

# Systematic Review of the Participation of the Disabled in Physical Education Class

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## Abstract

The aim of this study is to provide suggestions for eliminating the existing problems by systematically reviewing the studies on the curricula established on the basis of the participation of students with special needs in physical education classes and the inclusion of these students in the lesson. In this direction, the literature was searched through an online search engine for the research. Accordingly, three databases named Academic Search Complete, Sport DISCUSS and ERIC were searched. Studies conducted between 2018-2020 and keywords were Mainstream and PE ", " Special education need students and PE " and " Disabled students and PE". 22 articles selected according to the Prisma method of Moher et al. (2009) were included in the study and articles that met the determined criteria were analyzed using the continuous comparative analysis technique. According to the results the problems experienced by the students with special needs are generally due to socialization with their peers in the school environment, especially within the scope of physical education lessons, equipment, school - architectural structure, teacher and curriculum. The solution to these problems depends on meeting the educational and physical activity needs of students with special needs, being together with their peers and society, meeting their own needs and increasing their ability to live without being dependent on others as much as possible. The most suitable environment for these to be achieved is the school environment, where disabled people first meet with other individuals, unlike their family members. For this, first of all, the needs of students with special needs should be determined. In this regard, teacher training programs of universities should be expanded. In addition, the cooperation of the teacher, counselor, school psychologist and family is important.

**Keywords:** Students with disabilities, Physical education, Inclusive physical education, Teaching programs, Teacher training programs.

## Beden Eğitimi ve Spor Derslerinde Engelli Öğrenciler: Sistematiik Bir İnceleme Özet

Bu çalışmanın amacı beden eğitimi ve spor derslerinde engelli öğrencilerin derse katılımlarını ve bu öğrencilerin derse dahil edilmesi temelinde kurulan ders programları ile ilgili yapılan çalışmaların sistematiik derlemesini yaparak mevcut sorunları ortadan kaldırmaya dönük öneriler sunmaktır. Bu doğrultuda araştırma için çevrimiçi arama motoru aracılığıyla alanyazın taranmıştır. Buna göre Academic Search Complete, Sport DISCUSS ve ERIC isimli üç veri tabanında tarama yapılmıştır. Taramada 2018-2020 yılları arasında yayınlanan ve Mainstream and PE ", " Special education need students and PE " ve " Disabled students and PE" anahtar kelimelerini içeren makalelerden oluşmaktadır. Moher ve arkadaşlarının (2009) Prisma yöntemine göre seçilen 22 makale çalışmaya dahil edilmiş ve belirlenen kriterlere uygun makaleler sürekli karşılaştırmalı analiz tekniği kullanılarak analiz edilmiştir. Çalışmaya dahil edilen makalelerde ortaya çıkan sonuçlara göre engelli öğrencilerin yaşadıkları problemler genel olarak, okul ortamında özellikle beden eğitimi ve spor ders kapsamında akranları ile sosyalleşme, ekipman, okul - mimari yapısı, öğretmen ve öğretim programından kaynaklıdır. Bu sorunların çözümü engelli öğrencilerin eğitim ve fiziksel aktivite ihtiyaçlarının karşılanmalarına, akranlarıyla ve toplumla bir arada olmalarına, kendi ihtiyaçlarını karşılayabilmelerine ve başkalarına mümkün olduğu kadar bağımlı olmadan yaşamlarını sürdürebilme becerilerinin artırılmasına bağlıdır. Bunların başarılabilmesinde en uygun ortam, engellilerin aile bireylerinden farklı olarak diğer bireyler ile ilk buluştukları yer olan okul ortamlarıdır. Bunun için ilk olarak engelli öğrencilerin ihtiyaçlarının belirlenmesi gerekmektedir. Bu hususta üniversitelerin öğretmen yetiştirme programları genişletilmelidir. Bununla birlikte öğretmen, rehber öğretmen, okul psikoloğu ve aile işbirliği önemlidir.

**Anahtar kelimeler:** Engelli öğrenciler, Beden eğitimi, Kapsayıcı beden eğitimi, Öğretim programları, Öğretmen yetiştirme programları.

## INTRODUCTION

According to the United Nations Convention on the Rights of Persons with Disabilities, persons with disabilities are persons with long-term mental, physical, perceptual or intellectual impairments that prevent their full and active participation in society under equal conditions with other individuals (7). Disability types are classified as follows, according to Aver (4); physical, traumatic brain injury, muscle disease, vision, hearing, mental or emotional disability, chronic illness, autism, down syndrome, hyperactivity, dyslexia, mental disability and multiple disability.

It is very important for disabled individuals to fulfill their social roles for their social adaptation. Determining the needs of disabled students by taking their competencies and disabilities into account and placing them in appropriate educational environments can facilitate social adaptation (19). Inclusive education used in this context serves as an important tool to encourage the participation of students with disabilities (44). According to the inclusive education philosophy, enabling students with disabilities to participate in a general education environment supports their holistic development and increases their opportunities to reach educational goals (5).

Physical education is an important lesson for students with disabilities, allowing students to interact with each other more than in other subjects. Physical education can be used as a tool for the inclusion of disabled students and can contribute to their meaningful interaction with other children (45). Inclusion of disabled students in physical education classes has been widely discussed in national (45) and international (40) studies.

According to these studies, although it is difficult to meet the educational needs of disabled students and encourage their social participation (21), there are studies indicating that the inclusion of disabled students in physical education with other students has positive results for both disabled students and non-disabled students (24). Despite this, it is known that disabled students encounter some problems in physical education (6,11,21). In the study conducted by Tanure Alves et al. (46), individual interviews were conducted with seven students with different disabilities. Accordingly, the students stated that being disabled prevents them from participating in physical education lessons and stated that they do not have the same opportunities as other students. Wang

(48) stated in his study with disabled students that they had negative experience in including students in physical education lessons. Parallel to these studies, Rekaa et al. (42) received the opinions of students and teachers regarding the participation of disabled students in physical education class environment. As a result, it is seen that disabled students experience difficulties in terms of exclusion and belonging to the class environment in physical education. In a study on the perspectives of disabled students in physical education, Coates and Vickerman (11) stated that although these students were willing to participate in physical education classes, their participation was limited. The reactions from their peers and teachers' inability to know the needs of disabled students negatively affect the participation of students in physical education (11). Haegele and Sutherland (21) also confirmed in their study that disabled students encounter problems such as exclusion, discrimination in physical education. Students with disabilities are of the opinion that they do not find physical education class environments equal and that their disability is a barrier to participation in physical education lessons (46). Current problems may lead to limited participation of disabled students in physical education (17).

Considering the participation of disabled students in the lesson from the perspective of teachers, teachers themselves feel insufficient to integrate these students in the lesson (26). Teachers stated that it is difficult, if not impossible, to include students with disabilities in the lessons (2). They also mentioned that disabled people have limited resources to improve themselves on the subject of physical education (2). According to Bredahl (8), the inclusion of disabled students in physical education lessons is possible with the support of their teachers. Accordingly, the speed or difficulty of the movement prepared by teachers affect the participation of students with disabilities in physical education classes (8). For this reason, Alves et al. (1) emphasize that physical education teachers should improve their professional preparation for the abilities of students with disabilities through critical thinking which is a way of thinking that consists of mental processes such as reasoning, analysis and evaluation (30). The lack of knowledge of physical education teachers regarding specific disabilities and their inability to provide the learning environment to ensure the participation of disabled students is a major problem (16,1,20). Since physical education seem to be more performance-oriented by teachers

(5), it is critical that physical education teachers change their way of thinking about physical education. Classrooms with disabled students can focus on the inclusion process instead of focusing on the performance of disabled students (39).

The theoretical framework of the study is as follows: With the inclusive physical education and sports approach that creates a program, students with disabilities are encouraged to learn together with normal students in physical education lessons (12). Also inclusive physical education classes can increase the active participation of disabled students in lessons (31). However, in order for disabled students to be included by applying this approach sufficiently, teachers must have sufficient knowledge about inclusive physical education and disabled students (36). Teachers need to have a number of competencies to actively engage students with disabilities in physical education lessons: getting teachers experienced with persons with disabilities, professional and academic training to involve students with disabilities; He or she can teach process-oriented lessons rather than performance-oriented ones and organize the classroom environment for disabled students (28). Professional development programs should be prepared for teachers with in-service trainings (36). With teacher education interventions, it can be ensured that teachers show a positive attitude towards disabled students (22). In addition, it may be positive for physical education teacher candidates to gain field experience with disabled students (32). Collaboration with other special education and rehabilitation assistants is also needed (15). Assistants can help teachers by acting on the motive of standardization and professionalization (35).

Studies indicate that effective participation of students with disabilities is generally directly related to effective teaching (35, 36). With the cooperation of other stakeholders, the correct structuring of the environment, policies and curricula, the access and active participation of disabled students in physical education classes can be supported (13). The collaboration of special education teachers and other teachers also guides the normal education teacher to meet the needs of each student (29). The interaction process in which stakeholders act in cooperation can be positive for the active participation of students with disabilities in physical education. To this end, cooperation between stakeholders in the school (teachers, co-teachers, other members of the school

community) and third parties (students, family members) should be supported (29,34). Educational strategies for disabled students should be planned and cooperation should be provided for this (29). As a result of all these studies, it is seen that there are some problems between physical education teachers and students with special needs (47).

As a result of these problems, it is seen that the active participation of students with special needs in physical education lessons decreases (46). In order to find the source of this problems and to eliminate it, seems important to scan the literature by making a review. For this reason, the aim of this study is to examine the students with special needs in the field of physical education and the studies established on the basis of the inclusion of these students in the course, and to present the current problems and offer suggestions. This study includes a comprehensive review of the studies published on the participation of students with special needs in physical education classes, and evaluating and synthesizing these studies.

## METHOD

This study is based on the Prisma Flow Diagram developed by Moher et al. (38) to make systematic reviews in a certain order. Prisma is an accepted method in the selection of articles for systematic reviews. For this reason, articles selected based on the Prisma method of Moher et al. (38) were included in the study. According to the Prisma flowchart, the following steps are followed respectively. What is done at each stage of the study is explained in detail.

Stage 1: Identification: At the first stage, the research question and framework are determined. Literature is scanned within the framework of the question "What are the variables affecting the participation of students with disabilities in physical education classes?". Accordingly, it is planned to search in 3 databases named Academic Search Complete, Sport DISCUSS and ERIC with the keywords " Mainstream and PE ", " Special education need students and PE " and " Disabled students and PE ".

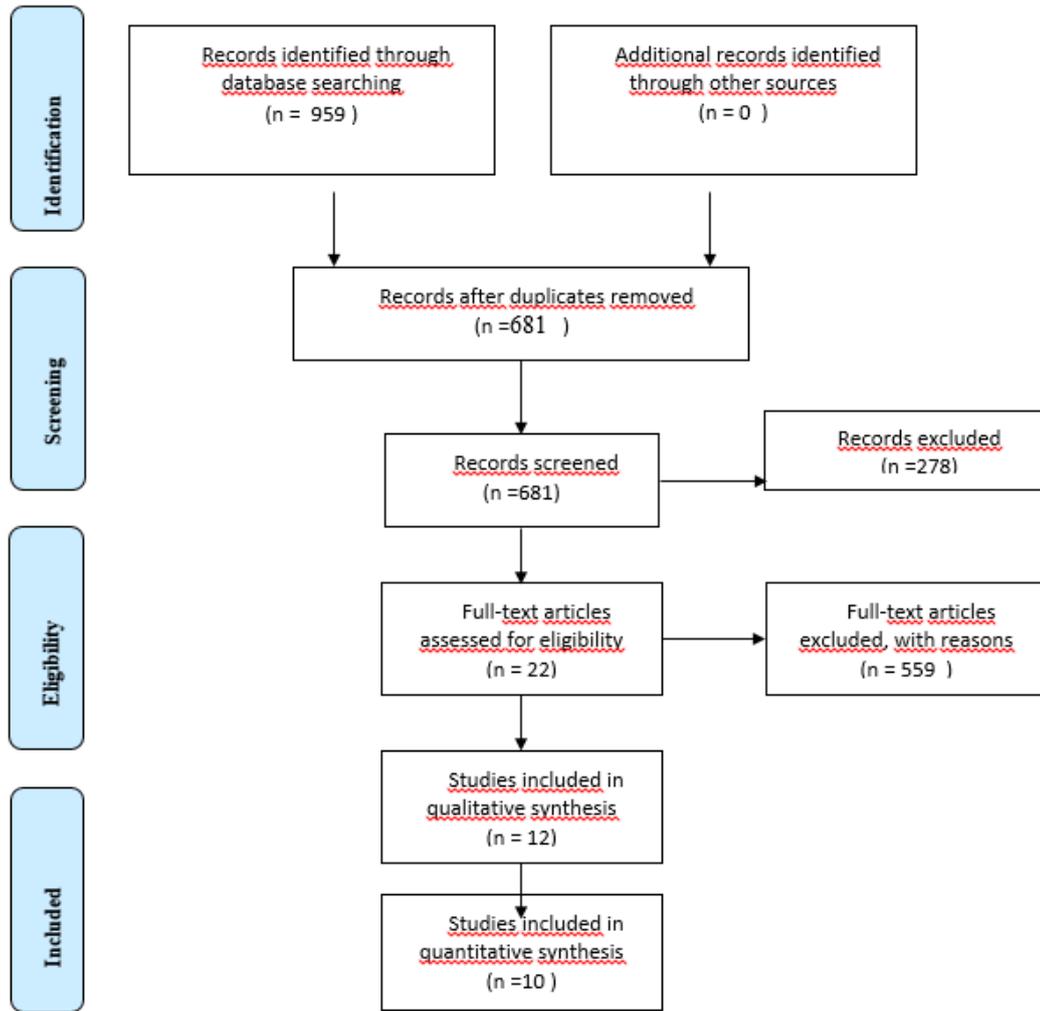
Stage 2: Scanning: At this stage of the study, there are searches made in databases with the identified keywords. A search strategy was developed by using keywords specific to the specified question of the systematic review. In order to create an effective screening strategy, experts in their fields have been worked. Searches were made in

three different databases with the determined keywords on 04.11.2020. Thus, a total of 959 articles have been found.

**Stage 3: Eligibility:** At this stage of the study, the eligibility criteria are determined. These eligibility criteria are chosen among the best criteria to answer the research question. An evaluation checklist is used to determine whether each selected study meets the specified criteria. Each author made this process independently and the evaluations were compared. In cases where there was a difference of opinion, a consensus was reached and the articles were included in the study after each author's approval. The eligibility criteria determined at this stage are as follows: Studies conducted between 2018-2020, being in English, being published in refereed journals, not having duplicated publications, having at least one citation, being accessible in full text, being related to the topic of persons with disabilities in physical education lessons, the lack of program development work, the use of reliable methods in the data collection or analysis process, no scale development work and the feature of being an article.

**Stage 4: Inclusion:** At this stage of the study, articles fitting the criteria determined at the eligibility stage are included in the study. As a result, 22 out of 959 articles examined in the light of the criteria we determined on the basis of the Prisma method by Moher et al. (2009) have been identified to meet our criteria. As suggested by Moher et al. (2009), the

number of studies screened in the systematic review is shown in Figure 1, along with those that are appropriate, those included in the review, excluded, and reasons for exclusion. As a result of the search made with keywords determined from three different databases, 959 articles were reached. It was observed that 114 articles were not in English. The remaining 845 articles were reviewed. It was determined that 278 studies were duplicated publications, not published in peer-reviewed journals or were not cited. The remaining 567 articles were reviewed. The full text of 48 of them could not be reached. The remaining 519 articles were reviewed. It was observed that 451 articles were not published in 2018-2020. The remaining 68 articles were reviewed. It has been observed that 22 of them are not related to persons with disabilities. The remaining 46 articles were reviewed. 8 of them were not related to subjects of physical education or sports lessons. The remaining 38 articles were reviewed. It was observed that 4 of them did not qualify as an article; being congress summaries or papers instead. The remaining 34 articles were reviewed. 2 of them were found to be scale development studies. The remaining 32 articles were reviewed. It was observed that 4 of them did not provide sufficient reliability in data collection and analysis methods. The remaining 28 articles were reviewed. It has been observed that 6 of them are program development activities for disabled students. As a result, 22 studies that met the criteria were included in this article.



**Figure 1.** Inclusion Process

(From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097)

Stage 5: Analyses: The data were evaluated and analyzed using the technique of continuous comparison with each other (18) to identify and separate topics. The articles were decomposed by the researchers in line with the specified criteria and subjected to an in-depth analysis (such as philosophical position, methodology, data generation methods, data analysis methods, presentation of findings and results, validity and reliability strategies, researcher position and methodology). This information has been recorded in the Microsoft Excel. First of all, whether the stances of the authors were clearly stated, the method of the research and the selection of the disability groups or research groups examined were examined. Then it was determined whether the authors clearly stated the use of a particular methodology (i.e. stated or unspecified), methods used to create and analyze data (such as interviews, interventions), and the presentation of findings and results. It is coded with scientific definitions (eg interview technique, physical activity intervention, program development). Here, the findings and results of each article are reviewed in detail again.

## RESULT

22 articles that fit the criteria determined for the study are determined and analyzed in detail. Table 1 includes the identity, purpose, research group, data collection methods, research type and research results of the articles included in the study. Then, the findings obtained are explained in detail. Considering the purposes of the articles included in the study according to Table 1, physical education lesson experiences of female athletes, professional development of physical education teachers, problems faced by disabled students in physical education lessons and how the facilitators are in terms of teachers, teachers' attitudes, teacher resilience levels were examined. Studies on teacher assistants, on the other hand, compiled scientific studies to produce solutions to possible problems, determine their perceptions about their experiences by accompanying severely disabled students, the importance of pre-service teacher education and how it should be developed. Considering the purposes of the studies about disabled students, it is examined how students react to the values and practices found in physical education classes, how students experience curriculum based on traditional sports and performative skills, their perception of inclusion in physical education and factors that facilitate or

inhibit their participation, their involvement in learning, psycho-physiological disorders which may restrain physical education activities. The results of the study on the effects of mentally disabled children on the physical qualities of children to improve and social interaction between disabled and non-disabled students were conducted. Moreover, the opinions of the parents of disabled and non-disabled students regarding integrated education were determined. Finally, only one study has focused on identifying possible risks for personal injury from using home-made equipment. In addition, Table 1 shows that teachers and students with disabilities have some problems in the classroom environment (33).

**Table 1.** Identification, Purpose, Research Group, Data Collection Methods, Research Type and Research Results of the Articles Included in the Study

Study Year	Goal	Research Group (Teacher, Student, Parent Type of disability)	Data Coll. Tools and Analysis	Research Type	Result
Apelmo (2019) Sweden	It is to examine the physical education lessons of physically disabled young female athletes.	Paralympic professional female athletes (n = 10) Three male trainers.	Individual interviews Thematic analysis	Qualitative Descriptive Retroactive	They highlighted problems with exclusion and specific treatment experiences in physical education classes. Women avoided seeing themselves as victims. These problems can be reduced with teachers experienced in the field of disabled people.
Haegeler et al., (2018) Brazil	It is to examine the attitudes of physical education teachers towards students with disabilities before and after participating in a professional development workshop.	Physical education and sports teachers (n = 90)	Physical Education Teachers' Attitudes- Decisions Questionnaire * ANOVA and inferential statistics.	Quantitative Experimental Cross-sectional	The two-day workshop education had a positive effect on the teaching attitudes of physical education teachers towards disabled students in their classes. It has created awareness.
Farr (2018) England	It is to find solutions to possible problems by compiling the studies about teaching assistants working to help teachers in England.	Teaching assistants tasked with helping teachers.		Review	Collaboration with other educators is needed. Assistants should act on the motivation of standardization and professionalization and help the teacher, as in the job descriptions, instead of the student, and should be clearly aware of their roles.
Maher (2018) Britain	It is to analyze how special education needs coordinators and learning support assistants conceptualize involvement in secondary schools in Britain.	12 special education needs coordinators and 12 learning support assistants were included in the study.	Individual interviews Open, linear and selective coding	Qualitative Descriptive Cross-sectional	The effects that residents have on physical education norms and values can be used by authors, coordinators, and school officials to develop an inclusive culture.
Tanure et al., (2020) Brazil	It is the examination of how disabled students can react to the values and practices found in physical education classes.	Different physically disabled students (n = 7)	Semi-structured interview form and reflective field notes Thematic and content analysis	Qualitative Descriptive Cross-sectional	Students with disabilities stated that being disabled constitutes an obstacle to participating in physical education classes and they do not have equal opportunities as others. It has been observed that they have negative experience.

Wang (2019) China	Identifying the perceptions of students with special needs regarding inclusion in physical education and the factors that facilitate or hinder their participation.	20 special education students (12-16 years old) Mentally and physically disabled students	Individual interviews Content analysis	Qualitative Descriptive Cross-sectional	It showed that the majority of students had negative experience in inclusion and limited participation in physical education activities was common.
Haegele et al., (2018) USA	It is the examination of the problems faced by disabled students in physical education and sports lessons and the facilitators in terms of teachers.	168 physical education teachers participated (72% female)	The adapted version of the 4-item scale developed by Shields and Synnot (2014) was used. * Open coding and Kohen chi-square.	Quantitative Descriptive Cross-sectional	The problems faced by students are due to the teacher or the program. Barriers and facilitators are interrelated but not related to teachers' years of seniority. Teachers found that students' different disabilities made participation difficult.
Chatzipanteli & Dean (2020) Greece-England	To examine students' involvement in learning in the field of physical education.	Children with learning difficulties	"Teaching Style Practices" reviewed the discussions in the literature	Qualitative Descriptive	A suitable environment should be created for student-centered approach, equal conditions, education classes, creating task sheets for students, collaborative approach, equality of education, and for disadvantaged students to feel talented.
Rekaa et.al., (2019) Norway	It is the compilation of studies examining teacher attitudes and student experiences. Both qualitative and quantitative studies have been examined.	Mainstreaming students		Compilation	It reveals that disabled students experience exclusion and lack of belonging to physical education. Teachers perceive themselves inadequate and a resource problem has arisen.
Kudryavtsev ve diğ., (2019). Russia-Poland	To examine the problems and solution suggestions regarding the realization of the inclusive education model in physical education and sports classes in universities	University students: 782 students and 148 students with different disability groups (physically disabled n = 90, musculoskeletal diseases n = 45, visually impaired n = 8 and hearing impaired n = 5)	EKG and Simulators T test in independent groups	Quantitative Experimental Longitudinal	The inclusive education model has been successfully implemented.
Mead, et al., (2019) USA	Identify possible risks of personal injury as a result of the use of homemade equipment and examine the acceptability and legal risks of such equipment.	Legal lawsuits filed against physically disabled people and physical education teachers working in special education institutions and their results	By reviewing the literature Content analysis	Qualitative	The authors determined that properly made homemade or modified equipment can be used by students with disabilities, as long as the risks of using the equipment are clearly explained to the student and parents and consent is obtained.

Petriea et al., (2018) New Zealand-Ukraine	To examine to what extent students' negative experience in physical education classes affect future participation in activities related to physical activity in school and community settings.	An elementary school teacher (Joel) It was stated that he worked in the young disabled group	Teacher's Experience: (Joel's) Personal diaries, student works and dialogical speech records were used.	Qualitative	It is possible to get to know the students, to be understanding against the difference in positive aspects, to work creatively, to share the curriculum design and learning activities with their students.
Critical analysis					
Layne, & Blasingame, (2018) USA	To analyze the perceptions of physical education students about the designed field experience by providing the opportunity to work with a severely disabled student.	The severely disabled student experience of physical education students, Classroom teachers 71 (female = 20, male = 51)	Perception scale, Interviews Anova, inductive coding technique	Mix Experimental	Physical education department students can be a valuable part of the physical education department program, providing field experience to work with severely disabled students.
Erofeeva et al., (2019) Russia	To examine the results of studies on the effects of physical education and sports activities on the correction of psycho-physiological disorders and the physical qualities of mentally retarded children.	Mild mentally retarded students (primary school n = 50)	Student dynamics throughout an academic year t-test, Fisher's criterion	Quantitative Experimental Longitudinal	Physical education activities are closely related to the improvement in motor function of students with disabilities.
Houston et al., (2018) USA	To examine the activity levels of physically disabled children in inclusive physical education recess settings.	Primary school students: 6-11 years old 7 males 3 females total 10 physically disabled	One to one observation, field notes and SOFIT ANOVA	Quantitative	Students with disabilities are at higher risk for sedentary life due to physical limitations
Sadziak, et al., (2018) Poland	To determine the level of resilience in normal school physical education teachers and special education school teachers.	198 physical education teachers: 127 normal 70 private school teachers from private and public schools (Silesia)	The Resilience Questionnaire in the Polish version of the Ego Resilience Scale ANOVA	Quantitative	The highest level of endurance was demonstrated by physical education teachers in special education schools.
Qi & Wang (2018) China	To determine the social interaction between disabled and non-disabled students in physical education.	One middle school student with autism, two middle school students with attention deficit / hyperactivity disorder, 42 classmates (17 girls, 25 boys) and a physical education teacher	Observation, Focus group meeting, Quantitative data: AIPE-S Questionnaire Qualitative data: Coding and thematic analysis	Mix	In general physical education classes of disabled students, there was almost no social interaction with their non-disabled classmates.
Charaśna & Blachucik, (2018) Poland	To examine the opinions of parents of disabled and non-disabled students regarding inclusive education	Disabled and non-disabled student parents Guardians of different types of disabled students (n = 130) and	Interview	Qualitative Descriptive	Parents of disabled students are more satisfied when education takes place in a mixed environment.

		guardians of non-disabled students (130) Participants are the 30-57 age group and residents of the Opolskie Voivodeship.			Both parent groups value the presence of two teachers in the classroom and the positive results of the inclusion system (cooperation).
Yeo, & Tan, (2018) Singapore	Examine the social and academic impact of being involved in education for physically disabled children.	A total of 60 students from primary and secondary schools (30 physically disabled, 30 normal), 8-16 age group	Self-Esteem Scale- Strengths and Difficulties Questionnaire * Chi-square test, *T test in independent groups	Quantitative	Similar level of self-confidence, but peer problems. They participate less in school activities.
Reina et al., (2019) Spain	It is to examine the effect of a training program called Incluye-T on Spanish in-service physical education teachers' self-efficacy	Physical education teachers (n = 229)	Self-efficacy scale * ANOVA, cronbach alpha, normality tests	Quantitative Semi-experimental	It was observed that there was an increase in self-efficacy in teachers.
Lieberman & Grenier, (2019) USA	Universal Design for Learning: Preparing suggestions for Teacher Preparation and Professional Development.	Program development		Qualitative	The universal design program helps pre-service teachers to identify multiple ways of engagement, representation tools, and means of action expression.
Maher & Fitzgerald (2020) England	Pre-service teacher education and continuous professional development: To determine the perspectives of physical education teachers in special education schools.	Physical education teachers working in special education schools (n = 6)	Interview *Thematic analysis	Qualitative	In-service training should be given more importance and professional development programs should be developed.

## Analysis

Considering the research groups of the articles included in the study, the research groups consist of disabled and non-disabled student groups including all age groups from primary, secondary, high school and university's physical education departments, physical education teachers working in general and special education schools, parents of disabled and non-disabled students, Paralympic female athletes and trainers. When the research groups are examined according to the type of disability, they generally cover different types of disabilities. Particularly mentioned in studies are learning disabilities, physical and mental disabilities. Eight studies are quantitative (cross-sectional, longitudinal, quasi-experimental and experimental), two mixed, and 12 qualitative (qualitative-descriptive, review, review) according to type of research.

Data were collected with attitude, self-efficacy, and self-esteem scales, semi-structured interview forms, individual and focus group interviews, different activities, one-to-one accompaniment, and program editing interventions. According to the results of the articles included in the study in line with these findings, it was revealed that the problems experienced by disabled students were generally associated to socializing with their peers in the school environment, especially in the context of physical education and sports, equipment, school - architectural structure, teachers and teaching programs.

## DISCUSSION and CONCLUSION

The aim of this study is to review the studies on disabled students in the field of physical education, their teachers, and the curriculum established on the basis of the inclusion of these students in the course, and to make a systematic review and to reveal existing problems and offer suggestions. According to the results of the articles included in the study, the problems experienced by disabled students generally originate from socializing with their peers in the school environment, especially within the scope of physical education lessons, equipment, school-architectural structure, teachers and teaching programs (3,9,10,14,23,27,40,46,39,42,48). According to the findings of the study, the results were discussed under two sub-headings as student, teacher - teaching assistant. Studies on curriculum

development are also included under the sub-heading of studies on teacher-student assistants.

Studies on students: Physical education activities are closely related to the improvement in motor function of disabled students. In addition, activities suited to specially selected abilities and physical exercises adapted during the natural morpho-functional development of the students' body contribute to recovery. However, there is a significant improvement in the functional abilities of all body systems of disabled students (14). However, today, students with disabilities face some problems in the school environment, especially within the scope of physical education lessons, arising from their peers, teachers and even the school structure. These problem factors negatively affect the physical, social, sensory and psychomotor development of students with disabilities. For example, according to Houston, van der Mars and Lorenz (27), disabled students constitute the risk group in the "still life" field. The reason for this is the physical and school environment problems that disabled students encounter in the school environment.

Another problem that disabled students face in the school, physical education classroom environment is that, according to Qi and Wang (40), they have almost no social interactions with their classmates who do not have disabilities in physical education classes (46). According to Yeo and Tan (25), this situation reveals the self-confidence problem in students with disabilities and this results in less school activity participation (48). Therefore, disabled students gain negative attitude towards physical education lessons (46). However, Apeldo (3), Rekaa, Hanischb, and Ytterhus (42) argue that the reason for the negative attitudes of disabled students towards the lesson is related to the exclusion of students in the physical education class environment. However, even though disabled students have difficulties in the classroom environment, women avoid seeing themselves as victims. However, the fact that education and training takes place in an integrated environment satisfies the parents of disabled students (9).

Other problems that disabled students encounter in the physical education class environment may arise from the teacher and the curriculum (23). According to the authors, these problems can be reduced by teachers experienced in dealing with disabled people. According to Petriea et al. (39), this situation is possible with the teacher getting to know

his or her students, being understanding of the positive differences, working creatively, sharing the curriculum design and learning activities with his or her students. Moreover, Chatzipanteli and Dean (10) argue that a student-centered approach to ensure equality, creating education classes, creating task pages for students, using a collaborative approach, and creating a suitable environment for disadvantaged students to feel themselves talented is required. Furthermore, physical activities that will increase self-esteem and motivation should be organized for disabled students. Furthermore, interventions by the government and schools are important to remove architectural barriers, provide financial support, and provide tailored education programs (48).

Studies with teacher-teaching assistant: Although there are some problems that teachers face and have to struggle with, Sadziak et al. (43) show the highest level of endurance during lessons by physical education teachers working at the schools of students with special needs. Despite the school structure and equipment problems, Mead et al. (37) tried to find solutions by determining that properly made home-made or modified equipment can be used with disabled students as long as the risks of using the equipment are clearly explained to the student and parents and approved.

The reason for teacher and program related problems is that teachers consider themselves inadequate professionally. Also, there is a problem with the lack of resources and materials required for the course to whom special education needs students. Another problem related to the student's perception of the lesson is negative because the teachers can not able to teach the lesson that will ensure the active participation of the student. Therefore, teachers need additional professional development training. Maher and Fitzgerald (36) suggested more emphasis on in-service training and development of professional development programs. In particular, Haegele et al. (22) mentioned that physical education teachers must participate in this additional professional development training in order to include students with disabilities, gain acceptance in their classes, and learn effectively. For example, they found a positive effect of a two-day workshop training intervention on physical education teachers' attitudes to teaching disabled students in their classes.

The researchers tried to find solutions by developing a program specific to physical education

against the problems caused by teachers and programs. In this context, according to Kudryavtsev et al. (31), the inclusive education model is successfully implemented. van Munster et al. (47) stated that the universal design program is important for teaching planning. Here, it is emphasized that determining multiple engagement ways, representation tools, and action and expression tools can help pre-service teachers in planning their teaching. As a result, an increase in teachers' self-efficacy was observed (41).

Teacher candidates, who are a valuable part of physical education programs, are required to gain field experience by working with disabled students (32). According to Farr (15), there is a need for the cooperation of other assistant educators. Therefore, the curriculum of disabled students should be supported by assistants. Trainees should be clearly informed about their roles.

## PRACTICAL APPLICATION

The results of the articles included in the study indicate that students' disability prevents them from participating in physical education lessons, they do not have the same opportunities as other students, they have problems with integration with their peers in physical education and they are at risk in terms of health with their sedentary lifestyle. It has been observed that they have negative experience on the subject and have difficulties in their belonging to the class environment and they think they are excluded. In fact, in line with these feelings and thoughts, disabled students are negatively affected by their physical, psychomotor, sensory and social development.

The solution of these problems depends on meeting the educational and physical activity needs of disabled students, being together with their peers and society, meeting their own needs and increasing their ability to continue their lives without being dependent on others as much as possible. The most suitable environment for achieving these is the school environment, where the disabled meet other individuals outside of their family for the first time. For this, the needs of disabled students must first be determined. Cooperation between teachers, counselors, school psychologists and family is important in this regard.

Through regular seminars and meetings, families of both disabled students and non-disabled students can be educated to become more conscious.

In addition, through these seminars and meetings, teachers will have the opportunity to get to know the student and define the needs of the students. Thus, they can reach common solution suggestions in line with the student's needs.

Educational games adapted to cooperative learning can be planned for the inclusion of disabled students in physical education lessons. These educational games can enable disabled and non-disabled students to understand each other, communicate and get together with each other. This will greatly help disabled students to change their feelings and thoughts in a positive way.

Education programs should be prepared according to student needs. This is possible by improving the professional competencies of teachers and teacher training programs of higher education institutions. However, in higher education institutions that are responsible for the training of teachers to work in special education schools, these programs are very rare and in limited areas. For physical education in particular, there are very few programs in Turkey. However, working in special education schools requires expertise. Therefore, it is imperative to have more programs for the disabled. Therefore, teacher training programs in private education institutions will also provide expertise in the field. Teacher candidates who will graduate from these programs should be employed in private schools. According to the data of the Economic Cooperation and Development Organization (OECD-EU), approximately 15% of the world population (approximately 1 billion) consists of disabled individuals. In Turkey, the number of individuals with disabilities by the National Disability Database is around 1.5 million. Especially in Turkey, it cannot be said that the architectural structure of all private and public institutions and organizations, including schools, and the city infrastructure and superstructure are suitable for disabled individuals. Disabled individuals' reconciliation with the society and with themselves depends primarily on the regulation of these negative physical structures. This arrangement will not only provide physical relief, but also increase their self-confidence about how much emotional importance is attached. Finally, education shapes the future of countries as a force that moves a society forward. Disabled individuals, who constitute a substantial part of the society, are the most important factor that can demonstrate their

existence as a power, to have a good education, to find a job and to be productive.

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