

Comparison of Physical Education Students' Views on Constructivist Approach in Different Types of High Schools: Descriptive Research

Farklı Türde Liselerde Beden Eğitimi Öğrencilerinin Yapılandırmacı Yaklaşım Görüşlerinin Karşılaştırılması: Tanımlayıcı Araştırma

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ABSTRACT Objective: The purpose of this study is to examine and compare high school students' views on teaching with the constructivist approach in physical education lessons according to both school type and gender variables. **Material and Methods:** The sample of the study consists of 412 high school students (242 Vocational and Technical Anatolian High School and 170 Anatolian High School students; 298 male and 114 female). The 25-item 5-point Likert-type "Constructivist Teaching Approach Scale for Students" developed by Chen et al. and adapted to Turkish by Ağbuğa was used to collect the data. This scale includes the sub-dimensions of "social cooperation", "personal interest" and "game/skill". In comparing the scale data according to two different high school types and gender, t-tests and descriptive statistics analyses were used in independent groups. The significance level in the test was accepted as $p < 0.05$. **Results:** In the results of independent sample t-test analyses and descriptive analyses between groups, significant differences were found in favor of Anatolian high school students in the averages of three sub-dimensions and total dimensions. However, it was also determined that there were statistically significant differences in favor of female students between all sub-dimensions and total score averages of male and female students. **Conclusion:** In summary, this study examined the extent to which the constructivist approach is used in physical education classes from the perspective of the student.

ÖZET Amaç: Bu araştırmanın amacı, lise öğrencilerinin hem okul türü hem de cinsiyet değişkenlerine göre beden eğitimi derslerine yönelik yapılandırmacı yaklaşımla öğretim görüşlerini incelemek ve karşılaştırmaktır. **Gereç ve Yöntemler:** Araştırmanın örneklemini 412 lise öğrencisi (242 mesleki ve teknik Anadolu lisesi ve 170 Anadolu lisesi öğrencisi; 298 erkek ve 114 kadın) oluşturmaktadır. Verilerin toplanmasında Chen ve ark. tarafından geliştirilen ve Ağbuğa tarafından Türkiye uyarlanan 25 maddelik 5'li Likert tipi "Öğrenciler İçin Yapılandırmacı Öğretim Yaklaşımı Ölçeği" kullanılmıştır. Bu ölçekte "sosyal işbirliği", "kişisel ilgi" ve "oyun/beceri" alt boyutları yer almaktadır. Ölçek verilerinin iki farklı lise türüne ve cinsiyete göre karşılaştırılmasında bağımsız gruplarda t-testleri ve betimsel istatistik analizleri kullanılmıştır. Testte anlamlılık düzeyi $p < 0,05$ olarak kabul edildi. **Bulgular:** Bağımsız örneklem t-testi analizleri ve gruplar arası betimsel analiz sonuçlarında, 3 alt boyut ve toplam boyut ortalamaları ortalamalarında Anadolu lisesi öğrencileri lehine anlamlı farklılıklar bulunmuştur. Bununla birlikte, erkek ve kadın öğrencilerin tüm alt boyut ve toplam puan ortalamaları arasında kadın öğrenciler lehine istatistiksel olarak anlamlı farklılıklar olduğu da tespit edilmiştir. **Sonuç:** Özetle, bu çalışmada yapılandırmacı yaklaşımın beden eğitimi derslerinde ne ölçüde kullanıldığı öğrenci gözüyle incelenmiştir.

Keywords: Physical education; gender; high school; constructivist approach

Anahtar Kelimeler: Beden eğitimi; cinsiyet; lise; yapılandırmacı yaklaşım

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Due to the damages caused to society and development by education systems based on rote memorization and only passing courses, countries have been looking for solutions to serious quality problems in education systems.¹ Constructivist approach has been one of the most important philosophies affecting educational practices as perhaps the most important of these solution methods. Constructivism, as a word, “originally comes from the Latin verb “construere” in the sense of organizing and giving structure”.² Constructivism is a learning theory that suggests that students learn by actively constructing their own knowledge.³

The constructivist approach draws on the developmental work of Piaget and Kelly.^{4,5} Piaget argues that learning can occur through active rather than passive construction of meaning.⁴ Kelly suggests that individuals see the world through mental structures or patterns they create.⁵ Twomey Fosnot explains constructivism with 4 principles: a) learning depends on what we already know; b) new ideas emerge as we adapt and change our old ideas; c) learning involves the invention of ideas rather than the mechanical accumulation of facts; and d) meaningful learning occurs by rethinking old ideas and being able to reach new conclusions about new ideas that contradict our old ideas.^{6,7}

Constructivist teaching is based on the belief that learning occurs when learners actively participate in the process of constructing meaning and knowledge, rather than passively receiving information. Constructivist teaching also encourages critical thinking and creates motivated independent learners.⁷ A productive, constructivist classroom consists of student-centered, active teaching. In such a classroom, the teacher provides experiences that allow students to hypothesize, imagine, make predictions, investigate, ask questions, manipulate objects, examine, and invent.⁷

The role of teachers within the constructivist approach theory is an important basis for understanding new teaching practices. Teachers have an important place in the cognitive development of the individual. The teacher is the person who nurtures the cognitive development of future generations, forms and shapes the framework of the individual’s atti-

tudes towards himself, society, and the outside world, and influences and accelerates the development of learning-related skills such as communication, research, learning, analytical thinking, problem-solving, creativity, and aesthetics.^{8,9} In the constructivist approach, teachers also use project-based learning, collaborative learning, case studies, and encourages critical thinking and creates highly motivated students while students are expected to use various teaching methods such as teaching. Constructivist teachers encourage their students to continually evaluate how the activity is helping them to understand. Twomey Fosnot, for example, recommends the use of a constructivist approach to create students who are autonomous, inquiring, investigative thinkers who investigate and reason.⁶ A constructivist approach frees teachers to make decisions that will enhance and enrich the development of students in these areas. This shows that constructivism is evident in current educational change, researching, discovering and applying.^{8,10} Therefore, much research has focused on what teachers and administrators understand constructivist teaching to be. Balım et al., for example, emphasized the importance of teachers who act as guides and guide students in constructing knowledge.¹¹

Constructivist teaching suggests that learners are creators of meaning and knowledge. Therefore, learners are actively constructing their own knowledge. Students in a constructivist classroom ideally become “expert learners” by questioning themselves and their strategies. This gives them ever-expanding tools to continue learning. With a well-planned classroom environment, students learn how to learn. The constructivist approach in physical education (PE) lessons differs from classical learning methods in that it uses real scenarios and meaningful practices. For example, students can use heart rate monitors to detect which activities increase their heart rate and which activities decrease their heart rate. They can then list activities they do each day that can similarly affect their heart rate. In constructed PE classes, practices such as brainstorming and problem solving methods involving questions and answers can come to the fore. For example, the question of “why some people continue to engage in physical activity despite their advanced ages while others quit?” can be dis-

cussed by students in PE lessons. Looking at the current situation of PE classes, teachers often take the dominant role in the teaching-learning process by using the command method in Muska Mosston and Sarah Ashworth's Teaching Styles Spectrum and treat their students as simple recipients of knowledge and skills. This will undoubtedly hinder communication between teachers and students, reduce interest in the lesson, render students passive and thus weaken the quality of teaching. Especially since the late 1990s, there has been a marked increase in researchers' interest in constructivist learning theories in PE.¹²⁻¹⁶ PE teachers' practices are typically based on assumptions about learning that assume that learning is a clear linear and measurable process of internalizing knowledge.¹⁶ "From this perspective, knowledge is perceived as a pre-existing, "outside" entity and learning is perceived as the process of representing this reality internally in the learner's mind.¹⁶ This is evident in the teaching of predetermined "basic" motor skills, which are seen as a prerequisite for playing games and sports. From a constructivist perspective, learning involves processes of interpretation without a pre-given external reality".¹⁶ Chen et al., for example, examined the lesson processes of teachers implementing constructivist PE teaching and developed a new scale.¹⁷ International studies indicate that students' social participation in PE classes has a positive effect on learning.^{18,19} These studies indicated that there is a link between a learning environment that emphasizes students' social participation and their personal and social development. Azzarito and Ennis examined how teachers use social constructivist approach methods to construct knowledge and how students construct their knowledge and meanings in PE classes.²⁰

The fact that teachers ignore learning fail to understand the nature of teaching, do not pay much attention to transferring knowledge, and the inadequate PE evaluation system of schools have narrowed the minds of teachers and led them to adopt a one-way teaching method.²¹ To eliminate these negative issues, there has been an increase in research on constructivist approaches in PE in the last 30 years.¹²⁻¹⁶ They mostly conducted PE teachers' or preservice teachers' opinions. For example, Kirk and Macdon-

ald argued that a constructivist approach applied to PE can provide a useful framework for informing and integrating pedagogical practices.¹³ Rovegno and Kirk argued that PE teachers applied some of the features of constructivism as a long tradition of practices.²² Anderson attempted to achieve a compromise between behaviorism and constructivism in the context of PE teacher education.²³

Although many studies have been published in international educational settings, there are quite a few studies examining Turkish students' opinions about the constructivist approach. However, the constructivist approach has been implemented as an important educational approach in the Turkish National Education system since 2005. One of the most important studies on PE is the one conducted by Ağbuğa.²⁴ Ağbuğa adapted the "Constructivist Teaching Approach to Students Scale" introduced by Chen et al. into Turkish and examined the reliability and validity of the scale.^{17,24} As a result of this study, it was found that the Constructivist Teaching Approach to Students Scale fit the data and showed satisfactory psychometric properties. In Turkish studies, it is mostly seen that research on the constructivist education program is mostly limited to the competence of administrators and teachers in the implementation of the program, the determination of the opinions of administrators, teachers, students and supervisors about the program, and the detection of problems in the implementation of the program.²⁵ Bilir, for example, made a descriptive evaluation of the current constructivist approach and the program approaches in the Village Institutes in terms of PE courses.²⁶ Gülüm and Bilir argued for the opinions of PE teachers and the feasibility of a PE program that is based on a constructive approach.²⁷ They found that PE teachers who came out of the behaviorist educational system could not adapt to PE programs which were made through a constructive approach. In addition, the teachers express that they could not put a constructive approach program into practice due to the inconvenience of class populations, lesson timing, tools and equipments, and inadequacy of certain establishments. An important study in Türkiye was performed by Evrekli et al.²⁸ Their purpose of the study was to determine pre-service science teachers'

attitudes toward a constructivist approach in a Turkish university. As a result of their study, it was found that science teacher candidates' attitudes towards the constructivist approach were generally high. Also, they found that the attitudes of teacher candidates who graduated from Anatolian Teacher High School towards this approach were lower than Science, Anatolian, Super and General High Schools. Another important study in Türkiye was also performed by Geçit.²⁹ Geçit studied 316 Social Studies Education Department teacher candidates' constructivist approach opinions in terms of various variables in the two different Turkish universities.²⁹ In addition, graduates of regular high schools and vocational high schools were found to have a more positive attitude towards this approach than graduates of Anatolian High Schools.

Students who will graduate from these high schools must receive the right education in order to grow well in their professions and become useful employees and citizens. Significantly, the development of countries is directly proportional to the education and training programs they provide. PE lesson also appears as an important lesson because it aims to increase physical, psychological, social well-being, motor skills, and to understand concepts of individual health-related fitness.

However, quantitative research on whether teachers apply constructivist approach methods in their lessons from the perspective of Turkish high school students is still quite limited. Therefore, the main purpose of this study is to examine and compare the constructivist approach teaching views of "Vocational and Technical High School" and "Anatolian High School" students towards PE courses. While there are two hours of PE lessons every week from the 9th to the 12th grade in Anatolian high schools, it was abolished in the 12th grade while maintaining the same lesson hours per week in Vocational and Technical Anatolian high schools.

MATERIAL AND METHODS

RESEARCH MODEL

The research was conducted to determine the constructivist approach views of high school students re-

garding PE lessons by using survey method. Survey methods, which are widely used in social sciences and provide the opportunity to work on large groups, are studies in which the researcher does not manipulate the independent variables or factors and aims to describe a past or current situation as it exists.^{30,31}

STUDY GROUP

The population of the study consists of Vocational and Technical Anatolian High School and Anatolian High School students in Denizli province. The sample of the study consists of 412 high school students [242 Vocational and Technical Anatolian High School (58.7%), 170 Anatolian High School (41.3%); 298 male (72.3%), 114 female (27.7%); 139 9th grade, 149 10th grade, 82 11th grade and 43 12th grade students; $X_{age}=16.30$, $SD=1.09$] selected from two different high schools by random sampling method. Approval for the study was granted by the Ethics Committee of Pamukkale University (date: January 01, 2024; no: 2024/02). All procedures were applied in compliance with the principles of the Helsinki Declaration. An informed consent form was given to participants before data collection.

DATA COLLECTION MODEL

In this study, the descriptive research method was used. Students completed a two-part survey. The first section includes demographic information such as gender, age, school and grade. The second part assessed their constructivist teaching approach opinions in PE classes. High school students were given a 25-item, 5-point Likert-type (5-always, 4-often, 3-frequently, 2-sometimes, 1-never) "Constructivist Teaching Approach Scale for Students (CIPS)" questionnaire, which was developed by Chen et al. and adapted into Turkish by Ağbuğa was used to collect the data.^{17,24} This questionnaire includes "social cooperation", "personal interest" and "games/skills" sub-dimensions. Cronbach alpha values used to determine the internal consistency of the scale were calculated as 0.95 for the overall scale, 0.88 for the "personal interest" sub-dimension, 0.89 for the "social cooperation" sub-dimension, and 0.89 for the "games/skills" sub-dimension. Examples of eight statements to assess social collaboration are "our teacher encourages us to share our thoughts with our

friends to explore different methods of acquiring a skill” and “our teacher encourages us to share our thoughts with our friends when correcting a skill we did incorrectly”; examples of ten statements to assess personal interest are “our teacher teaches the lesson using experiences, examples/imitations from our lives”, “our teacher encourages us to ask questions about the physical activities we do during the lesson”. To assess the games/skills sub-dimension, the sentences “our teacher encourages us to use our previously acquired skills when practicing a new skill” and “our teacher takes our skill level into account as much as possible in order to overcome the difficulties we will encounter in learning” can be given.

DATA COLLECTION PROCESS

After obtaining the necessary permissions for the schools where the research would be conducted, the researchers went to the determined schools and administered the questionnaire to high school students during regularly scheduled PE classes. Before filling out the scale, the students were reminded that there were no right or wrong answers, so they should focus only on their own questionnaires. The researchers distributed the surveys so that students could not see each other’s answers. They were encouraged to answer as accurately as possible and to ask questions if they had difficulty understanding the items on the survey. Students did not ask any questions while filling out the survey. The administration of the survey took approximately 15 minutes.

DATA ANALYSIS

Before comparing the scale data according to high schools, it was examined whether the data fit the nor-

mal distribution. As a result of the examination, it was determined that the data were suitable for normal distribution. Therefore, two different independent samples t-tests were used to compare the scale data according to high schools and gender. A descriptive statistical analysis was also performed. In the test, the significance level was accepted as $p<0.05$.

RESULTS

Before the statistical analysis, skewness/kurtosis values were performed to determine whether the data were suitable for normal distribution. It was determined that the data were normally distributed (Table 1).³²

Therefore, independent samples t-test was conducted to determine whether the mean scores of the constructivist teaching approach sub-dimensions and the overall total differed according to the high school types (Table 2). When we examine Table 2, it is seen that the statistically significant difference between the averages of constructivist teaching approach sub-dimensions (social cooperation, personal interest, games/skills) and total score is due to the fact that Anatolian High School students have higher averages than Vocational High School students.

When we examine Table 3, it is seen that there are statistically significant differences between male and female mean scores of all sub-dimensions and total score in the favor of female students [$t(410)=-2.50, p<0.05$ for social cooperation; $t(410)=-3.71, p<0.01$ for personal interest; $t(410)=-4.65, p<0.01$ for games/skills and $t(410)=-3.95, p<0.01$ for total score].

TABLE 1: Skewness/kurtosis values and results of exploratory statistical analysis.

Parameters	Social cooperation	Personal interest	Games/Skills	General total
n	412	412	412	412
\bar{X}	3.69	3.71	3.76	3.72
SD	0.76	0.74	0.77	0.70
Skewness	-0.63	-0.88	-0.60	-0.63
Kurtosis	0.15	0.14	-0.23	0.13

SD: Standard deviation.

TABLE 2: T-test results of participants' constructivist teaching approach mean scores according to school type.

	High school type	n	\bar{X}	SD	t value	p value
Social cooperation	Vocational and technical anatolian high school	242	3.56	0.78	-4.15	0.000**
	Anatolian high school	170	3.96	0.59		
Personal interest	Vocational and technical anatolian high school	242	3.52	0.75	-6.54	0.000**
	Anatolian high school	170	3.87	0.70		
Games/Skills	Vocational and technical anatolian high school	242	3.56	0.79	-6.56	0.000**
	Anatolian high school	170	4.03	0.65		
Total score	Vocational and technical anatolian high school	242	3.54	0.71	-6.19	0.000**
	Anatolian high school	170	3.96	0.59		

**p<0.001; SD: Standard deviation.

TABLE 3: T-test results of participants' constructivist teaching approach mean scores according to gender.

	Gender	n	\bar{X}	SD	t value	p value
Social cooperation	Male	14	3.64	0.77	-2.50	0.013*
	Female	170	3.94	0.74		
Personal interest	Male	242	3.63	0.74	-3.71	0.000**
	Female	170	3.92	0.70		
Games/Skills	Male	242	3.65	0.79	-4.65	0.000**
	Female	170	4.03	0.67		
Total score	Male	242	3.64	0.70	-3.95	0.000**
	Female	170	3.94	0.64		

*p<0.05; **p<0.001; SD: Standard deviation.

DISCUSSION

The purpose of this research is to examine and compare the constructivist approach teaching views of Vocational high school and Anatolian high school students towards PE courses. The results of previous studies were different from the results of the current research.^{28,29} For example, Geçit found that graduates of regular high schools and vocational high schools were found to have a more positive attitude towards this approach than graduates of Anatolian High Schools.²⁹ One of the main reasons can be that while Geçit's and Evrekli et al.'s participants were university students and they searched these students' views on constructivist approach was based on the high schools they graduated from.^{28,29} However, In his thesis, Uluşık found that the perceptions of constructivist teaching approach of Vocational and Technical Anatolian High School students were significantly higher than the students of Sports high school, Anatolian high school, Anatolian İmam Hatip and Fine

Arts high schools.³³ The current study is consistent with Uluşık's study.³³ As a consequence of the current study, Anatolian High School students observed more constructivist approach than Vocational and Technical Anatolian High School students in teaching PE. The reasons why the current study shows different results from most previous studies can be explained as follows. Firstly, in the current study, the opinions of active high school students were taken. The second reason may be due to the constructivist approach questionnaires used. While Geçit and Evrekli et al. used questionnaires adapted to social studies and/or Science, a different questionnaire for PE class was used in the current research.^{28,29} The third reason for this may be that Anatolian High School students receive higher scores in the high school entrance exam than Vocational and Technical Anatolian High School students and therefore have better cognitive levels, while another reason can be that the facilities (materials, gyms, etc.) for PE classes in the schools where data were collected are different

from each other. Therefore, it may be due to the various teaching approaches used by the teacher in teaching PE.

It is seen that the statistically significant difference between the averages of constructivist teaching approach sub-dimensions (social cooperation, personal interest, games/skills) and total score is due to the fact that female high school students have higher averages than male high school students. However, this result is not consistent with previous studies. For example, Uluişik found that the perceptions of games/skills, personal interest and social cooperation did not differ at a statistically significant level according to the gender of the participants from different high school types (Anatolian İmam Hatip, Fine Arts, Vocational and Technical Anatolian, Anatolian, Social Sciences, Sports and Science).³³ The main reason for this may be that the current research was conducted with a large number of participants from only two different types of high schools (Anatolian and Vocational). However, Uluişik compared the data obtained from seven different high school types.³³

In this research, the teacher suggests that the student should be a loyal supporter of the students as they try to build their own knowledge. The teacher's role changes from being an authoritative source of information for students to that of a guide, superior partner, and collaborator. The traditional teaching style, which focuses on teaching the fundamentals of movement, should be transformed into a teaching style in which students' practice is at the forefront and the teacher inspires and guides students. Through practice, students are expected to determine the fundamentals and rules of movement themselves, and the teacher then accurately summarizes and develops this knowledge. Since students are participants in teaching-learning activities and constructors of knowledge, they need to adopt a new learning style and apply new strategies to process new information. In short, students must adapt to their new roles as creators of knowledge and meaning.²¹

These results should be interpreted with caution because the data were obtained from only two different high schools. This constitutes one of the limitations of this study. Another limitation is that the data

were collected from only one province. Therefore, it is recommended to repeat this research by collecting data from a larger number of high schools with wider participation. Vocational high school PE teachers are also recommended to use constructivist approach teaching methods, like Anatolian high school teachers. In this way, perhaps vocational high school students will see the value given to them, and it may positively affect different variables such as social behaviors. Therefore, there is a need for research examining constructivist approach teaching methods and students' social behaviors together.

CONCLUSION

In summary, this study examined the extent to which constructivist approaches are used in PE classes through the eyes of students. At the end of the study, it was concluded that Anatolian High School students observed a constructivist approach in PE courses, teaching more than Vocational and Technical Anatolian High School students. Also, this study shows that there are statistically significant differences between male and female mean scores of all sub-dimensions and a total score in the favor of female students. Based on these results, since the constructivist approach is at the heart of learning, it is important that teachers try and make an effort to understand the student's perspective. Therefore, teachers need to create learning environments that encourage students to put forward their ideas. It is also important that the constructivist approach is adopted and implemented by PE teachers, especially in vocational high schools.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Bülent Ağabuğa, Fatma Ağabuğa, Şehmus Aslan;
Design: Fatma Ağabuğa; **Control/Supervision:** Bülent Ağabuğa;
Data Collection and/or Processing: Fatma Ağabuğa; **Analysis and/or Interpretation:** Bülent Ağabuğa, Şehmus Aslan; **Litera-**

ture Review: Fatma Ağabuğa; **Writing the Article:** Fatma Ağabuğa, Bülent Ağabuğa, Şehmus Aslan; **Critical Review:** Bülent Ağabuğa, Şehmus Aslan; **References and Findings:** Bülent Ağabuğa, Fatma Ağabuğa, Şehmus Aslan; **Materials:** Bülent Ağabuğa, Fatma Ağabuğa, Şehmus Aslan.

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