students*

	The number of Students	Rater	Skills				
			#1	#2	#3	#4	#5
Pre-study	21	Inter-rater	.87	.77	.92	.75	.85
Pre-test - A	46	Inter-rater	.83	.78	.63	.81	.74
Post-test - A	56	Inter-rater	.89	.75	.76	.84	.85
Pre-test - B	74	Intra-rater	.90	.86	.91	.92	.93
Post-test - B	37	Inter-rater	.89	.77	.93	.90	.82

Note: #1= running, #2=hopping, #3=throwing, #4=kicking, #5=walking

3.9 Data Collection Procedure

Data collection occurred during the spring semester of the 2022-2023 academic year. Data were gathered by interviews, weekly reflections, motor competency test and class observation tools.

In the structured interview questionnaire, teachers were asked to fill it out right before the start of the first meeting. The facilitator wanted teachers to write what they know about the questions in the questionnaire. It took ten minutes to fill it out.

In the interview with teachers, data were gathered by using one-on-one interviews. The whole process was recorded by getting permission from all teachers. The interview questions were semi-structured. The interview lasted for around 40 - 45 minutes.

In class observation, the facilitator filled out the class observation form while the teachers taught the class. The facilitator did not modify or give any clue about the observation. Eleven of 48 observation were done with external observer for inter-rate observer agreement.

In weekly reflection, the facilitator gave the teacher a reflection paper for each week. Teachers were asked to fill out the weekly reflection. It took five minutes to fill it out.

In the FMS test, students were measured for their FMS level by using PLAYbasic in the school environment. This test took approximately ten minutes for each student. This test was done during their PE and game class.

3.10 Ethical Procedures

The study followed the Declaration of Helsinki Protocol. All teachers and parents of the students provided written informed consent. Before the study, the purpose, rationale, design of the study, participants, and data collection methods were submitted to the Human Research Ethical Committee at the Middle East Technical University and this study was approved by the committee (see the appendix A and B). After obtaining ethical permission (protocol no: 0478-ODTÜİAEK-2022: 0129-ODTUİAEK-2023), the summary of the study was sent to the Ministry of National Education (MoNE) to obtain research permission in school. In this summary of the study, the parent consent form, all forms that were used in the study, the process of study, and the content of the materials that were used in the study were included. After the research permission was taken, principals, teachers, and students of schools were informed about the process clearly and completely.

Teachers who participated in the study were given parental consent forms and wanted to get permission from students' parents or guardians. Students who brought the consent form could participate in the motor competency test. Those students did not pay more attention than students who did not bring the consent form. All students were stored as numbers, not their real names. All completed consent forms, motor competency tests, reflections, and interviews were stored in the researchers' office with confidentiality. Only the researcher and his advisor had access to the information. Participation in the study was voluntary. The participants were named as "*P1, P2, P3… P16* and interview results were stated in the study by those names*".*

3.11 Data Analysis

In this section, data analysis is explained for each research question (Table 7).

Table 7. *Data Analysis for Each Research Question in The Study*

Research Questions	Data collection Instruments	Data Analysis
1- How do classroom teachers experience participating in a ten-week practice-based professional development program focused on FMS teaching?	Interview with teachers	Reflexive Thematic Analysis
2- What proportion of classroom teachers demonstrate the desired instructional tasks for teaching FMS following participation in a ten-week practice-based professional development program?	Class observation	Descriptive Analysis
3- What are the classroom teachers' preferences for learning in physical education and game class throughout a ten-week practice-based professional development program?	Weekly reflection	Content Analysis
4- How does students' level of FMS change across grade levels following their teachers' participation in a ten-week practice-based professional development program, as measured pre- and post-test?	PLAYBasic	Multilevel Analysis
5- Following participation in a ten-week practice-based professional development program, how do the classroom teachers perceive their students' progression of motor skills?	Interview with teachers	Reflexive Thematic Analysis
6- How do qualitative and quantitative data complement each other?		

Note. Seventh question is mixed-method question.

3.11.1 Qualitative Analysis

In this study, reflective thematic analysis was used for the teachers' interviews (Braun & Clarke, 2019). Thematic analysis is a method that defines themes and patterns in the data set with respect to research questions (Braun & Clarke, 2006; Braun & Clarke, 2013). This method has been accepted in the literature (Braun & Clarke, 2006). The main significant strength of this method is flexibility (Braun & Clarke, 2013). The following reflective thematic analysis steps were followed by Braun and Clarke (2006); (1) familiarizing yourself with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining themes (6) producing reports. The process in the practice was explained following sentences; first of all, the researcher did read the data two times to get familiar with the data. Because the interview was done by the same researcher. The researcher already knew the data. After the data were uploaded to the MAXQDA program (VERBI Software, 2021), initial codes were written during the reading the data. In the third process based on the recommendation of Braun and Clarke (2006), themes were identified for the codes and to get them together. After finishing the search themes' names, themes were reviewed whether these were appropriate or not. If not, the name of the theme was revised. In the last two steps, themes were identified and reported in the paper.

In addition to reflective thematic analysis, content analysis was used for teachers' reflections. Content analysis is a method that makes the message valid inference (Weber, 1990). Research indicated that content analysis is a flexible method for analyzing texting data. These data might be in print, verbal, or electronic form that is obtained as open-ended surveys, interviews, focus groups, or observation (Hsieh & Shannon, 2005). This method can be used for many purposes such as comparing the media, coding open-ended surveys, determining people's psychology, reflecting the cultures of people, and describing the trends in communication (Weber, 1990). Content analysis has three main approaches which are conventional, directed, and summative. In this study, conventional content analysis was used for describing phenomena which is generally used when there is limited literature (Hsieh & Shannon, 2005). In conventional content analysis, codes come directly and inductively from the text (Hsieh & Shannon, 2005; Zhang & Wildemuth, 2005). In this study, this process

was followed by Zhang & Wildemuth (2005); (1) prepare the data, (2) define the unit of analysis, (3) develop codes, (4) test the codes, (5) code all text, (6) assess the consistency of code, (7) draw conclusion from the coded data, (8) report your findings.

Peer debriefing; Peer debriefing served as an external agreement (Creswell, 2013), by involving more than one researcher (Patton, 2015) for credibility activities (Lincoln & Guba, 1985). Peer debriefing is a valuable strategy (Denzin & Lincoln, 2011) and a flexible process (Spillett, 2003). Lincoln and Guba (1985) outline significant purposes of peer debriefing. Firstly, debriefers serve to prompt researchers to attain deeper insights. Secondly, peer debriefing provides a safe space for researchers to validate emerging hypotheses. In the literature, there is no prescribing how debriefing sessions should be conducted during the process of coding and analyzing (Lincoln & Guba, 1985; Spillet, 2003). The key points in the peer debriefing process are that peer debriefers assist in ensuring the accuracy and validity of research interpretations and conclusions, decrease researcher bias, demonstrate collaboration among researchers, and facilitate the dissemination of findings (Hendricks, 2006).

In a reflexive thematic approach, code checking is not considered, because coding cannot be right or wrong but it can be weaker or stronger (Braun & Clarke, 2019). In other words, coding agreement is not considered. Braun and Clarke (2019) indicated that coding is an active and organic process. Thus, the codes are considered whether they explain the content appropriately and whether they are meaningful for the content or not. Themes do not naturally exist in the data; rather, they emerge where the researcher's assumptions intersect (Braun & Clarke, 2019).

In this study, three different researchers (at least more than one researcher in line with the recommendation of Patton, 2015), with expertise in education, critiqued the initial codes, sub-themes, and themes that were presented for gathering feedback with diverse perspectives. These three researchers had transcripts and all data in MAXQDA software. They could see which codes are defined in which paragraph in transcripts. After these three researchers examined all transcripts with themes, sub-themes, and codes, they raised questions about the process of identifying the codes, sub-themes, and themes.

3.11.2 Quantitative Analysis

In the class observation of the teachers, descriptive statistics were used to calculate percentages and used the frequencies whether the teachers showed the behaviors or not. In this study for the students' motor competency, multilevel analysis was used. The multilevel analysis consisted of three hierarchical levels: the first level comprised the two measurements within students (n = 211). Measurements pre-test and post-test were nested within students (at level 2) and within 16 classes (at level 3). Because of the hierarchical data structure, multilevel modelling is the preferred method for statistical analysis (e.g., De Leeuw & Meijer, 2008; Getchell et al., 2020; Hox, 1995; Snijders & Bosker, 2012), using MLwiN 3.0 software. This model is an extension of the basic linear model (e.g., Field, 2013). Before running the analysis, the requirements of linear model analysis were checked; univariate and multivariate outliers, normality of residuals, absence of multicollinearity, and homoscedasticity of residuals. The level of significance was set at $p < .05$ for all analyses.

Models were conducted separately for the dependent variables; locomotor skills, object control skills, balance skills, and an overall score. A dummy variable indicating whether a measurement was a pretest (0) or posttest (1) measure was included as a predictor variable to assess the change in skills throughout the PD program. Dummy variables were added to the model for the grade level to assess differences in the average pretest scores in grade 1 (reference category) and grade 2 or grade 3. Finally, two interaction variables were added to assess whether the change in skills between pretest and posttest differed between grade 1 (reference category) and grade 2 or grade 3. The model included random intercepts to allow for differences between students and teachers in pretest scores. Moreover, the model included random slopes for the change between pretest and posttest to allow for differences between students and teachers in the amount of change between pretest and posttest. These two random components were allowed to correlate at each level.

3.12. Internal Validity

Internal validity refers to the extent to which changes in the dependent variable in a study can be directly attributed to the independent variable, rather than to uncontrolled

variables (Fraenkel et al., 2012). In this study, a one-group pretest-posttest design was used, which is subject to several potential threats to internal validity. Specifically, nine threats are commonly associated with this design: history, maturation, instrument decay, data collector characteristics, data collector bias, testing effects, statistical regression, attitude of subjects, and implementation.

In this study, several strategies were employed to minimize threats to internal validity commonly associated with one-group pre-posttest designs. Although efforts were made to conduct data collection within a relatively short time frame, history and maturation threats could not be fully controlled and remain limitations of the study. For maturation, grade differences were examined, and it was observed that Grade one students improved their scores more than Grade two and three students, suggesting developmental factors may have influenced the results. To minimize instrument decay, the same measurement tools and procedures were consistently used at both pre- and post-assessments. Data collector characteristics and data collector bias were controlled by conducting inter- and intra-rater reliability processes and by ensuring that all data collectors were thoroughly trained and adhered to consistent administration procedures throughout the study. The testing effect was addressed by ensuring an appropriate time gap between pre- and post-tests and by using assessments that limited practice effects. Statistical regression was minimized by inviting all students to participate in the study without researcher-based selection, ensuring a broad and representative participant pool. To mitigate the attitude of subjects (e.g., participants becoming overly motivated or demotivated because they know they are being tested), participants were not informed about the specific research hypotheses. Finally, implementation threats were minimized by standardizing the intervention delivery across all sessions, following a structured protocol. These procedures aimed to strengthen the internal validity of the findings.

3.13 Treatment Integrity

The treatment integrity plays a significant role in determining the effectiveness of intervention or instruction. Otherwise, an experiment cannot be replicated and confounded when the instruction is not applied as planned and the same (Cooper et al.,

2007). If the instruction is not applied as planned, it is difficult to define whether there is a treatment effect on behavior change or not (Lower et al., 2016). For instance, Lower and colleagues (2016) using integrity decreased disruptive behavior and increased involvement. Thus, the treatment integrity method while checklist was used in this study. Over the program, a researcher controlled the facilitator and whether the facilitator followed the instructions as it was planned. For instance, one checklist was given to the researcher who controls the facilitator during the meetings. Whether the facilitator explained the current week's topic one by one based on the plan. If something is forgotten or skipped, the researcher or supervisor warns the facilitator to explain it before the end of the meeting. During the meetings, the researcher took notes about the meeting.

3.14 Reflexivity of a Facilitator, Advisor and an External Observer

The facilitator; I work as a research assistant at a public university. I have been assisting in "Physical Activity and Public Health" undergraduate course and "Growth and Motor Development" graduate course. Additionally, I worked on a teacher in-service training project for the last two years. The role of the facilitator was to explain the whole process to the teachers and teach themes each week by guidance and under the control of an expert in the theory part and practice parts. In case of that, teachers were absent that week, made the connection out of the meeting and helped them to catch the concepts. During the meetings, I asked some questions such as "How was your week in terms of PE perspective?", "Is there any specific moment you would like to share with us?" at the beginning of the meetings. Then I guided teachers to discuss a current topic and find solutions to learn solutions from each other. After meetings, I visited and supported each teacher in the physical education and game class for two weeks, then observed them in their PE class practice for the last three weeks. I prepared everything that was needed in meetings, supporting teachers in the field, and observing weeks.

Advisor; The field expert is an associate professor doctor at the university and has a PhD in Physical Education Teacher Education. She teaches "Physical Activity and Public Health" undergraduate level and "Growth and Motor Development" graduate

courses at the university. She has various experiences in the growth and motor development area and has highly quantitative research in the literature. While designing the PBPD program of teacher education, she contributed knowledge for all theoretical and practical parts.

An External Observer; He has been studying as a master's student in the PE and sports department. At the beginning of the program, he was informed about the whole process of the study and his duty during this process. The role of the external observer was to help the facilitator during the program and to gather data for inter-rater reliability and inter-rater agreement. He checked the teachers' practices in PE and game class for treatment integrity and took notes during teachers' observations.

CHAPTER 4

RESULTS

This chapter showed the findings of the study. The findings were presented based on the research questions that were presented in the introduction part.

4.1. Results of Thematic Analysis

Based on the qualitative interviews and the subsequent coding procedure, three themes occurred; about the teachers, the facilitator, and the students. Theme names and codes are presented in Table 8. In addition, which themes and codes that answer the research questions are presented in the “RQ” part. The following sections present these themes concerning research questions.

The first theme, titled "Empowering Teachers," emphasizes the importance of teacher development in enhancing teaching practices and professional development (PD). The second theme, titled "The Role of the Facilitator," highlights the facilitator's role in supporting teacher learning during PD. The third theme “Empowering Holistic Development of Students” indicated that the development of students is not only just physically but also, they developed themselves holistically from their teachers’ perspective.

The sub-themes "Pedagogical Alchemy" and "Enriched Classroom Practice" were identified within the overarching theme of "Empowering Teachers." The "Pedagogical Alchemy" sub-theme captures the transformative nature of the PD program, encompassing six codes that reflect teachers’ ability to select FMS objective from the PE curriculum, utilize materials relevant to the chosen objective, and gain confidence in implementing FMS. Additional codes, such as "self-reflection and PD" and "a change in attitudes toward PE," further illustrate how "Pedagogical Alchemy" involves

fostering self-awareness, embracing continuous improvement, and advocating for the value of PE among teachers.

Table 8. *The Result of Qualitative Study Based on Themes, Sub-themes, Codes, and Corresponding Research Questions*

Themes	Sub-themes	Codes	RQs
Empowering teachers	Pedagogical alchemy	FMS implementation	1
		Curriculum literacy	
		Material literacy	
		Connections between the PE curriculum, PAC, and FMS	
		Self-reflection and PD	
		Changes in attitudes toward PE	
	Enriched classroom practice	Integration of FMS into practice PE routine	
The role of facilitator		Scaffolding	
		Competency	
		Provision of feedback	
Empowering Holistic Development of Students		Attitudes toward PE	5
		Understanding the PE concepts	
		Students' engagement	
		Fair Play	

"Enriched Classroom Practice" focuses on the application of strategies and practices that enhance the classroom environment. This sub-theme includes two codes: the integration of FMS into lessons and the establishment of a PE routine, both of which contribute to creating a richer classroom experience. The term "enriched" signifies providing students with an exceptional, well-rounded educational experience. It reflects a dedication to innovation, creativity, and the incorporation of diverse learning approaches that address the varied needs and interests of students.

"Empowering PL of Students" theme indicated that students changed their attitudes toward PD, understand PE concepts better than they were in the past. They engaged PA more and they are more active in PE than they were in PE in the past. Thus, the theme reflects the holistic development of students.

4.1.1 "How do classroom teachers experience participating in a ten-week practice-based professional development program focused on FMS teaching?"

In response to this research question, three themes emerged related to teachers' experiences participating in the PBPD program: their perceived knowledge, their attitudes toward teaching FMS, and the role of the facilitator. These themes are explained below, one by one.

4.1.1.1. Teachers Perceived Knowledge about Teaching FMS

Based on the perceived teachers perceived knowledge, one theme, one sub-theme, and four codes are presented (see Table 9) related to their perceived knowledge about teaching FMS. This sub-theme contained four codes that are about FMS implication, curriculum literacy, material literacy, and their connection. These codes are presented and explained below one by one under the related title.

Table 9. *Teachers' Perceived Knowledge About Teaching FMS's Themes, Sub-Themes and Codes*

Theme	Sub-themes	Codes	RQ
Empowering teachers	Pedagogical alchemy	FMS implementation	1
		Curriculum literacy	
		Material literacy	
		Connections between the Physical education curriculum, Physical activity cards and fundamental motor skills	

4.1.1.1.1. Fundamental Motor Skills Implementation

Based on the interviews, teachers expressed their ideas about FMS implementation. They had limited knowledge about FMS and they had limited knowledge of how to apply these skills in their PE and game class. For instance;

> "*I teach the physical education class without paying attention to FMS before the program. We did not observe these skills. Now, I have a chance to observe which kids do which skills/movements and to what extent he/she (student) does the movement more carefully. This program taught me this. I am going to behave more consciously as a teacher." (P12)*

"Temel motor becerileri, motor becerileri, çocukların topu tutmaları dikkat etmeden biz işliyormuşuz dersleri. Bunların hepsini normalde çok bilerek gözlemlemiyorduk çocukları. Şimdi biraz daha dikkatli gözleme dayalı hangi çocuğun ne derece hangi hareketi yapabildiğini gözlemleme şansına sahibim. Bu eğitim bana bunu kazandırdı. Daha bilinçli davranacağım. Öğretmen olarak daha bilinçli davranacağım. (K12)"

The teachers expressed their ideas about the FMS and how they improved themselves and made a difference before and after the program.

"*I did not know how to do FMS. Actually, these skills were not taught to us in university or during my career. Whatever children do with the skills, they do. We did not pay attention to the children or how they do that skill…The program motivated me to teach PE classes with correct form, getting to know our bodies accurately. It has become more enjoyable for students as well." (P13)*

"Hareketlerin nasıl yapılması gerektiği konusunda daha önce hiçbir fikir sahibi değildim. Öğretilmemişti de daha doğrusu. Yani çocuklar nasıl yapıyorlarsa öyle. Yani hiç dikkat etmiyorduk çocuklara. Nasıl hareket ettiklerine…Ben de öyle hani doğrusunu öğretiyor olmak ve gerçekten adı beden eğitimi dersi, bedenimizi gerçekten doğru bir şekilde tanıyor olmak ve bu dersi o şekilde işliyor olmak hem benim için daha motive edici oldu hem de öğrenciler için daha zevkli bir hale geldi. (K13)"

"For instance, I did not know the names of the skills ... I did not know what gallop or slide are. I did not know the concept of which arm, and leg should be during the rolling or throwing the ball. Now, I learned it. In addition, my students warn each other right now. I think my knowledge is enhanced." (P15).

"Mesela bu bir kere hiç adını bilmiyordum açıkçası. Kendi eksikliğim. İşte galop nedir, yana kayma nedir? Bir topu yuvarlarken ya da atarken elim, kolum, bacağım ters kol, ters bacak bu kavramlar mesela şimdi hem bende oturdu. Hem de öğrenciler de hemen birbirini uyarmaya başladılar. Yanlış ayağını öne alacaksın. Kolun arkada olacak gibi. Bilgimin arttığını düşünüyorum. (K15)"

4.1.1.1.2. Curriculum Literacy

Teachers, generally, thought that the PE curriculum includes theoretical words and that they did not know the PE curriculum exactly. They did not understand the terms related to PE in the curriculum.

"*We did not know how to apply the PE curriculum. We look at the outcomes in the PE curriculum and those seem too general objectives. We tried to teach something related to the outcome of the curriculum." (P11).*

"Yani programı çok fazla uygulamayı bilemiyorduk açıkçası. Kazanımlara bakıyoruz. Kazanımlarda çok genel kazanımlardı, ona göre kendimiz o kazanıma göre bir şeyler yapmaya çalışıyordum derste. (K11)"

"Some outcomes in PE curriculum did not make sense for us" (P12)

"Bazı kazanımlar çok anlamsız geliyordu bize. Anlamsız geliyordu o kazanımlar. (K12)"

After the PBPD program, however, their ideas changed about the PE curriculum. For instance,

"*The outcomes in the PE curriculum were designed very well and I recognized it in the program. In addition, I am able to teach these outcomes. This is a nice feeling."* (P3).

"Kazanımların gerçekten iyi bir hani böyle havadaki sözcükler değil de gerçekten kazanımlar olduğunu gördüm. Ve bu kazanımları kazandırdım. İşin en güzel tarafı. Bu hoş bir duyguydu. Güzeldi" (K3)

"*While we were doing the yearly plan, we wrote those outcomes one by one. However, we did not use those in practice. Because we did not know how to apply these outcomes. Now we use the materials (PAC materials), and these outcomes are presented in our curriculum as well. The outcomes guide us when we do it step by step. It is clear to use and understand the PAC. Now we can understand the PE curriculum and we learned it." (*P4*).*

"Biz yıllık planlarımızı yaparken o kazanımları zaten teker teker alıyorduk. Ama kullanıyor muyduk? Hayır. Kullanmıyorduk çünkü kazanımların ne olduğunu nasıl yapacağımız bilmiyorduk ama FEK kartlarını da incelediğimizde zaten kazanımların planımızda da olduğunu gördük. Ve basamak basamak gittiğimiz zaman gerçekten çok yönlendirici kazanımlar olduğunu, gayet de anlaşılabilir olduğunu da öğrendik. Plana bakıyoruz. FEK kartına bakıyoruz. İkisini de kullanarak yolumuza devam ediyoruz. Artık anlıyoruz yani. Öğrendik biz de." (K4)

4.1.1.1.3. Material Literacy

At the beginning of the program, one copy of the PAC booklet was given to each teacher. In the program, teachers were experienced in how to teach those cards. As a result, the program had a positive effect on their ideas toward PAC. For instance;

> "*We did not know how to use the PAC booklet until you explained it. We were not aware of how to integrate it into the curriculum. I knew the PAC but I just looked at them and did not use it…Thanks to the program, I learned how to use and teach it. PAC are going to be a guide for us in the future." (P12).*

> *"FEK kartlarını mesela siz söyleyene kadar okumayı bilmiyormuşuz. Şeye de plana/programa da uyarlamayı nasıl uyarlamamız gerektiğinin farkında değilmişiz. Ben FEK kartlarını hocam öğretmenliğimin ilk yıllarında biliyorum… Sayenizde şimdi neyi nasıl öğretmem ya da okumam gerektiğini biliyorum. Bu FEK kartları bu konuda inanılmaz yol gösterici olacak bize." (K12)*

Another teacher expressed her ideas about the PAC.

> "*PAC did not make sense to us before the program. We did not understand the pictures on it. First five weeks, you informed us about the PAC. You demonstrated and showed some videos, and the cards made sense for use. Actually, we did think that it is not useful.... However, giving this in order (giving information, demonstrating) makes it easier for us. Now we can understand how to begin and finish it. How should I start to take action, how to end it, I can see it on the PAC. The movements on the cards follow each other and from easiest to hardest is progressing at a level that each child can do." (P13)*

> *"Biz hani FEK kartları çok anlamsız geliyordu. Yani anlamıyorduk. O şeydeki üzerindeki görselleri. Ya o ilk haftalık, beş ilk beş haftalık süreçte sizin bu FEK kartları üzerindeki yaptığınız konu anlatımları hem göz kendinizi göstererek hem de videolarla öğrettiğiniz şeylerden yola çıkarak onlar artık bize daha anlamlı geldi. Biz aslında hani çok da kullanılır olduğunu yani düşünmüyorduk…fakat, Bunları derli toplu bir şekilde o FEK kartları üzerinde görüp hem işimiz de kolaylaştı. Yani başını ve sonunu görebiliyoruz. Nasıl harekete nasıl başlamam lazım? Hareketi nasıl bitirmem lazım? Kart üzerinde sırasıyla görebiliyorum hani. Hem de o FEK kart üzerindeki o hareketler birbirini izleyen hareketler, basitten zora doğru her çocuğun yapabileceği düzeyde ilerliyor. (K13)"*

"*I really like the PAC booklet which is next to my notebook now. I am looking, to examine it. It is well prepared in detail. Everything is explained step by step. I am thankful for you to introduce it to me." (P8).*

"Çok beğendim. Şu anda sınıf defterimin yanında. Bakıyorum, inceliyorum ve çok güzel hazırlanmış. O kadar ayrıntılı. O kadar böyle seviye seviyeye açıklamış ki. Ben bu kitapla tanıştığım için tanıştırdığınız için size teşekkür ederim" (K8)

4.1.1.1.4. Connections Between Physical Education Curriculum, Physical Activity Cards and Fundamental Motor Skills

The last code was about the material, curriculum, and FMS connection. Based on the interviews, teachers claimed when they teach something in the PE curriculum, they know which cards they need to look at and which skills they teach right now. For instance,

"*Perhaps we did not know all skills one by one. At least when I look at the PE curriculum and the PAC, I can understand which skills or parts I need to look at. I can understand what to match with what. (P15).*

"Tek tek bilgi olarak hepsini alamasak da en azından şimdi programa baktığımda bir de FEK kartlarına baktığımda neye bakmam gerektiğini anladım. Neyle neyi eşleştirmem gerektiğini anladım."(K15)

"I look at the curriculum and the PAC cards then I use both. ..... I can do matching. Our plans are working week by week. I can find which games related to that outcome is in that PAC card." (P4).

"Eşleştirme yapıyorum. Hafta hafta planlarımız tutuyor. O kartlardan hangi kazanımla ilgili hangi oyunlar var buluyoruz" (K4)

4.1.1.2. Teachers' Attitudes toward teaching FMS

In the second theme related to teachers' experiences, teachers' attitudes toward teaching fundamental motor skills theme were emerged. The central theme revolved around empowering teachers. Although five sub-themes were identified, two—'pedagogical alchemy' and 'enriched classroom practices'—specifically addressed the research questions. These two sub-themes encompassed four codes: self-reflection and professional development, changes in attitudes toward physical education, teaching

fundamental motor skills, and establishing a routine in physical education. Overall, teachers expressed positive views across these components. The details of these codes are presented below.

Table 10. *Teachers' Attitudes Toward Teaching FMS's Themes, Sub-themes and Codes*

Theme	Sub-themes	Codes	RQ
Empowering teachers	Pedagogical alchemy	Self-reflection and PD	1
		Change in attitudes toward PE	
	Enriched classroom practice	Integration of FMS into Practice	
		PE routine	

4.1.1.2.1. Self-Reflection and Professional Development

Teachers stated they do not teach PE and game class properly. They focused on external factors which they could not change. In addition, teachers cannot understand their students' needs and wishes. Before the program, teachers matched PE classes with just playing games. For instance,

> "*To be honest, I did not enjoy teaching PE class. It tired me out." (P12).*
>
> *"Dürüst olmak gerekirse, beden eğitimi dersi vermekten hoşlanmıyordum. Beni yoruyordu." (K12)*
>
> *"Physical education class was perceived as a game class. Just let children play. They cannot construct their game environment… In addition, I could not give fruitful PE class for students. What I did was warm up, and give an order. Then, students created their groups and played unstructured games. Thus, I did not teach PE properly." (P14).*
>
> *"Yani ve beden eğitimi dersinde bizim de ve öğrencilerin de genelde hep bir algısı şey oyun dersi. Hani çocukları serbest zamanlı bırak oyun oynasınlar ki çocukların da hep talebi bu aslında. Çünkü kendi oyun alanlarını oluşturamıyorlar…Hani beden eğitimi dersini biraz daha amacına yönelik hizmet etsin diye, işte ilk başta ısınma hareketleri yapıyordum, komutlar veriyordum, yönergelerde bulunuyordum. Sonra kendileri istedikleri oyunları gruplar oluşturarak istedikleri oyunlara gene serbest bir şekilde uyguluyorlardı. Bu anlamda ben aslında evet beden eğitimi dersinin eksik yaşandığını, eksik uygulandığını düşünüyordum." (K14)*

Teachers wanted to participate in this program for several reasons however, the main motivation for them is to gain knowledge during their career and to be beneficial for their students.

> *"To develop myself" (P15)*
>
> *"Kendimi geliştirmek için" (K15)*
>
> *"Is there any other motivation to participate in the program?" (Researcher)*
>
> *"Programa katılmak için başka bir motivasyon var mı?" (Araştırmacı)*
>
> *"To contribute to the students in the class and I know that I have limited knowledge about PE subject. Physical education is a leisure time for use both students and me. In general, we spent time doing different activities. Thus, the second motivation for me is to contribute, to benefit to my class. (P15)*
>
> *"Sınıftaki öğrencilere katkıda bulunmak ve beden eğitimi konusunda sınırlı bilgiye sahip olduğumu biliyorum. Beden eğitimi hem öğrenciler hem de benim için bir boş zaman değerlendirme aracıdır. Genel olarak farklı aktiviteler yaparak zaman geçiriyoruz. Bu nedenle, benim için ikinci motivasyon sınıfıma katkıda bulunmak, fayda sağlamaktır." (K15)*

However, when they participated in the program, they got benefits from the program and the program developed teachers positively. For instance,

> *"When we did PE class, we played a few games or children did whatever they wanted. Perhaps, we did not push ourselves that we do not have a gymnasium, what we should do, and so on. We tricked ourselves and did not find another solution. However, now we can do more effective physical education class in any case by knowing how to use those PAC that you taught us within the framework of certain rules in the classroom." (P13).*
>
> *"Beden eğitimi dersi yaptığımızda birkaç oyun oynadık ya da çocuklar ne isterlerse onu yaptılar. Belki de spor salonumuz olmadığı, ne yapmamız gerektiği gibi konularda kendimizi zorlamadık. Kendimizi kandırdık ve başka bir çözüm bulamadık. Ama şimdi sizin bize öğrettiğiniz o FEK kartını sınıfta belli kurallar çerçevesinde nasıl kullanacağımızı bilerek her halükârda daha etkili bir beden eğitimi dersi yapabiliriz." (K13)*
>
> *"I found this program beneficial for us. What I learned makes it easy in the classroom. Because I did not know the curriculum, did not understand the PAC.*

The course was very enjoyable and my students ask me always what we are going to do in physical education class." (P15).

"Bu programı bizim için faydalı buldum. Öğrendiklerim sınıfta işimi kolaylaştırdı. Çünkü müfredatı bilmiyordum, FEK kartını anlamıyordum. Kurs çok keyifliydi ve öğrencilerim bana her zaman beden eğitimi dersinde ne yapacağımızı soruyor" (K15)

4.1.1.2.2 Changes in Attitudes Toward Physical Education

Teachers had negative attitudes toward PE before the program. They did not know what was the core of the PE program. However, they positively changed their attitudes. For instance,

"I did not know why I get children run, why I get them warm-up or cool-down. When I should teach these activities. Now, I know what I do in terms of objectives in the PE curriculum. I am finishing the class by observing the effects of the outcome on the children." (P13).

"Çocukları neden koşturduğumu, neden ısınma ya da soğuma yaptırdığımı bilmiyordum. Bu etkinlikleri ne zaman öğretmem gerektiğini. Artık beden eğitimi müfredatındaki hedefler açısından ne yaptığımı biliyorum. Kazanımın çocuklar üzerindeki etkilerini gözlemleyerek dersi bitiriyorum" (K13)

"This is not a class that we just play. It is a class like other classes. Our goal of the PE is not just playing games" (P8).

"Bu sadece oynadığımız bir ders değil. Bu da diğer dersler gibi bir ders. Beden Eğitimi dersindeki amacımız sadece oyun oynamak değil." (K8)

4.1.1.2.3. Integration of Fundamental Motor Skills into Practice

The teacher integrated FMS into the PE class routine. They added some skills into their class practice consciously. For instance;

"I did these skills sometimes but I did not know the terms of these skills. I did not express whether it is a balance skill. Since we used these expressions by practicing them first, we carried this to the field in the class with this program. You did not warn us whether we need to use this in the class. However, we used these while we were doing it. For instance, galloping I did not know it. I have never used it. Then, we used it in practice with students. Let's do galop. Then

they did the galop. They say they are leaping. This is the result of that we are applying these terms in the class environment. (P5).

"Hani biz ben bunları yaptırıyordum ama kullanmıyordum. Denge hareketi olduğunu ifade etmiyordum. Şimdi bu eğitimle birlikte bu ifadeleri önce biz uygulayarak kullandığımız için sizinle birlikte yaptığımız derslerde bunu alana da taşıdık. Hani sizin özel bir tembihiniz yok bu konuda. Biz de yaptırırken o sözcükleri kullandık. Hatta bazı sözcükleri Galop mesela. Galop sözcüğünü ben bilmiyordum. Ben hiç kullanmadım. Daha sonra öğrencilerle uygulamalı olarak kullandık. Hadi galop yapalım. Sonra galop yaptılar. Sıçradıklarını söylüyorlar. Bu terimleri sınıf ortamında uygulamamızın sonucu bu" (K5)

"We generally play some traditional game after we create the teams. This time, we play games however, we try to acquire a skill whether it is throwing or rolling or leaping and so on. Then we do these skills in practice, we create a game in which students apply which skills they learn in the practice." (P15).

"Genelde hemen oyun oynuyorduk biz hemen takımları oluşturup işte yakar topsa bir yakar top oynama, istopsa hep beraber istop hep beraber yağ satarım. Bu defa tamam yine oyun oynuyoruz. Ama öncesinde bir beceri, bir temel motor becerisi kazandırmaya çalışıyoruz çocuğa e bu atmaysa atma yuvarlamaysa yuvarlama işte sekmeyse sekme sıçramaysa bu. Bunu yaptıktan sonra oyun ve o oyunun içerisinde o öğrendiğiniz beceriyi kullanabileceği bir alan oluşturuyoruz ona." (K15)

4.1.1.2.4 Physical Education Routine

Teachers indicated that they have a routine in the PE class during the PBPD program. For instance,

"Before the program, I did sometimes physical education for two hours in a row. However, the children did not acquire the outcome that I (the teacher) selected. When you come to our class with this program. I am doing warm-ups, giving the instructions, showing the skills, and applying the skills. Then, if there is a mistake about the skills, I correct them. After all of these things, I integrate the skill into a game. In this sense, it started much more organized, planned, and programmed way. (P14).

"Kırk artı kırk olarak beden eğitimi dersimi yapıyordum. İki ders olsun. Çünkü bir ders çocuklar için böyle çok yeterli gelmiyordu. Kırk artı kırk yapıyordum. Onda bile hani istenen çalışmaları çok da yapamıyorduk. Mesela sizinle çalışırken kırk dakika üzerinden çalışıyorduk. O kırk dakika içerisinde çocuğa hem ısınmayı yaptırıyorsun. Hem işte yönergeleri uygulatıyorsun. Hareketi

gösteriyorsun. Uygulama yaptırıyorsun. Yanlış varsa onu düzeltiyorsun. Sonra kalan zamanda bir de bunu oyuna entegre ediyorsun. Yani bu anlamda çok daha böyle düzenli, programlı, planlı, komplike bir şekilde işlemeye başladı." (K14)

"For instance, I teach the PE class differently right now. It is set a standard. Students recognized it. Before the program, we did not do warm-up and cool-down. We just started the class. Right now, they (students) know how to warm up, and cool down at the end of the class. They know that there is a game during the class and they know that I give instructions and teach skills to them. (P11).

"Şu an dersleri daha farklı işliyorum mesela. Hani belli bir standartta oturttuk. Hani çocuklar da bunu fark etti. Mesela işte ısınma soğuma hareketleri yapmıyorduk. Direkt derse başlıyorduk. Şimdi çocuklarda artık bir ısınma olduğunu, dersin sonunda soğuma yaptırıldığını, arada oyun oynadığımızı ve bazı bilgileri verdiğimi, hareket becerilerini verdiğimi anlıyorlar yani." (K11)

4.1.1.3. The Role of Facilitator

The last theme was related to the facilitator's role during the program based on the teachers' experiences. Based on the results, one theme was presented as the role of the facilitator, and three codes were presented as scaffolding, competency, and feedback (see Table 11 below).

Table 11. *The Role of the Facilitator Involvement's Themes, Sub-Themes and Codes*

Themes	Codes	RQ
The role of facilitator	Scaffolding	4
	Competency	4
	Provision feedback	4

4.1.1.3.1 Scaffolding

Teachers indicated although they experienced theory and practice together in the first five weeks of the program (phase one), the facilitator played a significant role for teachers in maintaining teaching behaviors in the class practices while teaching PE. Some teachers claimed that implementing PE with the facilitator triggers them to practice what they learned in the program. Others indicated that support was necessary

for applying the theory into the practice and solving issues that occurred in the class practices. For instance,

> *"If there was not the second part, applying theory into practice would be intangible for me. Although I could get benefits from the program, applying theory into practice does not become a behavior. I said it was a really good program. For my behavior and for changing my attitude, it was critical that you supported us and observed us." (P10).*
>
> *"Eğer programın ikinci kısımı olmasaydı, teoriyi pratiğe dökmek benim için soyut olurdu. Programdan fayda sağlayabilsem de teoriyi pratiğe dökmek bir davranış haline gelmiyor. Gerçekten iyi bir program olduğunu söylemiştim. Davranışım ve tutumumun değişmesi için bizi desteklemeniz ve gözlemlemeniz çok önemliydi." (K10)*
>
> *"I planned a class. During the class, you (the facilitator) gave me advice that we could play a game because I did focus on just movements. Thus, I recognized that I was pushing a game into the background. But when we show a skill, then we play a game related to the skill, then we show the skill again and we play another game, it was very effective. In class, students get bored when it is monotone. But a game with movement is enjoyable for students. It is the most important thing for me." (P13).*
>
> *"Bir ders planladım. Ders sırasında siz (kolaylaştırıcı) bana bir oyun oynayabileceğimiz tavsiyesinde bulundunuz çünkü ben sadece hareketlere odaklanmıştım. Böylece bir oyunu arka plana ittiğimi fark ettim. Ama bir beceri gösterdiğimizde, sonra beceriyle ilgili bir oyun oynadığımızda, sonra beceriyi tekrar gösterdiğimizde ve başka bir oyun oynadığımızda, bu çok etkili oldu. Sınıfta monotonluk olduğunda öğrenciler sıkılıyor. Ama hareket içeren bir oyun öğrenciler için keyiflidir. Benim için en önemli şey bu." (K13)*
>
> *"In the first week (sixth week in the program), I was struggling with teaching something. When I look back, I tried to teach many things to students by using survivor parkour. I was shocked for the first week. Then I understood that I needed to concentrate on the outcome of the curriculum. That is what you told me. I should not disperse too much. After that week, I understand what I need to do." (P3).*
>
> *"İlk hafta özellikle çok bocaladım ben. Ve ilk hafta böyle sonra dönüp baktığımda hani biraz önce de söyledim ya. Bir sürü kazanımı bir arada vermeye çalışmışım. Survivor adı altında. O ilk haftanın şaşkınlığı. Daha doğrusu o Kazanımlarda yoğunlaşmam gerektiğini o ilk haftaki saçmalamamdan anladım zaten. Senin de bana söylediğin oydu. Çok fazla*

dağıtmadan diye. O ilk haftadan sonra rahatladım ben, ne yapmam gerektiğini o zaman anladım." (K3)

Other teachers indicated that the facilitator played a role in connecting the skill and game. In addition, they learned how to use the dynamical system theory. For instance,

"Thanks to you, I understood and learned which movement improves which skill. Then, we did. But I was confused with constructing a game. I could not think of a game during the class. But you (being there) and the PAC material were good for constructing a game…Thus, the PE class was effective." (P4).

"Sayenizde hangi hareketin hangi beceriyi geliştirdiğini anladım ve öğrendim. Sonra yaptık. Ama oyun kurma konusunda kafam karışıktı. Ders sırasında aklıma bir oyun gelmedi. Ama siz (orada olmanız) ve PAC materyali bir oyun oluşturmak için iyiydi... Böylece Beden Eğitimi dersi etkili oldu" (K4)

"I split the students into two groups. Because of that they are two groups, it takes too much time. You (the facilitator) said to me that split more groups But I did not think of it. When I split students into four groups in a quick way, they raced four groups and enjoyed more" (P14).

"Öğrencileri iki gruba ayırdım. İki grup oldukları için çok fazla zaman alıyor. Siz (kolaylaştırıcı) bana daha fazla gruba ayrılmamı söylediniz ama ben bunu düşünmemiştim. Öğrencileri hızlı bir şekilde dört gruba ayırdığımda, dört grup yarıştılar ve daha çok eğlendiler" (K14)

4.1.1.3.2 Competency

Teachers indicated that the competency of the facilitator played a significant role for the teachers participating in this program. They stated that both the facilitator and the university were important in motivating them. For instance,

"You (facilitator) are a staff in the university and I heard that you are conducting a study because you are an expert in the PE area, it gives me a perspective and it may improve my knowledge. Thus, I wanted to participate in the program." (P5).

"Siz üniversitede bir personelsiniz/araştırmacısınız ve beden eğitimi alanında uzman olduğunuz için bir çalışma yürüttüğünüzü duydum, bu bana bir bakış açısı kazandırır ve bilgimi geliştirebilir. Bu nedenle programa katılmak istedim" (K5)

"'Being your academician, I heard that you are doing a research, that you are aware of all the innovations, that you will create a perspective for me, that I will improve myself. I wanted to participate in your study because I thought you would contribute to me.' (P5)."

"Sizin akademisyeniz olmanız işte bir çalışma yaptığınızı duydum bütün yeniliklere hakim olduğunuzu bana bir bakış açısı oluşturacağınızı, kendimi geliştireceğimi. Bana katkı sağlayacağınızı düşündüğüm için, çalışmanıza katılmak istedim." (K5)

4.1.1.3.3 Provision Feedback

Teachers stated that feedback based on their practice was important for their understanding and their development. Observation and getting feedback from outside were critical. For instance,

"While you (the facilitator) were observing us, we might make some mistakes and forget something. At this point, you gave us feedback. You (the facilitator) said to us that you (the teacher) had better do that. We got a good idea. It was beneficial during and for the next classes (P11)."

"Siz (kolaylaştırıcı) bizi gözlemlerken, bazı hatalar yapabilir ve bir şeyleri unutabiliriz. Bu noktada bize geri bildirim verdiniz. Siz bize bunu bizim daha iyi yapmamız gerektiğini söylediniz. İyi bir fikir edindik. Ders sırasında ve sonraki dersler için faydalı oldu." (K11)

"After you talked to us at the end of the PE class based on the observation… You provided feedback. That was beneficial because we understand whether we are on the right track or not. We understand what we did right or what we did wrong. To fix these, it was beneficial for us. (P5)."

"Beden Eğitimi dersinin sonunda gözlemlerinize dayanarak bizimle konuştuktan sonra... Geri bildirimde bulundunuz. Bu faydalı oldu çünkü doğru yolda olup olmadığımızı anladık. Neyi doğru yaptığımızı ya da neyi yanlış yaptığımızı anladık. Bunları düzeltmek için bizim için faydalı oldu." (K5)

4.2. "What proportion of classroom teachers demonstrate the desired instructional tasks for teaching FMS following participation in a ten-week practice-based professional development program?"

In Table 12, observations of teachers' class practices are presented. Based on teachers' observation, all teachers (100%) began their classes with a warm-up, and the majority concluded with a cool-down, with percentages of 69%, 81%, and 75% in weeks 8, 9, and 10, respectively. The lowest scores were observed in teachers emphasizing critical elements of the task during closure, with 56% in week 8, 50% in week 9, and 44% in week 10. Over time, several behaviors were not observed, such as 'skills instruction with critical elements,' 'physical prompts,' 'keywords for the skill,' and 'task definition.' These behaviors were observed more frequently in the first week than in subsequent weeks.

Table 12. *Teachers' Class Observation Results for Teaching FMS*

	#8 week		#9 week		#10 week	
	n	%	n	%	n	%
Introduction & Explanation of skills at the beginning of the class	13	81%	12	75%	12	75%
Warm-up	16	100%	16	100%	16	100%
Skill instruction with critical elements	15	94%	10	63%	13	81%
Demonstration of skill	15	94%	13	81%	15	94%
Physical prompt	16	100%	16	100%	15	94%
Allocated time for skills	16	100%	16	100%	16	100%
Keywords for the skill	16	100%	13	81%	14	88%
Repetition	16	100%	16	100%	16	100%
Task (skill) definition (clarity)	15	94%	14	88%	14	88%
Manipulation of environment or individual or task (dynamical system theory)	15	94%	16	100%	14	88%
Emphasizing critical elements of the tasks in the closure	9	56%	8	50%	7	44%
Cool down	11	69%	13	81%	12	75%

Note. "n" shows how many teachers showed that behavior, and "%" shows the percentage.

4.3. "What are the classroom teachers' preferences for learning in physical education and game class throughout a ten-week practice-based professional development program?"

In this research question, teachers' reflection papers, that were filled out per week, were analyzed by using content analysis. In the conventional content analysis, codes were created directly by the text. Based on the analysis, two themes occurred which are "teaching strategy" and "empowered teaching and learning". Based on the themes, codes were presented in the two themes in Table 13 below. Generally, teachers wanted to improve their teaching strategy at the beginning of the study. Most of them used "making a plan", "material use", and "skill improvement" words during the first weeks. Some examples are given below.

> *"I want to improve students' happiness in the class and get students more involve who do not participate in the class activities. (P8)"*
>
> *"Öğrencilerin sınıftaki mutluluğunu artırmak ve sınıf etkinliklerine katılmayan öğrencileri daha fazla dahil etmek istiyorum." (K8)*
>
> *"I need to make this class our routine (1st week), I need to get used to doing this class every day (2nd week; P10)*
>
> *"Bu dersi rutinimiz haline getirmem gerekiyor (1. hafta), bu dersi her gün yapmaya alışmam gerekiyor." (2. Hafta, K10)*

Teachers tried to use different words related to the PE curriculum in the later weeks. For instance, they use 'physical activity' or 'appropriate development' terms toward the end of the program. In addition, teachers decreased the term they used during the first weeks toward the end of the weeks such as 'learning new games', 'better in practice', and 'making a plan'. Some examples are given below.

> *"I would like to integrate the fundamental motor skills into the games (P6)"*
>
> *"Temel motor becerilerini oyunlara entegre etmek istiyorum." (K6)*
>
> *"I can do a competition with purposeful games (P16)"*
>
> *"Amaca yönelik oyunlarla bir yarışma yapabilirim." (K16)*

"I realized that I need to focus on one skill in the one class. Then, I make the skills better during the week with different games (P12)"

"Bir derste bir beceriye odaklanmam gerektiğini fark ettim. Ardından, hafta boyunca farklı oyunlarla becerileri daha iyi hale getiriyorum." (K12)

Table 13. *The Results of Content Analysis of Teachers' Reflection*

		Weeks								
Themes	Codes	#1	#2	#3	#4	#5	#6	#7	#8	#9
Teaching strategy	Making a plan	1	1							1
	Improve material using	6	2	1			1	1	1	
	Should be better in practice	5	3	1						
	Skill improvement	4	3	6	9	1	2	4	1	1
	PE routine	2	2			1	1	1	2	
	Improve participation	2	1			2		1		
	Learning new games	2	4	1	1		1			1
	More practice			1	2	1		1		
	Develop games			1		5	2	5	2	1
Empowered teaching and learning	Connection with skills and games			1	1	2	1	2	1	1
	Physical activity					1	2			
	Using DST					2				
	Skill knowledge						1			
	Giving role to students							1		
	Skill repetition								1	1
	Cooperation								1	
	Appropriate development								1	
	More time for games									1
	Sport-specific skills									1

Note. The number in the table shows the frequency of codes that are presented in the reflection

4.4. "How does students' level of FMS change across grade levels following their teachers' participation in a ten-week practice-based professional development program, as measured pre- and post-test?"

In this section, students' motor competence test results are presented by using descriptive statistics and multilevel modeling.

4.4.1 Descriptive Statistics of Students' Fundamental Motor Skills

The pre-test results revealed that students exhibited higher performance in locomotor skills (*M* = 23.66, *SD* = 5.58) compared to object control and balance skills. Across grades, both grade two (*M* = 22.85, *SD* = 3.97) and grade three (*M* = 23.10, *SD* = 3.91) demonstrated higher overall scores than grade one (*M* = 20.18, *SD* = 3.85). After the program, students' overall score outperformed locomotor skills (*M* = 28.49, *SD* = 6.78) than object control and balance skills. Notably, grade one demonstrated higher performance in overall score (*M* = 27.43, *SD* = 6.20) and in locomotor skills' score (*M* = 30.08, *SD* = 8.39) compared to both grade two and grade three, see the Table 14 below. The 19 students were not measured in the post test due to their absence.

Table 14. *PLAYbasic Score of Students*

		Locomotor skills		Object Control skills		Balance skills		Overall score	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Pre-test	211	23.66	5.58	21.49	4.73	21.81	5.10	22.42	4.06
Grade 1	41	21.25	4.94	19.70	4.09	18.97	4.96	20.18	3.85
Grade 2	94	24.00	5.68	21.96	4.87	22.32	4.87	22.85	3.97
Grade 3	76	24.53	5.48	21.87	4.69	22.69	4.96	23.10	3.91
Post-test	192	28.49	6.78	25.05	5.50	27.24	7.17	26.86	5.02
Grade 1	36	30.08	8.39	25.42	6.54	26.14	9.05	27.43	6.20
Grade 2	87	28.53	7.39	25.16	5.80	27.56	7.29	26.99	5.53
Grade 3	69	27.62	4.67	24.71	4.47	27.42	5.84	26.41	3.44

4.4.2 Multilevel Analysis of Students' Fundamental Motor Skills

The main effects of the test's score comparison on FMS are presented in Table 15. Alpha level was set .05. Regarding locomotor skills, no significant differences were found in pre-test scores between students in grade one and grade two (b = 3.063, t (206) = 2.019, *SEb* = 1.517, p = 0.043), nor between grade one and grade three (b = 3.664, t (206) = 2.29, *SEb* = 1.600, p = 0.022). In contrast, there was a significant improvement between the pre-test and post-test scores of students in grade one (b = 9.508, t (206) = 3.559, *SEb* = 2.671, p = <0.001). Improvement is observed more in

Grade 1 than Grade 2 (b = -5.023, t (206) = -1.512, SEb = 3.320, p = 0.130), and Grade 3 (b = -6.302, t (206) = -1.781, SEb = 3.538, p = 0.075) but not significant. Overall all grades got benefits from PD program, in addition grade one got more benefits than grade two and three however the improvement is not statistically significance.

Regarding object control skills, a significant difference was found in pre-test scores between students in grade one and grade two (b = 2.620, t (206) = 2.326, SEb = 1.126, p = 0.020), and between grade one and grade three (b = 2.582, t (206) = 2.182, SEb = 1.183, p = 0.029). Moreover, a significant improvement was found between the pre-test and post-test scores of students in grade one (b = 6.302, t (206) = 3.907, SEb = 1.613, $p < 0.001$). On the other hand, improvement is observed more in Grade 1 than Grade 2 (b = -3.140, t (206) = -1.583, SEb = 1.983, p = 0.113), and Grade 3 (b = -3.480, t (206) = -1.655, SEb = 2.102, p = 0.098), but not significant. Overall, all students reached a similar FMS level at the end of the program.

Regarding balance skills, a significant difference was found in pre-test scores between students in grade one and grade two (b = 3.555, t (206) = 3.338, SEb = 1.065, $p < 0.001$), and between grade one and grade three (b = 3.917, t (206) = 3.522, SEb = 1.112, $p < 0.001$). A significant improvement was found in the change between the pre-test and post-test scores of students in grade one (b = 7.418, t (206) = 3.477, SEb = 2.133, $p < 0.001$). In contrast, Improvement is observed more in Grade 1 than Grade 2 (b = -2.117, t (206) = - 0.807, SEb = 2.621, p = 0.419), and Grade 3 (b = -2.799, t (206) = - 1.008, SEb = 2.775, p = 0.313) but not significant. Similar findings were revealed in balance skills that grade one got more benefits than grade two and three. However, the improvement is not statistically significance.

Regarding the overall score of FMS, a significant difference was found in pre-test scores between students in grade one and grade two (b = 3.002, t (206) = 2.864, SEb = 1.048, p = 0.004), and between grade one and grade three (b = 3.288, t (206) = 2.975, SEb = 1.105, p = 0.003). A significant improvement was found in the change between the pre-test and post-test scores of students in grade one (b = 7.947, t (206) = 4.069, SEb = 1.953, $p < 0.001$). In contrast, improvement is observed more in Grade 1 than

Grade 2 (b = -3.829, t (206) = 1.577, SEb = 2.428, p = 0.115), and Grade 3 (b = -4.590, t (206) = 1.772, SEb = 2.589, p = 0.076), but not significant.

Table 15.

Results of the Multilevel Models on Fundamental Motor Skills of Students in Grade One, Two and Three

	Locomotor			**Object Control**			**Balance**			**Overall**		
	b	*SE(b)*	*p*	*b*	*SE(b)*	*p*	*b*	*SE(b)*	*p*	*b*	*SE(b)*	*p*
Fixed Part												
Intercept	20.995	1.240	**<0.001**	19.316	0.924	**<0.001**	18.789	0.882	**0.000**	19.868	0.857	**<0.001**
Posttest (reference pretest)	9.508	2.671	**<0.001**	6.302	1.613	**<0.001**	7.418	2.133	**0.001**	7.947	1.953	**<0.001**
Grade 2 (reference Grade 1)	3.063	1.517	**0.043**	2.620	1.126	**0.020**	3.555	1.065	**0.001**	3.002	1.048	**0.004**
Grade 3 (reference Grade 1)	3.664	1.600	**0.022**	2.582	1.183	**0.029**	3.917	1.112	**0.000**	3.288	1.105	**0.003**
Posttest.Grade 2	-5.023	3.320	0.130	-3.140	1.983	0.113	-2.117	2.621	0.419	-3.829	2.428	0.115
Posttest.Grade 3	-6.302	3.538	0.075	-3.480	2.102	0.098	-2.799	2.775	0.313	-4.590	2.589	0.076
Random Part												
Teacher level												
Variance(Intercept)	3.382	1.914		1.393	1.041		0.756	0.902		1.517	0.915	
Covariance(Posttest/Intercept)	-6.332	3.590		-3.247	1.680		-1.006	1.746		-3.533	1.853	
Variance(Posttest)	24.295	9.690		6.890	3.356		11.494	5.828		13.092	5.195	
Student level												
Variance(Intercept)	26.091	2.641		20.116	2.034		23.168	2.343		13.660	1.382	
Covariance(Posttest/Intercept)	-16.064	2.562		-11.104	2.003		-20.527	3.117		-7.130	1.288	
Variance(Posttest)	36.345	3.860		30.326	3.223		59.350	6.295		18.417	1.959	
Measurement level												
Variance(Intercept)	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
Model fit												
# teachers	16			16			16			16		
# students	211			211			211			211		
# measurements	403			403			403			403		
-2*loglikelihood	2508.462			2408.312			2548.115			2255.507		

***p* < .05**

Overall, the findings indicated a significant improvement from the pre-test to the post-test in FMS level across all grades. Although improvement is not statistically significant, grade one derived greater benefits from the program compared to other grades. In addition, no significant differences were observed between pre-test and post-test scores across grade levels in all subdomains and the overall score, indicating the absence of grade-related differential intervention effects.

4.5. "Following participation in a ten-week practice-based professional development program, how do the classroom teachers perceive their students' progression of motor skills?"

Teachers were asked questions regarding their students' development. Interview results showed one overarching theme and four specific codes emerged related to students' learning. The theme centered on empowering students' holistic development, encompassing their attitudes toward physical education, understanding of concepts, engagement, and fair play. These codes are outlined below Table 16.

Table 16. *Qualitative Results of Students' Development Based on Teachers' Perception*

Theme	Codes	RQ
Empowering PL of Students	Attitudes toward PE	5
	Understanding the PE concepts	5
	Students' engagement	5
	Fair play	5

4.5.1 Attitudes Toward Physical Education

During the program, teachers noted that many students expressed a desire to play games during PE classes. While some students initially had negative attitudes toward PE, others preferred unstructured PE, wanting more freedom during class. According to teachers' interviews, the PBPD program helped shift students' perspectives on PE. For example:

> *"We (teachers) applied in the class what we learned from the PBPD program. As we applied the program, students who wanted to play freely enjoyed the*

physical education class. Then, they (students) tried to join and maintain this behavior during the whole class (P5).

"Biz bu programından öğrendiklerimizi sınıfta uyguladık. Programı uyguladıkça, özgürce oynamak isteyen öğrenciler beden eğitimi dersinden keyif aldılar. Daha sonra (öğrenciler) tüm ders boyunca bu davranışa katılmaya ve sürdürmeye çalıştılar." (K5)

"My students asked me such questions; what do we do today in physical education class? whether we do PE class today, what do you teach us today? so they push me in that way." (P15).

"Öğrencilerim bana bugün beden eğitimi dersinde ne yapıyoruz, bugün beden eğitimi dersi mi yapıyoruz, bugün bize ne öğretiyorsunuz gibi sorular sordular sordular ve beni bu şekilde ders yapmaya zorladılar." (K15)

"I want to say that physical education class was considered as free time at the beginning. To break this behavior, I did warm-up as if it was a space for practicing movement skills and students did not want to do that. They reacted to me differently. However, they get used to it in time. They reacted less…however, we did the first warm-up, then taught skills and worked on outcomes in our program with you. Everything was well planned. Then we applied and gave feedback. At the end, we played a game covering the skill. By the way, students did not react negatively. This kind of change happened in students." (P14).

"Şunu belirtmek isterim hani dediğim gibi daha öncesinde beden eğitimi dersi biraz daha serbest zaman serbest zaman değerlendirmesi gibi algılanıyordu. Çocuklar için de yani. Ben onu kırmak adına hep baştan beri ısınmayı sanki böyle hareket becerisi kazandırma alanı olarak kullanıp hani o alanda yapabildiğimi yapmaya çalışıyordum ve çocuklar istemiyorlardı ilk başta. O alan o zamanı bile onlardan alıyormuşum. Onların hani oyun zamanını ona harcıyormuşum gibi. Bana ilk başta tepki veriyorlardı. Öğretmenim bunu yapmasam. Öğretmenim bunu yapmasak şeklinde ama bir süre sonra onlarda da bu alışkanlık gelişmeye başladık. Artık şikayetleri oluşmamaya başladı…Ancak sizinle programımızda önce ısınma yaptık, ardından beceriler öğrettik ve kazanımlar üzerinde çalıştık. Her şey iyi planlanmıştı. Daha sonra uygulama yaptık ve geri bildirim verdik. En sonunda da beceriyi kapsayan bir oyun oynadık. Bu arada öğrenciler olumsuz bir tepki vermediler. Öğrencilerde bu tür bir değişim oldu." (K14)

4.5.2 Understanding the Physical Education Concepts

During the PBPD program, teachers recognized that students understood the PE concept better than they understood before the program. They listened better, understood, and acted appropriately based on the teachers' command. They obeyed the game rules more.

> *"Students listened better. This behavior was increased a lot. They obey the classroom rule. For instance, before, I told them to make a line, they broke the line. However, they are better now." (P10).*
>
> *"Öğrenciler daha iyi dinliyorlar, bu tür davranışları çok arttı. Sınıf kurallarına uyuyorlar. Örneğin, daha önce onlara bir çizgi yapmalarını söylediğimde çizgiyi bozuyorlardı. Ancak şimdi daha iyiler" (K10)*
>
> *"We had a problem while we were doing warm-up. They did not get instruction. I think it was the biggest problem. Right now, they understand what I said." (P6).*
>
> *"Isınma hareketleri yaparken bir sorun yaşıyorduk. Komutları alamıyorlardı. Bence en büyük sorun buydu. Şu anda ne dediğimi anlıyorlar." (K6)*
>
> *"I (teacher) did not know the name of the skills what galloping is or what sliding is. While we rolling the ball, which arm should be forward, and which leg should be back or forward. Students did as well. They (students) begin to warn themselves by using the name of skills. (P15).*
>
> *"Ben (öğretmen) galop yapmanın ne olduğunu ya da yana doğru kayma hareketinin ne olduğunu bilmiyordum. Topu yuvarlarken hangi kolun ileride, hangi bacağın geride ya da ileride olması gerektiğini. Öğrenciler de öyle yaptı. Onlar becerilerin adını kullanarak kendilerini uyarmaya başladılar." (K15)*

They learned the concept what is physical activity. In addition, they warned each other when they did the skills differently. For instance,

> *"They (students) saw that PE was not a class in which you need just a ball and play with it." (P14).*
>
> *"Öğrenciler, beden eğitimini sadece topu ve oyna olarak görmüyorlar" (K14)*
>
> *"They (students) concentrated on just one game. However, there are FMS outcomes in the PE curriculum which are balance and locomotor skills. They*

learned the names of these skills and the purpose of these skills. Under this PBPD program, they saw many different topics." (P2).

"Öğrenciler sadece bir oyuna konsantre oluyorlardı. Fakat beden eğitimi programında temel motor beceri kazanımları vardır. Bu becerilerin isimlerini ve bu becerilerin amacını öğrendiler. Bu programı kapsamında birçok farklı konu gördüler" (K2)

4.5.3 Students' Engagement

The "Students' engagement" code includes students' level of interest, connection, and emotional involvement in the PE class by teachers' interview results. Generally, students participated in class more than ever.

"Students asked us whether they got the hula hoop or got the ball when we were not in PE. They constructed their game and played together. For instance, they did warm-up accompanied by a student (he became a trainer) before they played soccer. They did not play basketball. But they did and improved their skills in that way." (P6)

"Beden Eğitimi dersinde olmadığımız zamanlarda öğrenciler bize hulahopu mu veya topu alabileceklerini soruyorlar. Oyunlarını kurguluyorlar ve birlikte oynuyorlar. Örneğin futbol oynamadan önce bir öğrenci (antrenör oldu) eşliğinde ısınma hareketleri yaptılar. Basketbol oynamadılar fakat ve bu yönde becerilerini geliştirdiler." (K6)

A teacher indicated that she constructed the whole class environment or game in the class by herself. Right now, students gave some ideas about the game or while constructing the game or they helped their teacher to construct the environment.

"*For instance, I had to construct a game and the environment by myself. However, students constructed a game, constructed the environment, and got the equipment after we were done. They began to take part in a class voluntarily. Thus, it made our (teachers) workload lower." (P14).*

"Örneğin, bir oyunu ve ortamı tek başıma kurgulamak zorunda kalıyordum. Fakat artık öğrenciler oyunu kurgulamaya başladılar, ortamı kurdular ve işimiz bittikten sonra ekipmanları topladılar. Gönüllü olarak sınıf etkinliklerinde yer almaya başladılar. Böylece bizim (öğretmenlerin) iş yükümüz azaldı." (K14)

"I do not involve too much anymore. Today, for instance, they were in order in physical education class. I showed movements. After the movements, they found the game and did warm-up. Then they created the form/order (the circle while doing warm-up). After I showed the movement, they told me about a game related to that movement. Then we played it together. For instance, I showed them skipping, and they told me a game about skipping." (P13).

"Artık çok fazla dahil olmuyorum. Bugün mesela beden eğitimi dersinde sıradaydılar. Hareketleri gösterdim. Hareketlerden sonra kendileri oyunu buldular ve ısınma yaptılar. Sonra formu/düzeni oluşturdular (ısınma yaparken çember). Ben hareketi gösterdikten sonra bana o hareketle ilgili bir oyun anlattılar. Sonra birlikte oynadık. Örneğin ben onlara atlamayı gösterdim, onlar da bana atlama ile ilgili bir oyun anlattılar." (K13)

Another teacher showed that students seemed more harmonious with each other.

"Before the program, there were many times when we did not find a common ground. One of them wanted to play a different game, others wanted to play another. Right now, we are finding common ground easily. After this, students did not verbiage and paid attention to class more than ever." (P13).

"Programdan önce ortak bir zemin de buluşamadığımız çok zaman oldu. Biri (öğrenci) farklı bir oyun oynamak isterken, diğerleri başka bir oyun oynamak istiyordu. Şu anda ortak noktayı kolayca buluyoruz. Bundan sonra öğrenciler laf kalabalığı yapmadılar ve derse her zamankinden daha fazla dikkat ettiler." (K13).

4.5.4 Fair Play

Teachers observed that students became friendlier throughout the program, displaying improved social interactions. Students engaged in games with fairness, and some previously dominant students became less assertive in the classroom environment. The following examples illustrate these changes:

"They behaved with each other more fairly. For instance, while they were doing a competition, they congratulated each other. They used to finish the parkour even if they did not follow the rules. Now, when someone did not follow the rules and he/she recognized it, then tried to do it appropriately. They tended not to do it again before the program they did. But now, even if they lost the competition, he or she fixed it and did the skill or movement again." (P13).

"Birbirlerine karşı daha adil davranıyorlar. Mesela bir yarışma yaparken birbirlerini tebrik ediyorlardı. Eskiden kurallara uymasalar bile parkuru bitiriyorlardı. Şimdi biri kurallara uymadığında ve bunu fark ettiğinde uygun şekilde yapmaya çalışıyordu. Şu anda yaptıkları programdan önce yapmama eğilimindeydiler. Ama şimdi yarışmayı kaybetse bile düzeltiyor ve beceriyi ya da hareketi tekrar yapıyor." (K13)

"Some students could not put pressure on other students. For instance, there was a boy in my class. He put too much pressure on other students. However, there were some movements in the program he could not do it but other students did after I saw it. Then, they felt equal and I told them we, sometimes, could do some skills but cannot do another. However, we were going to learn all of them. Next step, we were going to be better. He (a dominant kid) changed their attitude and he recognized that there was a skill that he could not do it. In that sense, it becomes good for them." (P3).

"Bazı öğrenciler diğer öğrenciler üzerinde baskı kuramıyor artık. Mesela benim sınıfımda bir çocuk vardı. Diğer öğrenciler üzerinde çok fazla baskı kuruyordu. Ancak programda onun yapamadığı ama diğer öğrencilerin ben gördükten sonra yaptığı bazı hareketler vardı. O zaman kendilerini eşit hissettiler ve ben de onlara bazen bazı becerileri yapabildiğimizi ama diğerlerini yapamadığımızı söyledim. Ancak hepsini öğrenecektik. Bir sonraki adımda daha iyi olacaktık. O (baskın çocuk) tutumunu değiştirdi ve yapamadığı bir beceri olduğunu fark etti. Bu anlamda onlar için iyi oldu." (K3)

4.6. "How do qualitative and quantitative data complement each other?"

The joint display is essential for the mixed method because this approach enhances the researcher's ability to convey the integration process clearly and helps the reader better understand this stage of mixing. In other words, this technique helps researchers and readers to understand qualitative and quantitative data for the same case (O'Cathain et al., 2010). In line with Guetterman and colleagues' (2015) recommendation, the side-by-side display was used. In that approach, qualitative and quantitative data are presented together side-by-side which facilitates all results to look for patterns. Guetterman and colleagues (2015) developed a comprehensive checklist for constructing joint displays, ensuring that all essential elements are included to effectively represent data integration. Additionally, they indicated that this table can be modified regarding researchers' needs and the purpose of the content.

Qualitative and quantitative results regarding PBPD programs are convergent. Following are the convergent findings of the study; the teachers stated in the interview that they improved their knowledge in terms of teaching fundamental motor skills, and implementation of FMS in-class practice. Similar findings were identified in the teachers' observation. Teachers know how to teach skills, and how to do task analysis while teaching a skill, they integrated a game related to FMS in the same class hour. Additionally, they changed their attitudes toward teaching FMS through the program and have a routine for PE classes in qualitative data. Similar findings were identified in the observation. For instance, teachers showed that they have a physical education routine while teaching it and follow the consistent steps for teaching FMS in quantitative results.

In terms of students, the PLAYbasic tool showed that all students, regardless of their grades, improved their actual FMS level from pre-test to post-test in the quantitative results. Similar findings are stated in the interview results from teachers' perspective. According to teachers, students engage in activities more than they were in the past. They improved their understanding in terms of movement demonstration. They learned how to do it and they warned each other when they made mistakes about the movement. Findings are shown in the side-by-side Table in appendix.

CHAPTER 5

DISCUSSION

The purpose of this study was to explore the contribution of a ten-week practice-based professional development program on classroom teachers' instructional practices and student development in the context of teaching FMS. Specifically, the study aims to (1) investigate the changes in classroom teachers' experiences related to the teaching of FMS, (2) determine the proportion of teachers who effectively implement the targeted instructional tasks associated with FMS instruction, (3) identify teachers' preferred learning methods and support needs for enhancing the quality of physical education classes, and (4) examine the developmental changes observed in students as a result of their participation in the program.

5.1 Overall Results of the Study

The results showed that they improved their knowledge and attitudes positively toward teaching FMS in PE. Interview results showed that they were empowered by the program and they were able to how to read curriculum and related materials (PAC), how to implement FMS in PE practices. They matched curriculum objectives with FMS using PAC materials. Additionally, teachers enriched classroom practices by integrating FMS in PE class, having a PE routine. According to teachers, the facilitator played a significant role in teachers learning fundamental motor skills and how to teach them during the program. Additionally, teachers focused on improving their teaching strategies at the beginning of the study, frequently using terms like 'making a plan,' 'material use,' and 'skill improvement.' As the weeks progressed, they began incorporating more specific language from the PE curriculum, such as 'physical activity' and 'appropriate development,' while gradually reducing their use of initial terms like 'learning new games,' 'better in practice,' and 'making a plan. In terms of

students' development, they improved their locomotor, object control, and balance skills and overall scores in FMS when compared to their level at the beginning of the study. In addition, students improved their understanding of physical education, increased their engagement in activities, and behaved fair while playing games from their teachers' perception.

5.2 Teachers' Development in Physical Education and Game Class

Teachers reported increased knowledge of teaching FMS. As a result, most teachers improved their curriculum, material literacy, and ability for FMS implementation. There are several potential explanations for these; the PBPD program content was directly targeted to classroom teachers' needs (Ball & Cohen, 1999), therefore, teachers learned how to read the curriculum, curriculum objectives, and how to use the material for PE classes. Another reason might be that a qualitative survey was filled out by teachers at the beginning of the program. Based on the survey results, additional topics were added to the main PBPD program. Therefore, teachers might learn what to teach, how to teach it, how to start a PE class, how to teach a skill in a PE class, and how to end the PE class. Another potential explanation might be that teachers experience how to connect theory and practice at the same time during the program meeting. They listened, discussed, and practiced the topic on the same day. Thus, practice meetings might enhance their knowledge of FMS (e.g., Faulkner et al., 2004; Šumanović et al., 2016). Similar findings were revealed in the literature; PD programs had positive effects on teachers' perceived knowledge as well as enhancing their expertise and proficiency in specific fields such as physical literacy. However, those studies were focused on outdoor education (Coulter & Words, 2012), perception of PE (Harris et al., 2011), pedagogical strategies (Petrie, 2010), and knowledge of physical literacy (Edwards et al., 2019). The focus of the program was important as Harris and Colleagues (2011) revealed in their study that not paying attention to a specific goal or pedagogical issues brings several limitations for teachers and PD programs. Moreover, targeting general pedagogical knowledge limits for effective teaching of PE. On the other hand, this study focused on teachers' knowledge of teaching FMS which is the core objective of PE (e.g., MoNE, 2018; SHAPE America, 2013).

Teachers behaved positively while teaching FMS, they integrated FMS into PE class practice, and they had a PE routine. A positive attitude of teachers is an important factor in providing high-quality PE (Morgan & Hansen, 2008). Several explanations might increase teachers' attitudes positively toward teaching PE during the program. One possible explanation is that the PBPD program's content was tailored to the teachers' needs, as identified through a qualitative survey. This customization likely fostered positive attitudes toward teaching FMS. Another reason for these positive attitudes might be that teachers observed their students actively engaging in PE activities and making noticeable progress. Another reason might be that as teachers learn what to teach and how to teach FMS, they tend to become more positive toward PE classes. Additionally, the facilitator's support and encouragement during the program might influence their attitudes. Several studies indicated similar results that teachers enhanced teacher perception, self-confidence, or intention toward teaching PE (Faulkner et al., 2004; Faucette et al., 2002; Harris et al., 2011), and health-related PE curriculum (Kulinna et al., 2008). The characteristics of PD for change of attitudes should be investigated to understand for future research (Silverman, 2007).

In teachers' teaching practices, all teachers followed a consistent PE routine during the program. The routine generally started with a warm-up, followed by skill instruction that focused on breaking the skill down into its critical elements. Toward the end of the class, emphasis was placed on reinforcing the skill and its key components, and the class concluded with a cool-down. When teaching a new skill, the teachers demonstrate it first and then systematically divide it into its essential parts for students to learn. Teachers may have adjusted their physical education practices for several reasons. Through the PBPD program, they likely developed a deeper understanding of the connections between the PE curriculum and the objectives for children's development, as well as how to effectively deliver PE instruction. They became familiar with motor development theories and principles, which may have informed their approach to teaching specific skills. During the program, teachers followed a structured routine—beginning with a warm-up, demonstrating skills, and using task analysis for teaching FMS. This consistent approach likely reinforced their behaviors and instructional methods throughout the program weeks. In PE literature, the quality of PE teaching in the context of PD was improved by utilizing a game-centered

approach for classroom teachers (Miller et al., 2017), using democratic PE-CoP for PE teachers (Gonçalves et al., 2022). There is a notable lack of information on teachers' development within the context of the PBPD in the PE literature. On the other hand, several studies beyond PE demonstrated that teachers showed significant development through participation in a PBPD program (Gettinger et al., 2008; Harris et al., 2012; Hirsch et al., 2019). For instance, teachers developed implementation of the self-regulated strategy (McKeown et al., 2016), their science discourse practices (Fisherman et al., 2017), their instructional practices (Thomas & Drew, 2022), their classroom discourse (Kohen & Borko, 2022) and decision-making in STEAM settings (Herro et al., 2022). Despite the limited information on teacher development within the context of PBPD in the physical education literature, this study offers valuable insights into how to design an effective PBPD for primary education PE. It also sheds light on the types of PD programs that best enhance teachers' enhancement to teach FMS.

Based on teachers' preferences for learning they wish to improve in PE class, most teachers want to develop teaching strategies for instance, they want to improve making plans, and how to use material more effectively, and they want to practice more to be better in PE class. They wanted to have a routine in PE classes. In the following weeks, their preference was changed based on their reflection, although the following terms were rarely used. They talked about less dev

eloping games or doing more practice, but instead, they wanted to use dynamical system theory. In other words, they wanted to diversify the games in PE classes according to students' needs and improvement. They tended to give more roles to the students. They used the 'physical activity' term for students.

There could be several reasons for this. Teachers gained a deeper understanding of their students' needs and skill levels. Initially, they focused more on teaching specific skills and practice, but as the PBPD program progressed, they began to incorporate different types of activities beyond just skill practice. Another reason could be that teachers enhanced their curriculum literacy, allowing them to differentiate instruction and adjust objectives throughout the semester. This likely made them feel more

confident in addressing diverse objectives. Additionally, teachers reflected on their teaching strategies and realized that focusing solely on skill development did not fully meet their students' needs. Consequently, they began integrating additional objectives into their PE classes during the program. The concept of reflective teachers is well-established. Reflection is a critical component of teacher education (Standal & Moe, 2013; Tsangaridou & Polemitou, 2015) and is deeply intertwined with educational practices (Lee & Choi, 2012). Previous studies related to reflection focused on more pre-service levels than in-service teachers (Tsangaridou, 2005; Tsangaridou & Polemitou, 2015).

Research in the literature with pre-service teachers revealed that teachers reflected more on their technical abilities. (Placek & Smyth, 1995; Tsangaridou & O'Sullivan, 1994). On the other hand, pre-service teachers revealed that teachers focused on content, pedagogical content, and social issues more than technical skills (Tsangaridou, 2005; Tsangaridou & Polemitou, 2015). When reflecting on their practice, pre-service teachers viewed reflection as an essential tool for effective teaching. This process provided them with valuable learning experiences (Tsangaridou, 2005). However, they often encountered challenges with writing reflections (O'Connell & Dyment, 2011). The review highlighted that while the teacher can improve their reflective capacities, they also benefit from being part of reflective communities (Standal & Moe, 2013).

5.3 Facilitator Support in the Program

During the program, the facilitator played a significant role in teachers learning based on teachers' interviews. More specifically, teachers improved their PE practice for teaching FMS. The facilitator helped teachers to maintain their FMS teaching behavior during the program. They learned how to teach FMS in a proper way such as demonstrating the skills, doing task analysis, and giving sufficient time for students to learn a selected skill. There might be several reasons that teachers get benefits from the facilitator during the program. One explanation might be that the facilitator provided ongoing support and feedback throughout those weeks, as emphasized by the importance of ongoing support by Darling-Hammond and colleagues (2017), Yoon

(2007), and the importance of feedback for teachers by Perry and Booth (2021). In addition, the facilitator recognized teachers' needs individually in the PE practices. This perspective helps teachers to strengthen their practice and find out the possible problems that were encountered in the PE class. Another possible reason is that the facilitator demonstrated effective strategies and techniques during the teaching practice program weeks, helping teachers understand how to apply theories in their classes. Additionally, the facilitator's monitoring of teachers' development progress and making necessary adjustments to the instructions may have contributed to the program's success. Another reason might be that reciprocal trust between the facilitator and teachers plays a significant role in professional development. Thrust is one of the roles of the facilitator according to Sztajn and colleagues (2007), in such a PD, teachers feel safe and secure, and more willing to collaborate and participate in any activities during the program (e.g., Parker et al. 2012). Another reason might be that the facilitator helps teachers to understand the context better and allows them to explore various possibilities through feedback and support weeks (e.g., Fosnot, 2005). Overall, the result of this study reinforced existing literature that facilitator support enhances teachers' practices, knowledge, and improvement (González et al., 2016; İnce et al., 2020; Knight, 2008; Kohen & Borko, 2022; Peralta et al.,2021; Perry & Bevins, 2019) and the study contribute that facilitator played a significant role in classroom teachers' learning FMS and how to teach them to the existing PE literature.

5.4 Students' Development

According to PLAYbasic results, multilevel analysis showed that students, regardless of all grades, improved their locomotor, object control, and balance skills after the program when compared to their FMS level before the program. Additionally, grade one got more benefits from the program than other grades. There might be several reasons for this outcome. Grade one students got more benefits from the PBPD program because children with low FMS tend to benefit more from motor skills programs (e.g., Logan et al., 2012). Other reasons for all students getting benefits might be that a well-designed PE class with a strong focus on FMS might positively impact students' FMS level (e.g., Bakhtiari et al., 2011; van Beurden et al., 2003). Another reason might be that teachers improved their content knowledge (what to

teach) and pedagogical content knowledge (how to teach), leading to greater student benefits compared to previous PE classes (e.g., Cohen et al., 2012). Teachers also provided sufficient time for students to practice skills, a critical element in learning FMS (e.g., Lander et al., 2015; McKenzie et al., 1998; Morgan & Hansen, 2008). Additionally, teachers consistently incorporated games related to the taught skills, which may have made learning easier for students (e.g., Barnett et al., 2016). In PD studies for teaching FMS was missing in the literature, however, several programs related to students' development showed similar findings in the literature (e.g., Borghouts et al., 2023; Carraro et al., 2022; Derri et al., 2015; Hünük et al., 2013; İnce et al., 2020; Sefanou et al., 2021; Sum et al., 2022).

Regarding qualitative results of students' development from teachers' perception, students developed their attitudes toward PE positively. They understood PE concepts more than they were in PE before the program. Their engagement was increased during the program. Teachers reported that students gained a clearer understanding of what a PE class entails. It was no longer just seen as a time to play ball games; students learned the broader concept of physical activity. Additionally, they began to correct each other when performing skills incorrectly. They played any game in the context of fair play. There might be several reasons; teachers' positive attitudes toward PE classes might influence students' outcomes (Tarantino et al., 2022) and teachers' support enhances students' engagement (Guo et al., 2023). Another reason might be that teachers introduced a more structured and comprehensive PE curriculum (e.g., physical, cognitive, social) while teaching. Students explored the broader concepts of PE beyond just playing games. Therefore, it might influence positive development for students (Bailey, 2006; Dudley et al., 2022).

Motor skill proficiency is an important factor in being a physically literate individual (Silverman & Mercier, 2015). Thus, as students learn motor skills then they tend to be more active, engage in different activities, and develop themselves holistically. Another reason might be that as students began to correct each other when performing the skills, they engaged in peer learning. This collaboration might reinforce correct techniques and foster a sense of responsibility. Another reason might be that teachers might create a friendly and respectful environment in PE classes, this helped students

develop a deeper appreciation for teamwork and sportsmanship. Although PE intervention had a positive influence on student's holistic development (Dudley, 2022), limited research exists in the literature. For instance, research in PE literature revealed that eight-month PD related to Physical literacy improved students' perceived PL, motivation, and enjoyment of physical activity when compared to their counterparts in PE classes (Sum et al., 2022). Professional development studies in physical literacy literature focused on more teachers (Edwards et al., 2019; Simpson et al., 2022) and teacher educators (Choi et. al., 2022).

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

This section consists of four parts. The first part presents the conclusion of the study briefly. The second part shows the strengths and limitations of the study. The third part shows the implication and the last part shows the recommendation of the study.

6.1 Conclusions

In conclusion, the PBPD program demonstrated that most teachers enhanced their perceived knowledge and attitudes toward teaching FMS and effectively utilizing the curriculum to meet FMS objectives. The findings highlighted the program facilitator as a crucial factor in improving teachers' perceived knowledge and attitudes toward teaching FMS. Additionally, while teachers prefer to learn games, improve their material literacy, and practice in PE, they tend to do more student-centered instruction such as giving roles to students, appropriate development, increase cooperation towards the end of the program. Moreover, the results indicated that effective PD not only improved classroom teachers' classroom practices but also enhanced their students' motor proficiency, contributing to their holistic development such as activity engagement, and understanding the concepts. Consequently, our study adds to the existing body of research by showing how PD focused on FMS can positively impact teachers' perceived knowledge, attitudes, classroom practices, and ultimately, their students' motor competence and holistic development.

6.2 Strengths and Limitations of the Study

There are several strengths of the study. First of all, the pilot study was conducted before the main study. This helped the researcher to re-design the main PBPD program based on teachers' needs. In addition, the facilitator gained experience during the pilot

study. Another strength was the participation rate of the teachers. Due to the high attendance, teachers were informed and practiced the content of the program. Teachers learned what to teach, how to teach the skills, and how to provide PE class routine while teaching a skill. This aspect of the PD program for PE enhanced not only teachers' development but also the actual FMS level of students and students' development related to FMS based on teachers' perspectives.

The study had several limitations that should be considered while interpreting the results. The actual FMS knowledge of teachers was not evaluated because of the lack of FMS content knowledge tests for classroom teachers. Thus, this study increased teachers' perceived knowledge however, the actual FMS knowledge of teachers is not known. Another limitation was that the follow-up was missing, thus, teachers enhanced their perceived knowledge and attitudes toward teaching FMS however, it cannot be sure that teachers maintain the same behavior after the program.

6.3 Implication of the Findings

- A pilot study might be conducted to assess teachers' needs before implementing the main study, ensuring that the program is tailored to their specific requirements.
- A PBPD program might ideally contain 8-10 participants, allowing the facilitator to provide individualized feedback and closely monitor each teacher's development. Small group settings also encourage the sharing of opinions and experiences among teachers during meetings.
- The PD program should integrate both theory and practice, offering teachers the opportunity to learn and immediately apply their knowledge within the same program.
- The PD program should have ongoing support with a facilitator during the program. The facilitator encourages teachers and gives feedback based on teachers' practices and their development.
- The PD program should be targeted to specific contexts, such as motor competence, problem-solving, and creativity in physical education, as emphasized by previous research (Harris et al., 2010; Petrie, 2010).

- For the policymakers, this type of PD with theory and practice application should be provided for teachers' in-service training, especially those who have limited knowledge of physical education. Thus, those teachers might have an opportunity to experience these skills then, they are more likely to apply it in their physical education courses.

6.4 Recommendation for Future Research

- Future research should investigate the long-term impact of PBPD programs on both teachers and students to determine if the effects on teachers' knowledge, attitudes toward teaching FMS, and classroom practices are sustained over time.
- Future research should investigate the role of teacher collaboration during PBPD programs in enhancing learning outcomes, and how peer support among teachers could further improve the effectiveness of professional development.
- Future research should conduct a different PD program (e.g., online or hybrid) on teachers' development to teach FMS effectively to identify the most efficient and scalable approaches.
- In this research, fundamental motor skills were considered as a main topic in this professional development program. Future research should consider other curriculum objectives such as health-related fitness components or physical activity levels for classroom teachers and their students.
- This type of PD program might provide early childhood and physical education teachers with valuable insight into the strengths and limitations of this framework by allowing them to engage with its principles in a hands-on and reflective manner. By applying the framework in their teaching practice, teachers might observe its impact on students' motor skill development, physical activity levels, and other curriculum objectives. Additionally, their feedback and observations might help refine the framework to ensure it addresses diverse teaching contexts and student needs.

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APPENDICES

A. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
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13 EYLÜL 2022

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Doç.Dr. Irmak Hürmeriç ALTUNSÖZ

Danışmanlığını yürüttüğünüz Hakan TAŞ'ın **"İLKÖĞRETİM ÖĞRETMENLERİNİN TEMEL HAREKET BECERİ BİLGİLERİNİN GELİŞTİRİLMESİ İÇİN SÜREKLİ MESLEKİ GELİŞİMİNİN KULLANILMASI: KARMA YÖNTEM ÇALIŞMASI"** başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay **0478-ODTUİAEK-2022** protokol numarası ile onaylanmıştır.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Mine MİSİRLİSOY
Başkan

Doç. Dr. İ.Semın AKÇOMAK
Üye

Dr. Öğretim Üyesi Müge GÜNDÜZ
Üye

Dr. Öğretim Üyesi Şerife SEVİNÇ
Üye

Dr. Öğretim Üyesi Murat Perit ÇAKIR
Üye

Dr. Öğretim Üyesi Süreyya ÖZCAN KABASAKAL
Üye

Dr. Öğretim Üyesi A. Emre TURGUT
Üye

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
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28 ŞUBAT 2023

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Doç.Dr. Irmak HÜRMERİÇ

Danışmanlığını yürüttüğünüz Hakan TAŞ'ın **"İlköğretim Öğretmenlerinin Temel Hareket Beceri Bilgilerinin Geliştirilmesi İçin Sürekli Mesleki Gelişiminin Kullanılması: Karma Yöntem Çalışması"** başlıklı araştırmanız İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek **0129-ODTUİAEK-2023** protokol numarası ile onaylanmıştır.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Sibel KAZAK BERUMENT
Başkan

Prof.Dr. İ.Semih AKÇOMAK
Üye

Doç. Dr. Ali Emre Turgut
Üye

Dr. Öğretim Üyesi Şerife SEVİNÇ
Üye

Dr. Öğretim Üyesi Murat Perit ÇAKIR
Üye

Dr. Öğretim Üyesi Süreyya ÖZCAN KABASAKAL
Üye

Dr. Öğretim Üyesi Müge GÜNDÜZ
Üye

B. CONTENT LETTER OF MINISTRY OF EDUCATION

T.C.
ANKARA VALİLİĞİ
Milli Eğitim Müdürlüğü

Sayı : E-14588481-605.99-63824887 21.11.2022
Konu : Araştırma İzni

ORTA DOĞU TEKNİK ÜNİVERSİTESİ REKTÖRLÜĞÜNE
(Öğrenci İşleri Daire Başkanlığı)

İlgi: a) MEB Yenilik ve Eğitim Teknolojileri Genel Müdürlüğünün 2020/2 sayılı Genelgesi.
b) 09.11.2022 tarihli ve 325 sayılı yazınız.

Üniversiteniz Beden Eğitimi ve Spor Anabilim Dalı doktora öğrencisi Hakan Taş'ın **"İlköğretim Öğretmenlerinin Temel Hareket Beceri Bilgilerinin Geliştirilmesi İçin Sürekli Mesleki Gelişiminin Kullanılması: Karma Yöntem Çalışması"** konulu çalışması kapsamında İlimiz merkez ilçelerine bağlı resmi ilkokullarda uygulama yapma talebi ilgi (a) Genelge çerçevesinde incelenmiştir.

Yapılan inceleme sonucunda, söz konusu araştırmanın Müdürlüğümüzde muhafaza edilen ölçme araçlarının; Türkiye Cumhuriyeti Anayasası, Milli Eğitim Temel Kanunu ile Türk Milli Eğitiminin genel amaçlarına uygun olarak, ilgili yasal düzenlemelerde belirtilen ilke, esas ve amaçlara aykırılık teşkil etmeyecek, eğitim-öğretim faaliyetlerini aksatmayacak şekilde okul ve kurum yöneticilerinin sorumluluğunda, gönüllülük esasına göre uygulanması Müdürlüğümüzce uygun görülmüştür.

Bilgilerinizi ve gereğini rica ederim.

Harun FATSA
Vali a.
Milli Eğitim Müdürü

Ek: Uygulama Araçları (6 Sayfa)

Dağıtım

Gereği :
Orta Doğu Teknik Üniversitesi

Bilgi
9 Merkez İlçe

Bu belge güvenli elektronik imza ile imzalanmıştır.
Adres : Belge Doğrulama Adresi : https://www.turkiye.gov.tr/meb-ebys
Bilgi için:
Telefon No : Unvan : Memur
E-Posta: İnternet Adresi: Faks:
Kep Adresi : meb@hs01.kep.tr
Bu evrak güvenli elektronik imza ile imzalanmıştır. https://evraksorgu.meb.gov.tr adresinden 68de-6ba8-396d-bb2f-2554 kodu ile teyit edilebilir.

C. DATA COLLECTION TOOLS

Observation tool

Öğretmen gözlem formu

Hafta: .....Ders konusu: .....Tarih:.....

Hangi beceri(ler): .....

Yaptı: V Yapmadı: 0

Aktiviteler		#1	#2	Not	Araştırmacı için açıklama
Giriş/ hangi becerinin öğretileceğini açıklama					Öğretmen dersin konusunu açıklıyor mu?
Isınma aktivitesi					Isınma aktivitesiyle başlanıyor mu?
Beceriyi adımlamalar bölme					Beceriyi anlatırken parçalara bölüyor mu?
Beceri gösterimi	Doğru				Beceriyi öğrencilere gösteriyor mu?
	Yanlış				
Fiziksel yönlendirme/Physical prompt					Ne çeşit yönlendirmeler kullanılıyor?
Beceri için yeterli süre					Öğrencilere öğrenmesi için yeterli süre veriliyor mu?
Beceri için anahtar kelime					Öğretmeye uygun kelimeler kullanıyor mu?
Tekrar	Var				Tekrar ettiriyor mu?
	Yok				
Görev (beceri) tanımı (açıklık, netlik)	Var				Görevi tanımlarken kısa, net, sözcükler kullanıyor mu?
	Yok				
Yönlendirme/Manipülasyon	Görev				Bir oyunda veya aktivite de hangi bileşenleri değiştirerek aktiviteyi çeşitlendiriyor?
	Çevre				
	Birey				
Ders sonu kritik (ders konusu, beceri öğrenimi gibi) unsurları vurgulama					Dersin sonunda konuya vurgu yapıyor mu?
Soğuma aktivitesi					Soğuma aktivitesi mevcut mu?

PLAYbasic – Motor competency test

PLAY*basic*

İsim **Numara** **Sınıf**

Beceri	Başlangıç	Gelişmekte	Yetkin	Uzman
1-Koş ve geri gel				
2-Tek ayak hoplama				
- Diğer ayak				
3-Baş üstü atış				
- Diğer el				
4-Topa ayakla vurma				
- Diğer ayak				
5- Öne doğru dengede yürüme				

Reflection from teachers

Öğretmenlerden alınacak yansıma

Öğretmen adı:

Eğitim haftası:

Soru 1: Bu hafta "Beden eğitimi ve oyun" dersinizi kısaca değerlendirir misiniz?

Soru 2: Hafta içerisinde "Beden eğitimi ve oyun" dersinde neleri iyi yaptığınızı düşünüyorsunuz?

Soru 3: Gelecek hafta "Beden Eğitimi ve oyun" dersi için geliştirmek istediğiniz yönleriniz nelerdir? Maddeler halinde yazınız.

→	
→	
→	
→	

Bu haftaki beden eğitimi ve oyun dersini yaptığınız günler;

Pazartesi	Salı	Çarşamba	Perşembe	Cuma
İçerik (Hangi beceri)				

Qualitative Survey

Programdaki beden eğitimi ve spor dersi hakkında ne düşünüyorsunuz?

Beden eğitimi ve oyun dersiyle ilgili ne aktiviteler yapıyorsunuz?

Fiziksel etkinlik kartları (FEK) uygulaması hakkında ne düşünüyorsunuz?

İlkokul beden eğitimi ve oyun dersi programının çıktıları nelerdir?

İlkokul beden eğitimi ve oyun dersinde öğrenciler için kullandığınız ölçme ve değerlendirme yöntemleri nelerdir?

Meslek grubundaki arkadaşlarınızla (okulunuzdaki diğer sınıf öğretmenleriyle) beden eğitimi ve oyun dersi hakkında konuşuyor musunuz?

Interview Questions

Görüşme sorular

1- Çalışma toplamda 10 hafa sürdü, beş haftası eğitim diğer beş haftası okul ortamında sizlerin desteklenmeniz ve ders gözlemiydi.
   a. Bu eğitime katılmanızda hangi faktörler etkinli oldu (İçsel, dışsal faktörler)
   b. Eğitim boyunca katılımınız oldukça yüksekti. Bunu nedenleri nelerdir?
2- Bu eğitim öncesini ve sonrasını düşündüğünüzde beden eğitimi ve oyun dersindeki
   a. Motor beceri öğretimi konusunda **bilginizde** değişiklikler oldu mu? Eğer olduysa ne gibi değişiklikler. Örnek verebilir misiniz? Neden değişiklik oldu? Ne etkili oldu?
   b. Motor becerileri öğretim konusundaki **tutumunuzda** değişiklikler oldu mu? Eğer olduysa ne gibi değişiklikler. Örnek verebilir misiniz? Neden değişiklik oldu? Ne etkili oldu?
   c. **FEK kartlarıyla** ilgili düşüncelerinizde değişiklikler oldu mu? Eğer olduysa ne gibi değişiklikler. Örnek verebilir misiniz? Neden değişiklik oldu? Ne etkili oldu?
   d. **Beden eğitimi ve oyun dersinin programıyla** ilgili düşüncelerinizde değişiklikler oldu mu? Eğer olduysa ne gibi değişiklikler. Örnek verebilir misiniz? Neden değişiklik oldu? Ne etkili oldu?
3- Bu eğitimin ilk beş haftası sizinle teorik ve pratik eğitimiyken, diğer beş haftası kolaylaştırıcının sizi sınıf ortamında/pratiğinde destekleme süreciydi. Bunun sizin açınızdan bir faydası oldu mu? Bana süreci anlatabilir misiniz?
   a. İlk beş hafta teorik eğitimden sonra pratik yapmanızın bir faydası oldu mu? Örnek verebilir misiniz?
   b. Ders süresince veya sonrasında dönüt vermemin yararı oldu mu? Örnek verebilir misiniz?
4- Bu eğitimin ders pratiğinize etkisi oldu mu? Eğer olduysa, ne gibi etkisi oldu? Örnek verebilir misiniz?
5- Bu eğitim boyunca öğrencileriniz de bir değişiklik gözlemlediniz mi? Eğer gözlemlediyseniz ne gibi değişiklikler gözlemlediniz?
   a. Derse katılımı
   b. Derse karşı tutumları
   c. Bilgi seviyeleri
6- Bu eğitimi okulun ve sizin ihtiyacınıza göre düzenlenmiş bir eğitimdi. Öğretmenlerle aynı okulda olmanızın ne gibi yararları oldu?
   a. Benim olmadığım bir zamanda beden eğitimi ile ilgili bir tartışma yaptınız mı? Ne gibi bir tartışmaydı?
   b. Diğer paydaşlardan dönüt aldınız? Ne gibi dönütlerdi?
7- Bu eğitimi iyileştirmek için önerileriniz nelerdir?
   a. Ne farklı olsaydı daha iyi olurdu?

D. MATERIALS

Physical Activity Cards (PAC)



FİZİKSEL ETKİNLİK KARTLARI

Çocuklar için hareket yoluyla daha sağlıklı, parlak bir gelecek

Sarı kartlar - Temel Hareket Becerileri

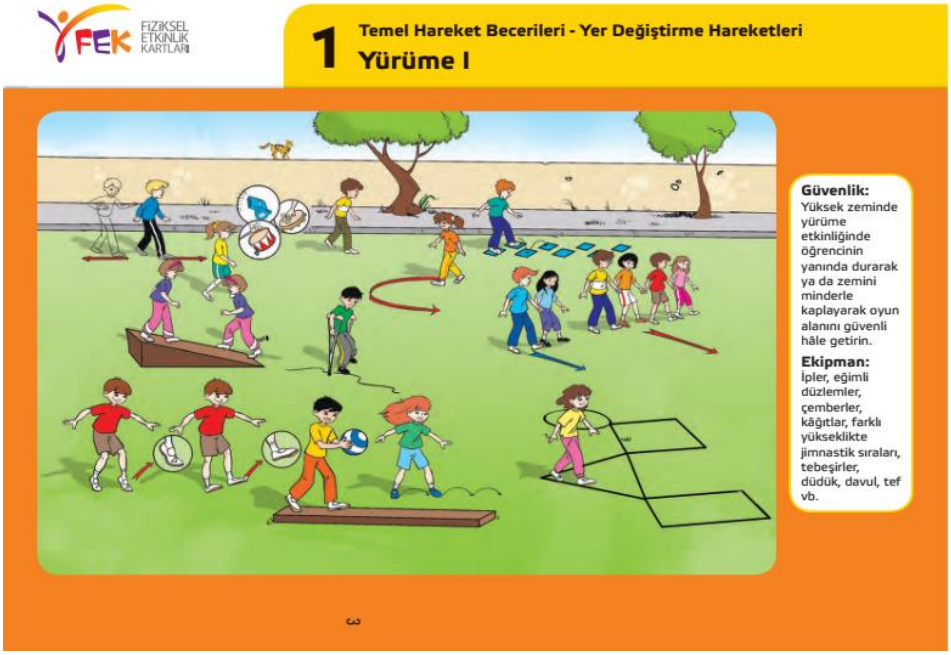
I. YER DEĞİŞTİRME HAREKETLERİ
1. Yürüme I....3
2. Yürüme II....5
3. Koşma....7
4. Atlama-Sıçrama....9
5. AdımAl-Sek....11
6. Galop-Kayma....13
7. Yuvarlanma....15
8. Tırmanma....17

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FİZİKSEL ETKİNLİK KARTLARI

1 Temel Hareket Becerileri - Yer Değiştirme Hareketleri

Yürüme I

Güvenlik: Yüksek zeminde yürüme etkinliğinde öğrencinin yanında durarak ya da zemini minderle kaplayarak oyun alanını güvenli hâle getirin.

Ekipman: İpler, eğimli düzlemler, çemberler, kâğıtlar, farklı yükseklikte jimnastik sıraları, tebeşirler, düdük, davul, tef vb.

Side-by-Side Joint Display Table for the Convergent Findings of the Study

Construct	Interview Results (Codes)	Data
Teachers improved their knowledge, and implementation of FMS based on their interview and the class observation results.	FMS implementation Connection between curriculum, PAC, and FMS Integration of FMS into Practice Changes in attitudes toward PE	Findings showed in the observation all teachers started the PE class with a warm-up ($n = 16$), explained which skill was going to be taught ($n = 12$), and demonstrated skills ($n = 15$) while teaching it.
Students improved their actual motor competency level and improved their understanding, knowledge, and engagement in activities	Attitudes toward PE Students' Engagement Understanding the Concept	All students showed improvement in locomotor, object control, and balance skills from the pre-test to the post-test (b = 7.947, t (206) = 4.069, SEb = 1.953, $p < 0.001$).

Note. For the observation score; the 10th week's data were used. For the multilevel analysis score; the overall score of first-grade (reference) pre-test to post-test score was used.

F. CURRICULUM VITAE

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G. TURKISH SUMMARY / TÜRKÇE ÖZET

GİRİŞ

Temel motor beceriler bireyin yaşamında önemli bir yer tutmaktadır. Bu beceriler, fiziksel aktivite gibi birçok sağlık parametresi ile pozitif bir korelasyon içerisindedir (Stodden ve Goodway, 2007; Linus ve diğ., 2015; Lopes ve diğ., 2011; Lubans ve diğ., 2010). Bu nedenlerle, temel motor beceriler yaşamdaki birçok fiziksel aktivite ve spor için temel bir bileşen olarak yer almaktadır (Clark ve Metcalfe, 2002). Bu becerilerin birçok faydasına rağmen, çocuklarda ve gençlerde temel motor beceri gelişiminin yeterli düzeyde olmadığı gözlemlenmiştir (Bolger ve diğ., 2020; Dobell ve diğ., 2020; Goodway ve diğ., 2019; Erwin ve Castelli, 2008; Hardy ve diğ., 2010; Lopes ve diğ., 2012; Larson ve diğ., 2021; Morgan ve diğ., 2013; Taş ve Hürmeriç, 2021).

Temel motor beceriler bir aktiviteye (Stodden ve Goodway, 2007) veya oyuna katılım ile gelişmesine rağmen (Butcher ve Eaton, 1989), aktif katılım bu becerilerde sadece belirli bir düzeye kadar gelişim sağlamaktadır (Logan ve diğ., 2011). Bu nedenle, her bir becerinin kazandırılması için en uygun gelişim dönemi olarak kabul edilen ilkokul yılları bu becerilerin gelişimi için önemlidir (Gallahue ve diğ., 2014).

Alanyazında, ilkokul beden eğitimi kalitesi birçok araştırmacı tarafından eleştirilmektedir (Griggs, 2007; Harris ve diğ., 2012; Morgan ve Bourke, 2008a; Morgan ve Hansen, 2008b; Petrie, 2010; Rainer ve diğ., 2012). Araştırmalar nedenleri şu şekilde sıralamaktadır; öğretmenlerin program bilgisi yetersizliği (Decorby ve diğ., 2005), uygun ders planı hazırlamakta eksiklik (Griggs, 2007; Morgan ve Hansen, 2008b), alan ve pedagojik alan bilgisi eksikliği (Kirk, 2005), öğretimde düşük güven seviyesi (Ulu ve diğ., 2019), beden eğimi dersine yönelik olumsuz tutumlar (Arslan ve Altay, 2009) gibi farklı nedenler bulunmaktadır. Bunlara ek olarak, ilkokul

öğretmenleri üniversite eğitiminde yeterli düzeyde beden eğitimi ile ilgili ders almadıkları saptanmıştır (bkz. YÖK, t.y).

Mesleki gelişim öğretmenler için önemli bir yer tutmaktadır. Mesleki gelişim uygulamaları, öğretmenlerin ders pratiklerini ve derse yönelik tutumlarını sistematik bir biçimde geliştirmeyi hedeflemektedir (Guskey, 1986). Ayrıca, bu uygulamalar öğretmenler arasındaki fikir paylaşımlarını desteklemekte ve bu fikirlerin sınıf pratiklerine entegre etmelerine yardımcı olmaktadır (Stoll ve diğ., 2006). Mesleki gelişimin öğretmen gelişimi üzerindeki olumlu etkisi alanyazında birçok çalışmada gösterilmiştir (bkz. Ball ve Cohen, 1999; Derri ve diğ., 2014; DuFour, 2004; Harris ve diğ., 2011; Ko ve diğ., 2006; Lee ve diğ., 2019; McLachland ve diğ., 2017; Petrie, 2010; Sallis ve diğ., 1997; Sum ve diğ., 2018; Till ve diğ., 2011; Tsangaridou, 2012; Yoon ve diğ., 2007).

Alanyazında birçok araştırma, mesleki gelişim programlarının öğretmenler için yeterli düzeyde olmadığını belirtmektedir (Borko, 2004). Başka bir deyişle, genel olarak tek gün ve pratikten/sahadan bağımsız yapılan mesleki gelişim programlarının öğretmen gelişiminde yetersiz olduğu saptanmıştır (Ball ve Cohen, 1999; Clarke ve Hollinsworth, 2002). Öncü çalışmalar, mesleki gelişim programları öğrenenin aktif rol aldığı bir şekilde uygulanmasının önemini vurgulamaktadır. Uygulama temelli mesleki gelişim (bkz. Ball ve Cohen, 1999) bu mesleki gelişim programlarına bir örnektir. Bu gelişim programı, mesleki gelişim içeriğinin öğretmenin bilgisi ve ders pratiğiyle uyumlu olması gerektiğini savunmaktadır. Aynı zamanda öğretmenlere, amaçlı öğrenme ve gelişim fırsatları sunmaktadır (Herre ve diğ., 2019). Uygulama temelli mesleki gelişime katılan öğretmenler sınıf deneyimlerini anlamlandırır ve ders pratikleri için bilgi üretirler (Cochran-Smith ve Lytle, 2001; Villegas-Reimers, 2003).

Ball ve Cohen'in (1999) belirttiği gibi, teorik bilginin uygulamada yer alması, bizzat uygulama yoluyla edinilmesi gerektiği anlamına gelmektedir. Ayrıca, etkili öğrenme için içerik bilgisinin günlük deneyimler, bağlamsal ihtiyaçlar ve beklentilerle ilişkilendirmesinin önemi vurgulanmaktadır (Darling-Hammond ve McLaughlin, 1995). Uygulama temelli mesleki gelişim, öğretmen gelişimini salt bilgi ile değil,

öğretmenin uygulama için gerekli olan bilgi, anlayış ve beceri gelişimine odaklanıp, sınıf içi uygulamalarını geliştirmesine vurgu yapmaktadır (Harris ve diğ., 2012).

Bu araştırmanın amaçları şu şekilde sıralanmaktadır; (1) öğretmenlerin temel motor beceri öğretiminde bilgi ve tutumlarındaki değişikliğini araştırmak, (2) öğretmenlerin sınıf içi uygulamalarını incelemek, (3) kolaylaştırıcı rolünün öğretmenlerin gelişimindeki rolü anlamak, (4) çalışmaya katılan öğretmenlerin sınıfındaki öğrencilerin temel motor beceri gelişimini incelemek, (5) bu programa katılan öğretmenlerin dersi geliştirmede öğrenme tercihlerini belirlemektir.

Çalışmanın Önemi

Mesleki gelişim çalışmaları ağırlıklı olarak ortaokul programına odaklanmıştır (Perry ve Boot (2021; Parker ve diğ., 2022). Fakat, beden eğitimi özelinde ilkokul öğretmenlerine yönelik mesleki gelişimi hedefleyen çalışmaların sayısı oldukça sınırlıdır (Tsangaridou, 2021). Alanyazında bu boşluk, ilkokul öğretmenlerinin kendi alanına özgü ve kendi gereksinimlerini ele alan, öğrenciler arasında aktif yaşam tarzlarını geliştirmek için yeterince hazırlıklı olmalarını sağlayan daha kapsamlı mesleki gelişim çalışmalarına duyulan ihtiyacı göstermektedir.

İlkokul öğretmenleri, beden eğitimi programına bilgi eksikliği (Decorby ve diğ., 2005), alan ve pedagojik alan bilgisi eksikliği (Kirk, 2005), dersin öğretimindeki düşük özgüven (Ulu ve diğ., 2019) gibi çeşitli zorluklar ve engellerle karşılaşmaktadır. Bu nedenle, bu çalışma öğretmenlerin temel motor beceri öğretimi alanında bilgilerini arttırma, derse yönelik tutumlarını geliştirme, bu becerileri derslerinde uygulama pratiklerine odaklanmıştır. Buna ek olarak, bu program öğretmenlerin program okuryazarlığı, materyal okuryazarlığı ve bunların temel motor beceriyle entegre edilmesine yönelik gelişimini hedeflemiştir.

Alanyazında temel motor becerilere yönelik mesleki gelişim programlarına öncelik verilmesi gerektiği Lander ve arkadaşları (2015) tarafından vurgulanmıştır. Çünkü temel motor beceriler, fiziksel aktiviteye katılım ve diğer bilişsel alanlara da önemli ölçüde katkıda bulunmaktadır (bkz. Bailey ve diğ., 2006; Gallahue ve diğ., 2012). Öğretmenleri temel motor becerileri etkili bir şekilde öğretecek bilgi ve becerilerle

donatmak, öğrencilerin yaşam boyu çeşitli aktivitelere katılımı için gerekli becerileri geliştireceği düşünülmektedir.

Etkili mesleki gelişim, öğretmenleri okul ortamında sürekli desteklemelidir (Bates ve Morgan, 2018; Darling-Hammond ve diğ., 2017; Poekert, 2011). Mesleki gelişim sırasında kolaylaştırıcı rolündeki kişiden sürekli destek alan öğretmenlerin, öğretim uygulamalarını geliştirme (Darling-Hammond ve diğ., 2017; Knight, 2008) ve olumlu deneyim yaşamalarının daha yüksek olduğu vurgulanmıştır (Kohen ve Borko, 2022). Mesleki gelişim programlarının bir çeşidi olan uygulama temelli mesleki gelişim, farklı alanlarda birçok araştırmada yer alırken, beden eğitiminde bu çerçevede yapılan bir çalışmaya rastlanmamıştır. Bu çalışma, uygulama temelli mesleki gelişim çerçevesini beden eğitimi bağlamında araştırmış ve bu alanı yeni bakış açısıyla zenginleştirmeye çalışmıştır.

Özetle, ilkokul öğretmenlerinin temel motor beceri bilgisini geliştirme, öğretim uygulamalarını iyileştirme ve öğrencilerin bu alanda becerilerini geliştirmeye ihtiyaçları vardır. Öncü çalışmalar, mesleki gelişim çalışmalarının sürekli, destekleyici, öğretmenlere geri dönüt sunan, uzun süreli ve kapsayıcı olması gerektiğini öne sürmektedir (Darling-Hammond ve diğ., 2017; Hunzicker, 2010). Bu çalışma, alanyazında bulunan çalışmaları dikkate alarak hem ulusal hem de uluslararası alanyazında ilkokul öğretmenleriyle ilgili kritik olan problemleri ele almıştır.

Araştırma Soruları

1- Sınıf öğretmenleri, TMB öğretimine odaklanan on haftalık uygulamaya dayalı bir mesleki gelişim programına katılmayı nasıl deneyimliyor?
2- Sınıf öğretmenlerinin ne kadarı on haftalık uygulamaya dayalı bir mesleki gelişim programına katıldıktan sonra TMB öğretimi için istenen öğretim görevlerini yerine getirmektedir?
3- Sınıf öğretmenlerinin on haftalık uygulama temelli bir mesleki gelişim programı boyunca beden eğitimi ve oyun dersinde öğrenme tercihleri nelerdir?

4- İlkokul öğretmenlerinin uygulama temelli bir mesleki gelişim programına katılımının ardından öğrencilerinin temel motor beceri düzeylerinde ön ve son test olarak nasıl bir farklılık gözlemlenmektedir?
5- On haftalık uygulamaya dayalı bir mesleki gelişim programına katılımın ardından, sınıf öğretmenleri öğrencilerinin motor becerilerindeki ilerlemeyi nasıl algılamaktadır?
6- Nitel ve nicel veriler birbirini nasıl tamamlıyor?

YÖNTEM

Bu çalışmada karma yöntem araştırma deseni uygulanmıştır (Creswell ve Clark, 2017). Karma yöntem araştırma tasarımında, araştırma sorularını bütüncül bir şekilde yanıtlamak için hem nitel hem de nicel olmak üzere farklı kaynaklardan veri toplanır (Mertens, 2019). Bu çalışmanın nicel yönleri açısından, yarı deneysel tek grup ön test-son test deseni (bkz. Shadish vd., 2002), nitel araştırma perspektifinden bakıldığında, durum/vaka çalışması kullanılmıştır (bkz. Creswell, 2013).

Katılımcılar

Örneklem, ilkokul öğretmenleri ve öğrencilerinden oluşan hiyerarşik bir yapıdan oluşmaktadır. Çalışmadaki katılımcılar amaçlı örneklem metoduyla seçilmiştir. Çalışmaya 16 öğretmen ve onların öğrencileri katılmıştır. Öğretmenler için dahil etme kriteri; ilkokulda halihazırda öğretmen olmak, bir, iki ve üçüncü sınıfa ders veriyor olmak ve çalışmaya katılmak istemesidir. Dördüncü sınıf öğretmenleri çalışmaya dahil edilmemiştir çünkü, ilk üç sınıfta her gün bir saat beden eğitimi ve oyun dersi varken, dördüncü sınıfta beden eğitimi ve oyun dersi haftada iki saat yapılmaktadır. Öğrenciler için herhangi bir kriter bulunmamaktadır. Aile onam formunu getiren her öğrenci çalışmaya dahil edilmiştir.

Uygulama Temelli Mesleki Gelişim Programı

Bu programın iki aşaması vardır; (1) çalışma bir pilot çalışma ile başlamıştır. (2) Daha sonra pilot çalışmadaki kolaylaştırıcının notları temel alınarak ana çalışma tasarlanmıştır.

Pilot çalışmanın yapılmasının temel nedeni, ana çalışmanın içeriğini geliştirmek ve çalışmada kolaylaştırıcı olarak deneyim kazanmaktır. Pilot çalışmadan sonra ana çalışma için bazı değişiklikler yapılmıştır.

Pilot Çalışma: *Dört* haftalık pilot çalışma, Orta Doğu Teknik Üniversitesi Beden Eğitimi ve Spor Bölümü'nden bir araştırmacı ve bir alan uzmanı tarafından tasarlanmıştır. Pilot çalışma ilkokul öğretmenleri için uygulama temelli mesleki gelişim programını uygulamayı amaçlamıştır. İkinci amaç ise süreci, programın güçlü ve sınırlı yönlerini ve programın hangi bölümünün geliştirilebileceğini ya da hangi bölümün ana programından çıkarılabileceğini belirlemektir. Çalışmanın sonucunda, öğretmenler beden eğitimi programlarını okurken bazı problemler yaşadıkları belirlenmiştir. Buna ek olarak fiziksel etkinlik kartlarıyla herhangi bir deneyimleri olmadığı ortaya çıkmıştır. Beden eğitimi derslerini sadece boş zaman aktivitesi olarak algıladıkları ve temel motor beceri bilgilerinin zayıf olduğu saptanmıştır.

Ana çalışma: Ana programı birkaç adımda geliştirilmiştir; (1) ulusal ve uluslararası literatür taranmış, (2) bir devlet okulunda pilot çalışma yapılmış, (3) program oluşturulduğunda uzman görüşü alınmış, (4) nitel anket sonrasında ana programda küçük değişiklikler yapılmıştır. İlk olarak, alanyazında uygulama temelli mesleki gelişim programlarıyla ilgili tarama yapılmıştır. İkinci adımda, bir pilot çalışma tasarlanmış ve uygulanmıştır. Daha sonraki adımda, ana çalışma tasarlanmış ve son adımda, çalışmanın ilk haftası öğretmenlere verilen nitel anket ile, program son haline getirilmiştir. Örneğin, öğretmenler beden eğitimi programı hakkında sınırlı bilgiye sahip olduklarını ifade etmişlerdir. Ayrıca, programı okumakta zorlandıklarını vurgulamışlardır. Bu nedenle, kolaylaştırıcı uygulama temelli mesleki gelişim programında beden eğitimi programından her hafta konularla ilişkilendirerek örnekler vermiştir.

Genel olarak, araştırmacı beden eğitimi programının amaçları, kazanımları, fiziksel etkinlik kartlarının kullanımı üzerinde ilk planlanandan daha fazla durmuştur. Ayrıca, program sırasında öğretmenlere dersin hedefleri, programla bağlantısı hakkında örnekler vermiştir.

Tablo 1.

Uygulama Temelli Mesleki Gelişim Programı İçeriği

Hafta		Konu
1	T	Mesleki Gelişim, Beden Eğitimi programı, Beden Eğitimi Rutini
	P	Isınma- Soğuma, Oyun, Aktivite
2	T	Motor Becerileri, Teoriler, Dinamik Sistem Teorisi
	P	Fiziksel Etkinlik kartları
3	T	Beden Eğitimi Programı, Temel Motor Beceri, Hareket Konsepti
	P	Fiziksel Etkinlik Kartları
4	T	Nesne kontrolü ve Denge
	P	Nesne kontrolü ve denge ile ilgili aktiviteler
5	T	Yer değiştirme ve Denge
	P	Yer değiştirme ve denge ile ilgili aktiviteler
6		Kolaylaştırıcı Desteği
7		Kolaylaştırıcı Desteği
8		Ders Gözlemi
9		Ders Gözlemi
10		Ders Gözlemi

T: Teorik, P: Pratik anlamına gelmektedir.

Programın Uygulanması

Ana program, ilk beş hafta, sonraki iki hafta ve son üç hafta olarak üç bölüme ayrılmıştır. İlk beş hafta, toplantılar (a) beden eğitimi ve oyun dersi öğretimini tartışmak, (b) büyüme ve motor gelişim felsefi yönleriyle anlamak, (c) temel motor becerilerin neler olduğu ve nasıl öğretileceği hakkındaki bilgilerini geliştirmek, (d) toplantılarda teorik çerçevenin aynı toplantı içerisinde pratiğinin yapılması

çerçevesinde gerçekleşmiştir. Her haftanın konusu, beden eğitimi programının hedefleriyle paralel bir şekilde ayrışmadan kurgulanmıştır. Bu toplantılar ortalama iki saat sürmüştür. Toplantılarda bir araştırmacı, kolaylaştırıcı rolünü kontrol listesi ile değerlendirmiştir.

Altıncı ve yedinci hafta, kolaylaştırıcı öğretmenleri derslerinde aktif katılımcı olarak desteklemiş ve gerektiği zamanlarda dönütler vermiştir. Bu iki haftanın amacı, ilk beş haftada öğrendiklerini saha ortamında uygulamasıdır. Bu haftalarda, kolaylaştırıcı öğretmenleri yönlendirmemiş sadece karşılaştığı problemlere çözüm getirmiştir.

Son üç haftada ise, kolaylaştırıcı her bir öğretmeni beden eğitimi ve oyun dersinde gözlemlemiştir. Kolaylaştırıcının buradaki rolü, öğretmenlerin program boyunca öğrendiklerinin ne kadar uygulandığıdır. Kolaylaştırıcı, dışarıdan izleyici rolünde olmuştur ve öğretmenler ders boyunca kolaylaştırıcıdan dönüt almamışlar fakat ders sonunda kolaylaştırıcı ile fikir alışverişinde bulunmuşlardır.

Veri Toplama Araçları

Öğretmenlerle Görüşme: Bu görüşmenin amacı, öğretmenlerin temel motor beceri öğretimi hakkındaki algılanan bilgilerini, bu becerileri öğretmeye yönelik tutumlarını ve süreç boyunca kolaylaştırıcı desteği hakkındaki görüşlerine dayalı olarak sınıf uygulamalarını anlamaktır. Sorular oluşturulurken iki nitel uzman ve bir araştırmacının görüşü alınmış ve dönütlere göre düzenlemeler yapılmıştır.

Sınıf Gözlemi: Araştırmacı, tüm öğretmenlerin sınıf içi beden eğitimi uygulamalarını sekizinci, dokuzuncu ve onuncu haftalarında üçer kez gözlemlemiştir. Çalışma öncesinde gözlem formu, öğretim uygulamalarının gözlemlenmesine uygun olacak şekilde uyarlanmıştır. Gözlem formunun orijinal hali Hürmeriç-Altunsöz ve Goodway (2016) tarafından temel motor beceri öğretimine yönelik bir motor program çalışması içim geliştirilmiştir. Bu form, beden eğitimi dersi temel motor beceri öğretimi uygulamalarını gözlemlemek için uyarlanmıştır.

Yansıma: Haftalık yansıma kâğıdı üç sorudan oluşmaktadır. Bu yansıma kağıtları programa katılan tüm öğretmenlere her hafta verilmiş ve doldurulmaları istenmiştir.

PLAYbasic: Öğrencilerin temel motor becerileri değerlendirmek için PLAYbasic aracı kullanılmıştır. Bu araç, Türkiye bağlamında kullanılan PLAYfun değerlendirmesinin kısa bir formudur (Taş ve Altunsöz-Hürmeriç, 2021). Bu ölçüm aracı Kanada Yaşam için Spor Derneği tarafından geliştirilmiştir (2012). Üç alt bölümden (yer değiştirme, nesne kontrolü ve denge) ve koşu, sıçrama, el üstü atış, topa ayakla vurma ve denge yürüyüşü olmak üzere beş farklı temel motor beceriden oluşmaktadır. Ölçüm aracı 100 mm'lik bir görsel analog sistem kullanmakta ve başlangıç (0-24), gelişmekte olan (25-49), yetkin (50-74) ve yeterli (75-100) olmak üzere dört kategoriye sahiptir.

Veri Toplama Prosedürü

Uygulama temelli mesleki gelişim programı, 2022-2023 eğitim-öğretim yılı bahar döneminde Ankara ilinde iki ilkokulda uygulanmıştır. Çalışmada Helsinki Bildirgesi Protokolüne uyulmuştur. Program süresince öğretmenlerden haftalık yansımalar alınmıştır. Kolaylaştırıcı tarafından son üç hafta öğretmenlerin sınıf pratikleri gözlemlenmiştir. Çalışmanın sonunda her öğretmenle bire bir görüşmeler yapılmıştır. Program öncesinde ve sonrasında öğrencilerden temel motor becerileri ölçmek için PLAYbasic ölçüm aracı kullanılmıştır. Öğretmenler ve öğrencilerin ebeveynleri yazılı bilgilendirilmiş ve çalışmaya katılanlardan onam formu alınmıştır. Etik izin protokol numaraları şu şekildedir: 0478-ODTÜİAEK-2022: 0129-ODTUİAEK-2023.

Veri Analizi

Nitel analiz için, yanıstıcı tematik analiz kullanmıştır (bkz. Braun ve Clarke, 2019). Bu analizde, araştırmacı araştırma sorularına yönelik temaları ve kalıpları tanımlamaya çalışmaktadır (Braun ve Clarke, 2019). Bu analizde şu sıralar takip edilmiştir; (1) veriyi okuma ve aşina olma, (2) ilk kodları oluşturma, (3) tema arama, (4) temaları gözden geçirme, (5) temaları tanımlama, (6) tema, alt tema ve kodları raporlama. Buna ek olarak, öğretmenlerden alınan yansımalar için içerik analizi kullanılmıştır. İçerik analizi, veriden çıkarım yapılmasını sağlayan bir yöntemdir (Weber, 1990). İçerik analizinde kodlar direkt veriden çıkartılarak üretilmiştir (bkz. Zhang ve Wildemuth, 2005).

Nicel analiz için, çok düzeyli regresyon analiz kullanılmıştır. Bu analiz için üç düzey vardır. Birinci düzey, öğrencilerin ön- ve son-testlerinden oluşmaktadır. İkinci düzey, öğrenciler arasındaki fark, üçüncü düzey ise sınıflar arasındaki farktır. Analiz, yer değiştirme, nesne kontrolü, denge ve genel puan ortalamalarının her biri için teker teker yapılmıştır. Buna ek olarak, gözlem yönteminin analizinde tanımlayıcı istatistikse analiz kullanılmıştır. Burada öğretmenlerin gözlem formuna ilişkin davranışları yaptı veya yapmadı olarak işaretlenmiş bu veriler sayısal ve yüzdesel olarak ifade edilmiştir.

SONUÇ

Nitel Sonuçlar

Nitel analiz sonuçlarına göre öğretmenler, kolaylaştırıcı ve öğrenciler ile ilgili üç tema ortaya çıkmıştır. Bunlar; Öğretmenlerin Geliştirilmesi, Kolaylaştırıcı Rolü ve Öğrenicilerin Bedensel Okuryazarlığının Geliştirilmesidir.

Araştırma sorusu 1

Bu araştırma sorusunda ilk tema öğretmenlerin temel motor beceri öğretimindeki algısal bilgisine olarak ortaya çıkmıştır. Öğretmenlerle yapılan görüşmeler sonucu, bir tema, bir alt tema ve dört kod ortaya çıkmıştır. Kodlar, ‘temel motor becerilerini uygulama’, ‘materyal okuryazarlığı’, ‘program okuryazarlığı’, ve bu üç bileşenin bağlantısıdır.

Öğretmenler, genel olarak, temel motor beceri bilgisinin eksikliğinden be bu becerileri uygulamadaki zorluklardan bahsetmişlerdir. Örneğin, 12 numaralı öğretmen;

> *“Beden Eğitimini öğretirken temel motor becerilerine hiç dikkat etmiyorduk. Bu becerileri gözlemlemiyorduk. Fakat şimdi öğrencilerin hangi becerileri ve ne kadar yapabildiklerine dikkat ediyoruz. Bu programda bunları öğrendim. Artık daha bilinçli motor edeceğim” (K12).*

Buna ek olarak, program okuryazarlığıyla ilgili öğretmenler teorik kelimelerin yer aldığını ve programla ilgili pek bir bilgi sahibi olmadıklarından bahsetmişlerdir. Fakat programdan sonra bu düşüncelerinin değiştiğini aktarmışlardır.

"*Programı nasıl uygulayacağımızı bilmiyorduk. Sadece kazanımlara bakıyoruz ve bu kazanımlar çok genel şeyler ifade ediyordu. Yani biz sadece bir şeyler öğretmeye çalışıyorduk." (K11)*

"Program çıktıları çok güzel tasarlanmış olduğunu fark ettim. Buna ek olarak, artık bu kazanımları öğretebiliyorum. Bu çok güzel bir his." (K3).

Başka bir kod ise, materyal okuryazarlığıdır. Burada öğretmenlere program başında 'Fiziksel Etkinlik Kart' kitapçığı verilmiştir. Öğretmenlerin bu konudaki düşüncelerin programın materyal açısından önemli olduğu yönündedir. Örneğin,

"*Fiziksel etkinlik kartlarını, siz anlatana kadar bilmiyorduk. Böyle bir materyalin programla nasıl bağlantılı olacağının da farkında değildik. Böyle bir materyali daha önce görmüştüm fakat kullanmamıştım…Program sayesinde, nasıl kullanacağımı öğrendim, artık bu materyal benim için bir rehber olacaktır" (K12).*

Son olarak, materyal, program ve temel motor becerilerinin bağlantısından bahsedilmiştir. Öğretmenler hangi becerinin programda ve materyallerde bulunacağına yönelik düşüncelerini şu şekilde belirmişlerdir.

"*Belki şu anda her bir beceriyi bilmiyoruz, fakat en azından programa, fiziksel etkinlik kartlarına baktığımızda, hangi becerinin hangi kısmına bakacağımızı biliyoruz. Artık bunları eşleştirmeyi biliyorum." (K15)*

Birinci araştırma devamında öğretmenlerin temel motor beceri öğretmelerine yönelik tutumları teması ortaya çıkmıştır. Görüşme sonuçlarına göre, bir tema, iki alt tema ve dört kod ortaya çıkmıştır. Kodlar, 'yansıma ve mesleki gelişim', 'beden eğitimine yönelik tutum değişimi', 'temel motor becerinin pratiğe entegrasyonu' ve 'beden eğitimi rutini'dir. Aşağıda bu kodlardan örnekler verilmektedir.

Öğretmenler genel olarak beden eğitimini uygun şekilde öğretemediklerinden bahsetmektedirler. Genel olarak, dışsal faktörlere odaklanmaktadırlar. Ayrıca öğrencilerin ihtiyaçlarının farkında olmadıklarından bahsetmektedirler.

"*Doğrusunu söylemek gerekirse beden eğitimi derslerini yapmaktan keyif almıyordum." (K12)*

"Bence beden eğitimi sadece bir oyun dersiydi, öğrencilerin sadece oyun oynadığı ki öğrencilerin algısı da bu yönde. Fakat kendi oyun alanlarını da

oluşturamıyorlardı. . ...Buna ek olarak, ben kendimde çok fazla çeşitlilik göremiyordum. Hani en fazla ne yapıyordum ben? Yaptığım ısınma motorleri ve komut verme, sonrasında öğrenciler kendi gruplarını oluşturup, oyun oynuyorlardı. Bu yüzden beden eğitimini doğru öğrettiğimi düşünmüyordum." (K14).

Öğretmenler, programdan önce beden eğitimine karşı negatif tutum içerisinde olmalarına rağmen, programdan sonra davranışlarını değiştirdiklerini söylemişledir.

"*Öğrencileri neden koşturmam gerektiğini, neden ısınma ve soğuma hareketleri yaptırdığımı bilmiyordum veya ne zaman bunları yaptırmam gerektiğini. Şu anda beden eğitimi programına göre ne yaptırmam gerektiğini biliyorum. Bunların etkilerini öğrenciler üzerinde görüyorum. Bu benim açımdan en büyük değişiklik" (K13)*

Öğretmenler, ders pratiklerine temel motor becerilerini de kattıklarından bahsetmektedirler.

"*Daha öncesinde takımları oluşturduktan sonra oyun oynuyorduk fakat şimdi oyun oynuyoruz fakat beceri kazanmaya da çalışıyoruz. Bu becerileri pratikte yapıyoruz, buna yönelik oyun kuruyoruz ve oynuyoruz." (K15).*

Öğretmenler beden eğitiminde rutinlerinin oluştuğundan bahsetmektedirler.

"*Şu anda beden eğitimini daha farklı şekilde öğretiyorum. Standart bir şekilde yapıyorum ve öğrenciler bunun farkında. Programdan önce, ısınma ve soğuma yapmıyorduk. Sadece derse başlıyorduk. Şimdi öğrenciler ısınma ve soğumanın nasıl yapılacağını biliyorlar. Ders içerisinde bir oyun oynayacaklarını biliyorlar. Onlara beceri öğreteceğimi biliyorlar." (K11).*

Buna ek olarak, programda yer alan kolaylaştırıcının rolü ve öğretmenlere ne ifade ettiği ile ilgili sorular sorulmuştur. Görüşme sonuçlarına göre bir tema 'Kolaylaştırıcı rolü' ve üç kod 'destek', 'yetkinlik' ve 'dönüt' ortaya çıkmıştır.

Öğretmenler programın ilk beş haftası teori ve pratiği bir arada öğrenmelerine rağmen, kolaylaştırıcının okul ortamında bulunması kendilerinin öğretim davranışlarını sürdürmede önemli bir rol oynadığını vurgulamışlardır. Bazı öğretmenler kolaylaştırıcıyla birlikte derse girmenin programdaki öğrendiklerini pratik etmeleri için kendilerini tetiklediğini iddia etmiştir.

> "*Eğer kolaylaştırıcının bizi desteklemeye geldiği bölüm olmasaydı, teorinin pratiğe uygulaması benim için soyut kalırdı. Programdan yarar sağlamama rağmen, bunu pratiğe uygulamak bir davranış olmazdı. Dediğim gibi program çok iyi. Fakat bunu davranışa dönüştürmem için bu bölüm çok önemliydi." (K10)*

Bir başka kod ise kolaylaştırıcının yetkinliği üzerine olduğu öğretmenler tarafından vurgulanmıştır.

> *"Sizin (kolaylaştırıcı) üniversitede çalışıyor olmanız çok önemli, yeni nesilsiniz ve yenilik getireceğinizi düşünüyordum." (K5*)

Görüşmeden çıkan bir diğer kod ise kolaylaştırıcının dönüt vermesidir. Bu konuda öğretmenler ders pratiklerine yönelik aldıkları dönütleri önemli buldukları, gözlem ve dönütün kendileri için yararlı olduğunu vurgulamışlardır.

> *"Siz bizi gözlemlerken, biz bazı hatalar yapıyor olabiliriz ve bazı şeyleri unutuyor olabiliriz. Böyle zamanda, sizin bize dönüt verdiğiniz, böyle yapsanız daha iyi olur dediğinizde, bizim o konu hakkında fikrimiz oluyor aynı ders veya bir sonraki hafta için çok yararlı oluyordu" (K11).*

Araştırma sorusu 2

İkinci araştırma sorusu, programda öğretmenlerin sınıf pratiklerini incelemektir. Bu bağlamda, gözlem sonuçlarına göre, her öğretmen derse ısınma ile başlamakta ve büyük bir çoğunluğu soğuma ile bitirmektedir. Sınıf gözleminde en düşük gözlemlenen kriter, öğretmenlerin ders sonu hangi beceriyi veya hangi önemli noktayı vurguladığını ifade etmemesidir. Zaman içinde, 'beceri öğretiminde kritik unsur', 'fiziksel yönlendirmeler', 'beceri için anahtar kelimeler' ve 'görev tanımı' gibi bazı davranışlar gözlemlenmemiştir. Bir başka deyişle, bu davranışlar ilk hafta sonraki haftalara göre daha sık gözlemlenmiştir.

Araştırma Sorusu 3

Bu araştırma sorusunda, öğretmenlerin program boyunca dersin pratiklerinde neyi geliştirmek istedikleri incelenmiştir. Bu bağlamda, öğretmenlerin program boyunca doldurdukları yansıma kağıtları incelenmiştir. Geleneksel içerik analizi sonuçlarına

göre, ‘öğretim stratejisi’ ve ‘güçlendirilmiş öğretme ve öğrenme’ olmak üzere iki tema ortaya çıkmıştır. Genel olarak, öğretmenler programın başında öğretim stratejilerini geliştirmek istemişlerdir. Örneğin, ilk haftalarda ‘plan yapma’, ‘malzeme kullanımı’, ‘beceri geliştirme’ kelimeleri kullanılmıştır.

> “*Sınıfta beden eğitimi rutini oluşturmam gerekiyor, bunu alışkanlık haline getirmem gerekiyor” (K8)*

Programın son haftalarına doğru, öğretmenler beden eğitimi programlarıyla ilgili farklı kelimeler kullanmaya başlamışlardır. Örneğin, ‘fiziksel aktivite’, ‘(yaşa) uygun gelişim’ buna ek olarak, ‘plan yapma’, ‘yeni oyun öğrenme’ gibi ilk haftalarda kullandıkları kelimeleri daha az veya hiç kullanmamaya başlamışlardır.

> “*Temel motor becerilerini oyuna dahil etmeyi istiyorum” (K6)*
>
> *“Tek bir beceriye odaklanmam gerektiğinin farkına vardım. Daha sonra, bu beceriyi farklı oyunlarda iyileştireceğim” (K12).*

Araştırma Sorusu 4

Bu araştırma sorusu, programa katılan öğretmenlerin program katılımından sonra sınıfındaki öğrencilerin temel motor beceri gelişimine yöneliktir. Öğrenciler, programdan önce ve sonra temel motor beceri testine katılmışlardır. Tanımlayıcı analize göre, ön-testte öğrenciler, yer değiştirme becerilerinde nesne kontrolü ve denge becerilerine göre daha yüksek puan aldıkları gözlemlenmiştir. Buna ek olarak, birinci sınıfların, ikinci ve üçüncü sınıflara göre toplam puanları daha düşüktür. Son-test sonuçlarına göre ise yer değiştirme becerilerindeki puanlar nesne kontrolü ve denge becerilerine göre daha yüksek olmasına rağmen ilk testte sınıflar arasındaki fark kapanmış, birinci sınıftaki öğrenciler daha fazla gelişim göstermişlerdir.

Çok düzeyli regresyon analiz sonucuna göre, yer değiştirme, nesne kontrolü, denge ve tüm test puanlarında ön-test ve son-test arasında fark bulunmaktadır. Başka bir deyişle, çalışmaya katılan öğretmenlerin öğrencileri temel motor becerilerde gelişim göstermişlerdir. Buna ek olarak, birinci sınıfta olan öğrenciler, ikinci ve üçüncü sınıf öğrencilerine göre programdan daha fazla yarar sağladıkları gözlemlenmiştir.

Araştırma Sorusu 5

Bu araştırma sorusu, programa katılan öğretmenlerin kendi öğrencilerinde nasıl bir gelişim gözlemlediklerini incelemektir. Bunun için öğretmenlerle yapılan görüşmede öğrencilerinde ne gibi gelişim gözlemlediklerine yönelik sorular sorulmuştur. Bunun sonucunda, bir tema ve beş farklı kod ortaya çıkmıştır. Bu kodlar 'öğrencilerin beden eğitimine yönelik tutumları', 'beden eğitimi kavramlarını anlamaları', 'katılımlarını', ve 'adil oyun' şeklindedir.

Öğretmenler, programdan önce öğrencilerin beden eğitimi dersinde hep oyun oynamak istediklerinden bahsetmişlerdir. Ayrıca, bazı öğrencilerin bu derse karşı olumsuz bir tutum içinde olduklarını söylemektedirler. Fakat bu programdan sonra öğrencilerin tutumlarında farklılaşma gözlemlemektedirler. Örneğin,

> *"Biz bu programda öğrendiklerimizi uyguladığımızda, serbest bir şekilde oyun oynamak isteyen öğrenciler beden eğitiminden daha keyif alır oldular ve bu derse daha fazla katılma isteği gösterdiler" (K5)*

Program boyunca, öğretmenler kendi öğrencilerinden beden eğitimine dair bazı konseptleri daha iyi anladıklarını gözlemlemişlerdir.

> "*Öğrenciler daha iyi dinliyor. Bu davranışları çok arttı. Ayrıca, sınıf kurallarına daha fazla uyuyorlar. Örneğin sıra olun dediğimde anlamıyorlar ve çok çabuk dağılıyorlardı. Fakat şimdi çok daha iyiler." (K10).*

Başka bir gelişim ise, öğrencilerin katılımlarında gözlemlenmiştir. Öğrenciler beden eğitimine yönelik duygusal ve bağlılık olarak gelişim göstermişlerdir.

> "*Öğrenciler, beden eğitimi dersinde olmadığımız zaman bile malzemelerin yerini soruyorlar. Kendileri oyun kurup oynuyorlar. Örneğin, Futbol oynamadan önce kendileri bir antrenör seçmiş ve ısınma hareketleri yapıyor. Basketbol oynamıyorlardı fakat şimdi oynuyorlar ve o yönde becerilerini geliştiriyorlar" (K6).*

Son olarak, öğrenciler bir oyun oynarken daha adil bir şekilde oynadıkları ve daha adaletli davrandıkları öğretmenleri tarafından gözlemlenmiştir.

> "*Birbirlerine daha adil davranmaya başladılar. Örneğin, bir yarışma yaparken birbirlerini tebrik ediyorlar. Daha önceden bir parkuru kurallara*

uymadan tamamlama eğilimindelerdi. Şimdi eğer kurala uymuyorsa bunu fark ediyor ve doğrusunu yapmaya çalışıyor. Yarışı kaybetmesine rağmen, kurala uyarak tekrar yapıyor" (K13).

TARTIŞMA

Bu çalışmanın amacı uygulamaya temelli mesleki gelişim programı boyunca (1) sınıf öğretmenlerinin deneyimlerindeki değişimleri incelemek, (2) temel motor becerilerini öğretimi için istenen öğretim görevlerini sergileyen öğretmenlerin oranını belirlemek (3) öğretmenlerin beden eğitimi dersini geliştirme konusundaki öğrenme tercihlerini belirlemek ve (4) öğrencilerdeki değişimleri incelemektir. Bu bağlamda, 10 haftalık programa katılan öğretmenler derslerinden ayrı bir zamanda programa katılmışlar, ilerleyen haftalarda kolaylaştırıcının desteğiyle kendi beden eğitimi programlarını yürütmüşlerdir. Kolaylaştırıcı öğretmenleri hiçbir şekilde yönlendirmemiş sadece işlenen ders ile ilgili pratik bilgiler vermiştir. Buna ek olarak, gözlem haftaları sonunda öğretmenle kısa bir değerlendirme yapılarak dersin daha verimli işlenmesi üzerinde bire bir fikir alışverişinde bulunulmuştur.

Bu bağlamda çalışma sonuçları öğretmenlerin temel motor beceri bilgisinde ve tutumlarında pozitif anlamda gelişme görüldüğü, beden eğitimi ders pratiklerinde gelişme gözlemlendiği, öğrencilerinde temel motor becerilerinde gelişme görüldüğü ayrıca öğretmenlerinin görüşünde bütüncül bir gelişme gösterdikleri saptanmıştır. Ayrıca, öğretmen yansımalarından alından bilgiler analiz edildiğinde ilk haftalarda plan yapma, yeni oyun öğrenme, beceri öğretme gibi kavramları daha çok kullanırken, ilerleyen haftalarda fiziksel aktivite, (yaşa) uygun gelişim, dinamik sistemler teorisini kullanma, spora özel beceriler gibi farklı kelimeleri kullandıkları saptanmıştır. Aşağıda bu sonuçlar ayrıntılı olarak; öğretmen gelişimi, öğrenci gelişimi ve kolaylaştırıcı desteği başlıkları altında tartışılmıştır.

Öğretmen Gelişimi

Öğretmenler temel motor becerilerine yönelik teorik ve pratik bilgilerinin arttığını vurgulamışlardır. Ayrıca, program, materyal okuryazarlığı ve temel motor beceri

uygulamalarında gelişme gösterdiklerini belirtmişlerdir. Bu gelişimlerine yönelik açıklamalar şu şekildedir; uygulama temelli mesleki gelişim öğretmenlerin ihtiyaçlarına yöneliktir (bkz. Ball ve Cohen, 1999), bu nedenle öğretmenler programı nasıl okuyacaklarını, programın çıktılarını ve temel motor beceri nasıl uygulayacağını öğrenmişlerdir. Bu gelişimin başka bir nedeni ise programın ilk haftası öğretmenlerin doldurduğu nitel anket olduğu düşünülmektedir. Örneğin, öğretmenler nitel ankette beden eğitimi, programı, materyal kullanımı ile ilgili sorulara cevap vermişlerdir. Daha sonrasında ise uygulama temelli mesleki gelişim içeriğinde bazı noktalar bu ihtiyaçlar doğrultusunda değiştirilmiş veya daha fazla vurgulanmıştır. Bunun sonucunda öğretmenlerin ihtiyaçları ve öğrenmek istedikleri şekilde bir program ortaya çıkmış olabilir. Bir başka açıklama ise, öğretmenler programın ilk beş haftasında her hafta teorik bir çerçevede tartışıp, daha sonrasında bir saat bu teorilere yönelik pratik bölüme katılmışlardır. Bir başka deyişle teorik bilgiler edinilmiş, öğretmenler arasında tartışılmış ve aynı gün pratik yapılmıştır. Böylelikle, öğretmenlerin pratik yapmalarının temel motor becerileri anlama, uygulama ve öğretmede kendilerini geliştirmede katkı sağladığı düşünülmektedir (bkz. Faulkner ve diğ., 2004; Šumanović ve diğ., 2016). Alanyazında benzer çalışmalara rastlanmaktadır; mesleki gelişim programlarının öğretmenlerin algısal bilgilerine, spesifik konulardaki (örneğin bedensel okuryazarlık) uzmanlıklarını geliştirdiklerine yönelik çalımlar bulunmaktadır. Fakat, bu çalışmaların içeriği genel olarak açık hava/alan (outdoor education) (Coulter ve Words, 2012), beden eğitimi algısı (Harris ve diğ., 2011), pedagojik stratejiler (Petrie, 2010), bedensel okuryazarlık bilgisi (Edwards ve diğ., 2019) üzerinedir. Harris ve arkadaşları (2011) programların daha özel/spesifik olmasının yararlı olacağından bahsetmişlerdir ve uyguladıkları programın genel olmasını bir sınırlılık olarak vurgulamışlardır. Buna ek olarak, genel pedagojik yaklaşımların beden eğitimini öğretmede sınırlılıklar yarattığından bahsetmişledir. Fakat uygulama temelli mesleki gelişim programında öğretmenler beden eğitimi programının ana çıktısı olan temel motor beceriler ve onun öğretimine odaklanmışlardır.

Bir başka sonuç ise öğretmenlerin temel motor beceri öğretmedeki tutumlarına yöneliktir. Çalışma sonuçlarına göre, öğretmenler program sonunda beden eğitiminde temel motor beceri öğretimine karşı daha pozitif bir tutum sergilediklerini

vurgulamışlardır. Öğretmenlerin program sırasında temel motor beceri öğretimine yönelik tutumlarını olumlu yönde artmasının açıklamaları şu şekilde olabileceği düşünülmüştür; uygulama temelli mesleki gelişim programının içeriğinin, nitel bir anket aracılığıyla belirlendiği üzere, öğretmenlerin ihtiyaçlarına göre uyarlanmış olmasıdır. Bu ihtiyaca yönelik gelişim muhtemelen temel motor beceri öğretimine yönelik olumlu tutumları teşvik etmiştir. Bu olumlu tutumların bir başka nedeni de öğretmenlerin öğrencilerinin aktif olarak beden eğitimi etkinliklerine katıldıklarını ve gözle görülür bir ilerleme kaydettiklerini gözlemlemeleri olabilir. Bir başka neden de öğretmenlerin ne öğreteceklerini ve temel motor beceri nasıl öğreteceklerini öğrendikçe, beden eğitimi derslerine karşı daha olumlu bir algı geliştirmeleri olabilir. Alanyazındaki birçok araştırma, öğretmenlerin beden eğitimi öğretimine yönelik algı, özgüven ya da niyetlerini (Faulkner ve diğ., 2004; Faucette ve diğ., 2002; Harris ve diğ., 2011) ve sağlıkla ilgili beden eğitimi programına yönelik tutumunun (Kulinna ve diğ., 2008) geliştirdiğine dair benzer sonuçlar ortaya koymuştur.

Diğer bir sonuç, öğretmenlerin ders pratiğine yönelik olan sonuçlardır. Öğretmenlerin öğretim uygulamalarında, bütün öğretmenler program boyunca tutarlı bir şekilde beden eğitimi rutini oluşturmuşlardır. Bu rutin genellikle ısınma ile başlamış, ardından beceriyi kritik unsurlarına ayırmaya odaklanan beceri öğretimi gelmiştir. Dersin sonuna doğru, becerinin ve temel bileşenlerinin pekiştirilmesine vurgu yapılmış ve ders soğuma ile sona ermiştir. Yeni bir beceri öğretirken, öğretmenler önce beceriyi göstermekte ve ardından öğrencilerin öğrenmesi için sistematik olarak temel parçalarına ayırmaktadır. Bu durum şu nedenlerle açıklanabilir; uygulama temelli mesleki gelişim programı sayesinde, beden eğitimi programı ile öğrencilerin gelişimine yönelik hedefler arasındaki bağlantılar ve beden eğitimi eğitiminin nasıl etkili bir şekilde verileceği konusunda daha derin bir anlayış geliştirmiş olabilirler. Yine program esnasında öğretmenler, ısınma ile başlayan, becerileri gösteren yapılandırılmış bir rutini takip etmişlerdir. Bu rutin, onların bu şekilde ders işlemeye cesaretlendirmiş olabileceği düşünülmektedir. Beden Eğitimi alanyazında, ilkokul öğretmenleri için oyun merkezli bir yaklaşım (Miller ve diğ., 2017) ve beden eğitimi öğretmenleri için demokratik mesleki gelişim yaklaşımı kullanılarak (Gonçalves ve diğ., 2022) mesleki anlamda öğretmen gelişimi sağlanmıştır. Mesleki gelişim programları incelendiğinde beden eğitimi alanyazında, öğretmenlerin uygulama

temelli mesleki gelişim programına yönelik kayda değer bir bilgi eksikliği bulunmaktadır. Öte yandan, eğitim alanındaki diğer çalışmalar, öğretmenlerin bir uygulama temelli mesleki gelişim programına katılarak önemli bir gelişim gösterdiğini ortaya koymuştur (bkz. Fisherman ve diğ., 2017; Gettinger ve diğ., 2008; Harris ve diğ., 2012; Hirsch ve diğ., 2019; Herro ve diğ., 2022; Kohen ve Borko, 2022; McKeown ve diğ., 2016; Thomas ve Drew, 2022).

Bu araştırmada öğretmenlerle ilgili başka bir araştırma sonucu ise öğretmenlerin beden eğitimi dersinde geliştirmek istedikleri öğrenme tercihlerine göre, ilk haftalarda öğretmenlerin çoğu öğretim stratejileri geliştirmek istediğini belirtmişlerdir. Örneğin, plan yapmayı ve materyalleri daha etkili kullanmayı geliştirmek istediklerini belirtmişlerdir ve beden eğitimi dersini daha verimli öğretebilmek için daha fazla pratik yapmak istediklerini belirtmişlerdir. Bunlara ek olarak, beden eğitimi derslerinde bir rutinlerinin olması gerektiğinden bahsetmektedirler İlerleyen haftalarda, aşağıdaki terimler nadiren kullanılmış olsa da tercihlerinde değişiklik gözlemlenmiştir. Örneğin, oyun geliştirmekten/öğrenmekten ya da daha fazla pratik yapmaktan daha az bahsetmişlerdir fakat bunun yerine dinamik sistem teorisini kullanmak istediklerindi vurgulamışlardır. Başka bir deyişle beden eğitimi derslerindeki oyunları öğrencilerin ihtiyaçlarına ve gelişimlerine göre çeşitlendirmek istediklerini belirtmişlerdir Ayrıca, öğrencilere daha fazla rol verme eğiliminde oldukları sonucuna varılmıştır. Bunu nedeni öğretmenlerin her hafta yansıma kağıtlarını doldururken kendi stratejileri üzerine düşünmüş ve sadece beceri geliştirmeye odaklanmanın bir süre sonra öğrencilerin ihtiyaçlarını karşılamadığını fark etmeleri olabilir. Alanyazında, öğretmenlerin yansıma yapmasının önemli olduğu birçok çalışma tarafından belirtilmiştir (Standal ve Moe, 2013; Tsangaridou ve Polemitou, 2015).

Kolaylaştırıcı Desteği

Öğretmenlerle yapılan görüşmeler sonucunda, program süresince kolaylaştırıcının, öğretmenlerin öğrenmesinde önemli bir rol oynadığı ortaya çıkmıştır. Bir başka deyişle, öğretmenler temel motor beceri öğretimi için beden eğitimi uygulamalarını geliştirmiş, program haftaları boyunca öğretme davranışlarını sürdürmüş ve beden

eğitimi dersleri sırasında dönüt alma fırsatı bulmuşlardır. Alanyazındaki çalışmalar öğretmenler için sürekli desteğin önemini vurguladığı gibi, kolaylaştırıcının bu haftalar boyunca sürekli destek ve geri bildirim sağlamasının öğretmen gelişiminde önemli bir rol oynadığını vurgulanmaktadır (Darling-Hammond ve diğ., 2017; Perry ve Booth, 2021; Yoon, 2007). Bir başka olası neden de kolaylaştırıcının öğretmenlik uygulaması programı haftaları boyunca etkili strateji ve teknikler göstererek öğretmenlerin teorileri sınıflarında nasıl uygulayacaklarını anlamalarına yardımcı olmasıdır. Ayrıca, kolaylaştırıcının öğretmenlerin gelişimini izlemesi ve öğretimde gerekli pratik bilgilerin verilmesi programın başarısına katkıda bulunmuş olabilir. Bir başka neden de kolaylaştırıcı ve öğretmenler arasındaki iş birliğinin öğretmenlerin uygulamalarını destekleyici nitelikte olduğu düşünülmektedir. Genel olarak, bu çalışmanın sonucu kolaylaştırıcı desteğinin öğretmenlerin uygulamalarını geliştirdiğine dair alanayazını destekleyici niteliktedir (González ve diğ., 2016; İnce ve diğ., 2020; Knight, 2008; Kohen ve Borko, 2022; Peralta ve diğ.,2021; Perry ve Bevins, 2019).

Öğrenci Gelişimi

Temel motor beceri test sonuçlarına göre, çok düzeyli analiz, tüm sınıflardan bağımsız olarak öğrencilerin programdan önceki temel motor beceri seviyelerine kıyasla programdan sonra yer değiştirme, nesne kontrolü ve denge becerilerini geliştirdiklerini göstermiştir. Ayrıca, birinci sınıflar programdan diğer sınıflara göre daha fazla fayda sağlamıştır. Birinci sınıfların diğer sınıflara oranla daha fazla fayda sağladığı alanyazında diğer bir çalışmada da saptanmıştır (Logan ve diğ., 2012).

Buna ek olarak bütün öğrencilerin programdan fayda elde etmesinin nedenleri şu şekilde sıralanabilir; temel motor becerilere odaklanan bir programın tasarlanmış olması öğrencilerin beceri düzeyini olumlu yönde etkilediği düşünülmektedir (bkz. Bakhtiari ve diğ., 2011; van Beurden ve diğ., 2003). Bir başka neden de öğretmenlerin alan bilgilerini (ne öğretecekleri) ve pedagojik alan bilgilerini (nasıl öğretecekleri) geliştirerek önceki beden eğitimi derslerine kıyasla daha fazla fayda sağlamaları olabilir (bkz. Cohen ve diğ., 2012). Öğretmenler ayrıca, öğrencilerin temel motor becerileri öğrenmede kritik bir unsur olan becerileri uygulamaları için yeterli zaman

sağlamış olabilirler (bkz. Lander ve diğ., 2015; McKenzie ve diğ., 1998; Morgan ve Hansen, 2008). Ayrıca, öğretmenler derslerinde düzenli olarak öğretilen beceriye yönelik oyunlar oynatması öğrencilerin bu becerileri edinmesini kolaylaştırmış olabilir (bkz. Barnett ve ark., 2016). Alanyazında temel motor becerisine yönelik öğretmenler için mesleki gelişim çalışmaları eksik olmasına rağmen diğer programlarında öğrenci öğrenmesine pozitif katkı yaptığı gözlemlenmiştir (bkz. Borghouts ve diğ., 2023; Carraro ve diğ., 2022; Derri ve diğ., 2015; Hünük ve diğ., 2013; İnce ve diğ., 2020; Sefanou ve diğ., 2021; Sum ve diğ., 2022).

Buna ek olarak, öğretmenlerin algısına göre öğrencilerin gelişimine ilişkin nitel sonuçlar incelendiğinde, öğrencilerin bedensel okuryazarlıklarını geliştirdikleri görülmektedir. Başka bir deyişle, öğrenciler beden eğitimine yönelik tutumlarını olumlu yönde geliştirmişler. Beden eğitimi kavramlarını program öncesine göre daha iyi anlamakta olduğu gözlemlenmiştir. Program sırasında derse katılımlarının arttığı vurgulanmıştır. Buna ek olarak, beceriyi yaparken arkadaşlarını değerlendirip dönüt verme eğiliminde oldukları öğretmenlerince vurgulanmıştır. Sebepleri şu şekilde sıralanabilir; öğretmenlerin beden eğitimi dersine yönelik tutumlarının öğrenci gelişimine etkisi (Tarantino ve diğ., 2022), yapılandırılmış bir beden eğitiminin öğrenci gelişimine etkisi, öğrencilerin beden eğitimini sadece bir oyun dersi olmaktan öte daha geniş anlamda görmesi öğrencilerin gelişimine pozitif bir etki sağlaması (Bailey, 2006, Dudley ve diğ., 2022). Buna ek olarak, daha fazla pratiğin yapılması ve öğrencilerin becerilerin farkına varması akran öğrenmesine yol açmış olabilir. Alanyazında bedensel okuryazarlıkla ilgili mesleki gelişim çalışmalarının olmasına rağmen (bkz. Choi ve diğ., 2022; Edwards ve diğ., 2019; Simpson ve diğ., 2022; Sum ve diğ., 2022), öğrencinin gelişimini kapsamlı inceleyen çalışmaya rastlanmamıştır.

Sonuç olarak, bu çalışma uygulama temelli mesleki gelişim programının öğretmenin temel motor beceri öğretimi, bunlara yönelik tutumları, eğitim programını okumayı, anlamayı ve uygulamayı geliştirdiğini göstermiş, buna ek olarak öğrencilerde temel motor becerileri ötesinde onların bütünsel gelişimine etki ettiği görüşme sorularıyla ortaya çıkmıştır. Bunun dışında mesleki gelişim programlarında öğretmenlere destek sağlayan kolaylaştırıcının hem yeni bilgiler öğrenilirken hem de öğretmenlerin bu öğrendikleri bilgiyi sınıf pratiklerine aktarırken önemli rol oynadığı ortaya çıkmıştır.

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