



The Power of Constructivist Learning Environment Perceptions of Secondary School Students to Predict Academic Procrastination Behaviors[#]

Ali Osman Çavdar^{1,a}, İbrahim Tuncel^{2,b,*}

¹Ministry of National Education, Şanlıurfa, Türkiye

²Faculty of Education, Pamukkale University, Denizli, Türkiye

*Corresponding author

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ABSTRACT

This study aims to determine the predictive power of secondary school students' constructivist learning environment perceptions on their academic procrastination behaviors. The research was conducted using the correlational survey model. Data were collected with the "Academic Procrastination Behavior Scale of Secondary School Students" and the "Constructivist Learning Environments Scale." The participants of the study comprises 1505 6th, 7th, and 8th grade students selected by stratified sampling. Correlation, simple, and multiple linear regression analyses were performed on the data. The results indicated a moderate negative significant relationship between both the "irresponsibility and preference" and "environment and feelings" dimensions of the academic procrastination scale and the "learning science" dimension of the constructivist learning environment. The study determined that the dimensions of the constructivist learning environments scale together explained 15% of the total variance of academic procrastination ($R = 0.388$, $R^2 = 0.151$, $p < 0.01$), and the learning environment was a significant predictor of academic procrastination behaviors. The study concluded that students' perception of the constructivist learning environment increased, and their academic procrastination behaviors decreased.

Keywords: Constructivist learning approach, constructivist learning environment, academic procrastination, learning environment, procrastination

Ortaokul Öğrencilerinin Yapılandırmacı Öğrenme Ortamı Algılarının Akademik Erteleme Davranışlarını Yordama Gücü

Bilgi

#Bu çalışma yüksek lisans tezinin bir parçasıdır.

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ÖZ

Bu çalışmanın amacı, ortaokul öğrencilerinin yapılandırmacı öğrenme ortamı algılarının, akademik erteleme davranışları üzerindeki yordayıcı gücünü belirlemeyi amaçlamaktadır. Araştırmada ilişkisel tarama modeli kullanılmıştır. "Ortaokul Öğrencilerinin Akademik Erteleme Davranışı Ölçeği" ve "Yapılandırmacı Öğrenme Ortamları Ölçeği" ile veriler toplanmıştır. Araştırmanın örneklem grubunu tabakalı örnekleme yoluyla seçilen 6. 7. ve 8. sınıf toplam 1505 öğrenci oluşturmaktadır. Veriler üzerinde korelasyon, basit ve çoklu doğrusal regresyon analizleri yapılmıştır. Araştırma sonucunda akademik erteleme ölçeğinin hem "sorumluluk ve tercih etme" hem de "çevre ve hisler" boyutu ile yapılandırmacı öğrenme ortamının "bilimi öğrenme" boyutu arasında orta düzeyde negatif yönde anlamlı ilişki bulunmuştur. Yapılandırmacı öğrenme ortamları ölçeğinin boyutlarının birlikte, akademik ertelemenin toplam varyansının %15'ini açıkladığı ($R = 0.388$, $R^2 = 0.151$, $p < 0.01$) ve öğrenme ortamının akademik erteleme davranışlarının anlamlı bir yordayıcısı olduğu belirlenmiştir. Öğrencilerin yapılandırmacı öğrenme ortamı algı düzeyi arttıkça öğrencilerin akademik erteleme davranışlarının azaldığı sonucuna ulaşılmıştır.

Anahtar Kelimeler: Yapılandırmacı öğrenme yaklaşımı, yapılandırmacı öğrenme ortamı, akademik erteleme, öğrenme ortamı, erteleme

Introduction

Different approaches, theories, and models explain the learning process and the characteristics that should be present in learning environments. Compared to behaviorist and cognitive learning approaches, it can be said that one of the more prominent approaches today is the constructivist learning approach. In the literature, many research results show that learning environments based on the constructivist approach have positive effects on the cognitive and affective development of learners (Ayaz & Şekerci, 2015; Başı & Beyhan, 2017; Batdı, 2023; Do et al., 2023; Kim, 2005). Constructivist learning environments support meaningful and in-depth learning, critical thinking, collaboration, fun learning, and intrinsic motivation (Tynjälä, 1999). A constructivist learning environment ensures learning and retention by building new learning on students' prior learning and increases interest and motivation (Forbes et al., 2001). In addition, one frequently emphasized learner characteristic in a constructivist learning environment is using metacognitive skills to set academic learning goals and being a self-regulated learner (Loyens et al., 2007; Paris & Paris, 2001; Zimmerman, 1989). In studies on self-regulation, it has been determined that self-regulation is a significant predictor of academic procrastination (Klassen et al., 2008; Rakes & Dunn, 2010; Schuhmacher, 2022), and lack of self-regulation is the basis of academic procrastination tendency (Grunschel et al., 2013; Zacks & Hen, 2018). It is expected that the constructivist learning environment leading to an increase in learners' motivation will have a positive effect on academic procrastination behaviors, which is one of the variables that negatively affect the learning environment, as well as a positive effect on attitude and achievement. In this context, the research predicted that this environment may be effective on academic procrastination behaviors, considering the need for learner characteristics with self-regulation skills in constructivist learning environments and the positive effect of constructivist learning environments on student motivation.

When the studies on the factors affecting academic procrastination behaviors are examined in the literature, the relationship between academic procrastination and motivation (Bäulke, 2021; Lee, 2005; Ljubin-Golub et al., 2019; Rakes & Dunn, 2010), academic procrastination and test anxiety (Çakıcı, 2021; Krispenz et al., 2019; Uzun Özer & Topkaya, 2011), and the relationship between academic procrastination and self-esteem (Balkıs & Duru, 2010; Kandemir et al., 2014; Kiyım, 2022; Yang et al., 2023). However, there are also studies examining the relationship between academic procrastination and different variables, such as internet addiction (Türkadi Gervan & Kadioğlu Ateş, 2023) and social media addiction (Caratiquit & Caratiquit, 2023). When the research on academic procrastination is examined, it can be said that there is not enough research on external factors such as the learning environment, whereas the research focuses

more on internal, that is personal and psychological factors on academic procrastination.

When the studies on the effects of constructivist learning environment are examined, there are studies examining the relationship between constructivist learning environments and academic achievement (Akyol, 2011; Başı & Beyhan, 2017), the relationship between constructivist learning environment and motivation (Cetin-Dindar, 2015; Louvigné et al., 2018; Milner et al., 2011; Van Bommel et al., 2015). Loyens and Gijbels (2008) pointed out that the effects of the constructivist learning environment are more than cognitive effects; they affect learners' learning approaches and assessment understanding. Studies (Ocak, 2012; Yılmaz, 2006) examine teachers' ability to create a constructivist learning environment. There is a study examining the relationship between project-based learning, one of the constructivist learning models, and academic procrastination (Santayasa et al., 2020), but any research directly examining the relationship between academic procrastination and a constructivist learning environment was not found in the literature. It is thought that the results of this study will contribute by filling an essential gap in the literature.

The learning environment is expected to provide learners with desired characteristics and behaviors and to prevent or reduce undesired behaviors. Students' academic procrastination behaviors can be considered as a variable that affects the learning environment and is also affected by the learning environment.

Academic Procrastination and Reasons

Procrastination is a characteristic and behavioral tendency to postpone a task's performance and make decisions later (Milgram et al., 1998). Research shows that procrastination is divided into various types. While the type of procrastination in decision-making is explained as the situation in which individuals postpone decisions when faced with conflicts and choices (Ferrari & Dovidio, 2000), the type of procrastination in daily/routine tasks is defined as the difficulties experienced in planning and implementing the tasks performed in a specific routine during the day (Milgram et al., 1988). On the other hand, compulsive or dysfunctional procrastination is a type of procrastination in which decision-making procrastination and behavioral procrastination are seen in the same person (Ferrari, 1991; Ferrari & Olivette, 1994), while Ellis and Knaus (1979) defined neurotic procrastination as postponing major life events.

Senécal et al. (1995) stated that procrastination is a common problem in academic life and emphasized that academic procrastination is the type of procrastination students experience most frequently. Academic procrastination is the limited delay of the learner's tasks and responsibilities related to learning or studying (Steel & Klingsieck, 2016). In other words, it is a student's

procrastination in completing assignments or preparing for exams at the last minute (Milgram et al., 1993).

Procrastination has generally been described as a negative behavior and tendency by researchers (Burka & Yuen, 2008; Ellis & Knaus, 1979; Ferrari et al., 1995; Milgram et al., 1998; Schouwenburg, 1995; Solomon & Rothblum, 1984). On the other hand, Tice and Baumeister (1997) opposed the view that an individual's procrastination behavior will necessarily badly affect his/her performance in his/her job. According to Klingsieck (2013), strategic procrastination is the deliberate and planned postponement of tasks. Strategic procrastination usually has a positive effect. According to Van Eerde (2003), procrastination cannot be planned and deliberate because procrastination is the postponement of the realization of what is planned. In this study, academic procrastination behaviors, one of the types of procrastination, were focused on.

The reasons for academic procrastination can be classified as internal and external reasons. Students' emotional states such as fear of failure, reluctance, overconfidence, loss of interest, distraction, mental and physical health conditions and personal beliefs, personality traits, lack of study skills, lack of knowledge and self-regulation, self-efficacy, self-control, previous negative learning experiences, perceived task characteristics are among the intrinsic causes of academic procrastination (Balkis, 2006, He, 2017; Solomon & Rothblum, 1984; Steel, 2007). One of the biggest causes of academic procrastination today is the excessive and unconscious use of social media (Caratiquit & Caratiquit, 2023; He, 2017). Individual working conditions, teachers' characteristics, and institutional conditions, such as the learning environment, constitute the external causes of academic procrastination (Grunschel et al., 2013). This study focuses on the relationship between academic procrastination and the learning environment.

Learning Environment and Academic Procrastination

Although researchers state that procrastination is situational and can be influenced by contextual factors (Schouwenburg, 2004), little research examines how the learning environment affects procrastination. In a study conducted by Sun and Kim (2022), it was determined that students in the online learning environment showed higher tendencies to postpone learning activities and assignment submissions compared to those who attended the courses face-to-face. Another study found that academic procrastination mediated the relationship between learning environment and academic performance (Sun et al., 2023). Klingsieck et al. (2012) found that the difference between students' academic procrastination behaviors was caused by the learning environment and the metacognitive strategies they used. Yilmaz (2017) found a relationship between homework and exam performances of university students and academic procrastination behaviors in distance and face-to-face learning environments. Bayrak (2018) examined

the relationship between academic procrastination and self-regulation of university students in a blended learning environment and found that students with higher self-regulation exhibit procrastination behavior because they work better under pressure. Yaraş (2021) emphasized that the characteristics of the learning environment, such as teaching management, technical equipment, and digital competence, are effective in preventing academic procrastination behavior.

It is, of course, essential to reduce or prevent the intrinsic causes of academic procrastination. However, it can be said that external causes, such as the learning environment, may be easier to control and intervene in than internal causes. For this reason, in this study, we focused on investigating the effect of situations that may arise from the learning environment on academic procrastination tendencies. Since the 2005-2006 academic year, Turkey has been trying to implement curricula based on a constructivist learning approach at all levels. Constructivist learning environments are thought to influence learner characteristics such as academic procrastination effectively.

Constructivist Learning Approach

The literature defines constructivism as a meaning-making process (Duffy & Jonassen, 1992; Rasmussen, 1998; Richardson, 2003; Sherman & Kurshan, 2005; Yager, 2000). Based on pragmatic philosophy, constructivism is based on Piaget's cognitive domain, Vygotsky's socio-historical studies, and the understanding that life is constantly changing and everything needs to be restructured (Fosnot & Perry, 2005; Ocak, 2012). Constructivism is about the relationship between knowledge and reality and is not the knowledge of reality but the construction of reality (Jensen, 1999). The constructivist approach emphasizes that learners should actively internalize, reshape, and transform knowledge. These internalization, reshaping, and transformation steps relate what the learner has just learned to his/her existing knowledge (Brooks & Brooks, 1999; Duffy & Jonassen, 1992). Constructivism deals with the nature of knowledge and learning. In this understanding, it is accepted that individuals are actively involved in thinking and learning processes while examining how individuals' learning processes are (Ornstein & Hunkins, 2017). It can be said that the learner's being active in the constructivist learning approach can reduce the learner's academic procrastination tendency.

Constructivist Learning Environments

A constructivist learning environment enables learners to integrate learning with life, thus enabling them to make sense of and learn in context. It is a learning environment in which thinking about one's learning, reflective thinking, problem-solving, research, discussing that knowledge is not specific, critical thinking, interaction, and collaboration are frequently included in the learning process. The teacher encourages learners to take control of their learning by assuming a supportive, motivating,

encouraging, and facilitating role (Brooks & Brooks, 1999; Collins, 1985; Mishra, 2023; Taylor et al., 1995; Tenenbaum et al., 2001; White & Frederiksen, 1998; Wilson, 1996).

In this process where students construct knowledge, the constructivist teacher plays a significant role. The constructivist teacher creates learning opportunities around tasks to be accomplished and problems to be solved that have personal significance for the student (Reeves & Reeves, 1997). In this context, it can be said that the constructivist learning environment, which makes learning more meaningful for the learner and motivates learning, supports, and encourages the learner's active participation in the process, can be effective on many undesirable behaviors such as academic procrastination.

The constructivist learning environment encourages learners to self-regulate their behavior and act autonomously (DeVries & Zan, 1994). According to Tenenbaum et al. (2001), focusing instruction on student needs, dealing with "real world" problems, sharing personal experiences, student interaction, "thinking aloud," and attention to "thinking skills" are essential features of a constructivist learning environment.

Not found in direct research examining the relationship between a constructivist learning environment and academic procrastination, but there are studies in which the relationship between self-regulated learning, one of the features of a constructivist learning environment, and academic procrastination is determined (Klassen et al., 2008; Ragusa et al., 2023; San et al., 2016; Schuhmacher, 2022; Ziegler & Opdenakker, 2018). The experimental study conducted by Grunschel et al. (2018) concluded that self-regulated learning effectively reduced procrastination behaviors.

In a constructivist and thinking-friendly learning environment, the supportive role of the teacher, the student's efforts to participate in the lesson and solve the problem even if it is difficult, the students taking responsibility for decisions related to the learning process and supporting the development of self-regulation skills (Bay et al., 2010; Doğanay & Sarı, 2012) may be effective in reducing academic procrastination behaviors.

When the literature is reviewed, the five main features of a critical constructivist learning environment from the learner's perspective are defined as follows. In "*learning about the world*," a characteristic of the constructivist learning environment is science, associated with learners' out-of-school experiences. Learners are enabled to recognize science as a means of better understanding the world and life. The opportunity to use and apply what they have learned also helps them learn and internalize the ethical values inherent in science. The "*learning about science*," a characteristic of the constructivist learning environment, allows learners to experience that scientific knowledge is constantly developing, is not static, renews itself, and is influenced by the social and cultural environment. Teachers strive to create a friendly and supportive learning environment where learners feel safe, welcome unconventional ideas, and know that

assumptions will not be ridiculed. In the "*learning to express thoughts*," a characteristic of the constructivist learning environment, learners can easily question teachers' teaching plans and methods and express their concerns about situations that hinder their learning without hesitation. The "*learning to learn*" characteristic of the learning environment involves teachers and learners deciding together on the design and management of learning activities and assessment criteria. The teacher helps the learner to decide and plan what to learn and how to learn. The teacher supports learners in using their metacognitive knowledge and discovering their learning strategies. The "*learning to communicate*," a characteristic of the constructivist learning environment, allows students to explain and justify their ideas. It includes having the opportunity to test the applicability of their own and other learners' ideas. It is an environment where great emphasis is placed on facilitating learners' participation in active negotiation with teachers and peers. The purpose of deliberation is to make learning relevant to learners' lives outside of school, to encourage them to take control of their learning, and to create a critical awareness of shared cultural values and beliefs, such as the objectivist nature of knowledge, that constrain the constructivist learning environment (Nix et al., 2005; Taylor, 2023; Taylor et al., 1995; Taylor et al., 1997).

In constructivist learning environments, students being responsible for their learning is an essential principle of the constructivist approach. In this approach, students decide what to learn, when to learn, and how learning will occur, and in this process, students also determine how their learning needs will be met. (Yurdakul, 2005). In this context, it can be said that it is essential for the learner to complete his/her academic tasks on time and without interruption to create a learning environment with constructivist features. However, in constructivist learning environments, the control and responsibility of the learning process is more on the learner; he/she actively participates in the learning process by cooperating, and he/she develops self-discipline with this responsibility to prevent procrastination behaviors. Therefore, it can be predicted that a constructivist learning environment can be effective in academic procrastination behaviors.

It is thought that the results of this research will contribute to the preparation of learning environments that will reduce academic procrastination behaviors and the development of curriculum, as well as fill the gap in the literature by examining the relationship between

Purpose of the Study

This study aimed to examine the relationship between academic procrastination behaviors and a constructivist learning environment according to student perceptions and to determine the predictive power of constructivist learning environment characteristics on academic procrastination behaviors. For this purpose, answers to the following sub-problems were sought in the study.

- What is the frequency of academic procrastination behaviors and the level of realization of constructivist learning environment characteristics according to students?
- Is there a significant relationship between the constructivist learning environment scale's sub-dimensions and the academic procrastination scale?"
- Is the constructivist learning environments scale score a significant predictor of academic procrastination scale score?
- Are the sub-dimensions of the constructivist learning environments scale a significant predictor of academic procrastination behaviors?

Method

The correlational survey model, one of the quantitative research methods, was used for the study. The purpose of the relational survey model is to ascertain if two or more variables are related and to what extent they have changed (Karasar, 2012).

Population and Sample

The study population of this research consists of 6th, 7th, and 8th grade secondary school students in the central districts of Haliliye, Eyyübiye, and Karaköprü who continue their education in the 2022-2023 academic year in Şanlıurfa. A proportional stratified sampling method was used in the study. By stratification, a sample's representation of individual traits and accurately represents the population's proportion of those individuals is achieved (Creswell, 2003). For this purpose, according to the opinions of the provincial directorate of national education and school principals, Karaköprü district was determined as a high socio-economic level, Haliliye district as a middle socio-economic level, and Eyyübiye district as a lower socio-economic level. According to the population proportion, there are 479 students in the Karaköprü district, 519 in the Haliliye district, and 470 in the Eyyübiye district. Data were collected from a total of 1505 students. Data on the sampling method are presented in Table 1. In addition, the demographic characteristics of the students participating in the study are presented in Table 2.

Table 1. Number of samples according to proportional stratified sampling method

Class Level	Karaköprü / High- Level			Haliliye / Moderate			Eyyübiye / Lower- level			Total
	Universe	Sample	%	Universe	Sample	%	Universe	Sample	%	
Grade 6	4300	138	35	10865	160	35,04	12431	185	35,89	483
Grade 7	4005	164	33	9967	201	32,16	11311	187	32,65	552
Grade 8	3790	177	32	10169	158	32,80	10894	135	31,46	470
Total	12095	479	100	31001	519	100	34636	507	100	1505

Table 2. Demographic characteristics of students

Demographic Characteristics	Category	N	%
Gender	Female	486	46.0
	Male	570	54.0
	Total	1056	100
Class Level	Grade 6	297	28.1
	Grade 7	394	37.3
	Grade 8	365	34.6
Mother's Employment Status	Not Working	879	83.2
	Seasonal Worker	61	5.8
	Public Employee	58	5.5
	Private Sector Employee	58	5.5
Father's Employment Status	Not Working	133	12.6
	Seasonal Worker	102	9.7
	Public Employee	180	17.0
	Private Sector Employee	641	60.7
Own Study Room	There is	574	54.4
	No	482	45.6
Easy Access to the Internet	No	213	20.2
	Occasionally	307	29.1
	Yes	536	50.8
Duration of Daily Use of Social-Media	Nothing.	344	32.6
	Less than an Hour	373	35.3
	One to Two Hours	244	23.1
	More than two Hours	95	9.0

According to the Presidency of Migration Management (2024) data, Şanlıurfa ranks third in the distribution of Syrians in the top 10 cities. Karademir and Doğan (2019) reported that Syrian students are concentrated in Haliliye and Eyyübiye districts. In this context, it was understood that Syrian students who did not speak Turkish or knew very little Turkish in the crowded classrooms where the research was conducted could not thoroughly fill in the scale items, so these scales were removed. In addition, after the extreme data were discarded, analyses were made on the data of 1056 students who completed the scale items.

Data Collection Tools

Personal information form.

The personal information form includes questions to learn the students' demographic information. In this context, the form included questions about the student's gender, the working status of their parents, the student's study room, the student's easy access to the internet, and the duration of their daily use of social media.

Academic procrastination behavior scale of secondary school students.

The Academic Procrastination Behavior Scale of Secondary School Students was developed by Ocağ and Karataş (2019). The sample in which the scale was developed comprised secondary school students in a city center. The scale consists of 19 items and has two dimensions. The items of the scale are a 5-point Likert-type scale graded as 'Never,' 'Rarely,' 'Sometimes,' 'Frequently,' and 'Always.' As a result of the factor analysis, it was determined that the two factors explained 58.032% of the total variance. The first dimension of the scale was named '*irresponsibility and preference*,' and the second dimension was named '*environment and feelings*.' While the items in the first dimension constitute the first six items of the scale, the factor loadings are between 0.564 - 0.780, and the Cronbach Alpha coefficient is 0.866. The factor loadings of the thirteen items in the second-dimension range between 0.596 - 0.743, and the Cronbach Alpha coefficient is 0.935. The overall Cronbach Alpha internal consistency coefficient of the scale was 0.946.

In this study, the Cronbach Alpha internal consistency coefficient of the '*irresponsibility and preference*' sub-dimension was 0.589, and the Cronbach Alpha internal consistency coefficient of the '*environment and feelings*' sub-dimension was 0.788. The overall Cronbach Alpha internal consistency coefficient was found to be 0.824. Test reliability is deemed adequate when a test's reliability coefficient is 0.70 or above (Büyükoztürk, 2004)

Constructivist learning environments scale.

The Constructivist Learning Environment Survey (CLES) was developed by Taylor et al. (1997) and adapted into Turkish by Küçüközer et al. (2012). The '*Constructivist Learning Environments Scale (CLES)*,' which is one of the tools developed to measure whether the learning

environment has constructivist features, is also used to evaluate students' perceptions of classroom learning environments. The sample group in which the scale was developed consisted of 619 6th, seventh, and 8th-grade students, comprising 25 items with five dimensions. The scale is a 5-point Likert-type scale with items rated as 'Almost Never,' 'Rarely,' 'Sometimes,' 'Frequently,' and 'Always.' The sub-dimensions of the scale are named '*learning about science*,' '*learning about the world*,' '*learning to express thoughts*,' '*learning to communicate*,' and '*learning to learn*.' Exploratory and confirmatory factor analyses were conducted to determine the scale's construct validity. The KMO value was .873, and the Barlett Sphericity test χ^2 value was 4617.951 ($p < .001$). The scale items explained 53.410% of the total variance, and the sub-factors items overlapped with the items in the original form. In the sample group in which the scale was developed, the Cronbach-Alpha reliability coefficient was 0.847.

In this study, the Cronbach-Alpha reliability coefficient of the '*learning about the world*' sub-dimension was 0.642, the Cronbach-Alpha reliability coefficient of the '*learning about science*' sub-dimension was 0.775, the Cronbach-Alpha reliability coefficient of '*learning to express thoughts*' sub-dimension was 0.683, the Cronbach-Alpha reliability coefficient of '*learning to learn*' was 0.797, '*learning to communicate*' sub-dimension Cronbach-Alpha reliability coefficient was 0.778, and overall Cronbach Alpha coefficient was 0.864.

Data Collection Process

Since the study data were collected from underage students, the Parent Consent Form was obtained first. Participation in the study was stated to be voluntary. However, Ethical permission for this research was obtained from the ethics committee of Pamukkale University Social and Human Sciences Research, with the decision dated 21.07.2022 and numbered 68282350/2022/G16. Necessary permissions were obtained from the Şanlıurfa Provincial Directorate of National Education. After obtaining the necessary permissions, secondary schools in the central districts of Şanlıurfa province were visited in the December 2022-2023 academic year, and the scales were applied to the students by the researcher with the knowledge of the school administration and course teachers. Before distributing the scales, the researcher informed the students about the purpose of the study and how to fill out the scales to obtain valid and reliable results. The students took approximately half an hour to fill in the scales.

Data Analysis

Table 3 shows that the kurtosis and skewness values of the study variables range between -0.78 and +0.87. According to Tabachnick and Fidell (2013), these values are normal distribution values.

Table 3. Descriptive statistics

Variables	\bar{X}	SD	Min.	Max.	Skewness	Kurtosis
1-Academic Procrastination	1.95	0.59	1.05	3.26	0.55	-0.71
1a-Irresponsibility and Preference	2.00	0.68	1.00	4.17	0.48	-0.46
1b-Environment and Feelings	1,93	0.65	1.00	3.69	0.66	-0.51
2-Constructivist Learning Environments	2.86	0.68	1.12	4.80	0.87	-0.24
2a-Learning About the World	2.95	0.90	1.00	5.00	-0.05	-0.61
2b-Learning About Science	3.12	1.03	1.00	5.00	-0.02	-0.78
2c-Learning to Express Thoughts	2.49	1.01	1.00	5.00	0.44	-0.54
2d-Learning to Learn	2.67	0.97	1.00	5.00	0.32	-0.53
2e-Learning to Communicate	3.03	1.03	1.00	5.00	0.01	-0.74

However, the study determined that the mean, median, and mode values of the data group obtained from the scales were equal in the constructivist learning environments scale and very close to each other in the academic procrastination scale. Since the data obtained from the scales showed a normal distribution, parametric tests were used to analyze the data. Scatter diagrams were examined to determine whether there was a linear relationship between the variables, and the study observed that there was linearity. In addition, "Mahalahobis distance values" were examined for extreme values. Thus, the study determined that the necessary prerequisites for regression analysis were found. The researchers decided to use simple and multiple linear regression to solve the sub-problems related to prediction. To answer the "is there a significant relationship between the constructivist learning environment scale's sub-dimensions and the academic procrastination scale?", the Pearson product-moment coefficient was calculated in order to answer the sub-problem. In order to answer the sub-problem of "Is the constructivist learning environments scale score a significant predictor of academic procrastination scale score?", a simple linear regression analysis was performed. In order to answer the question of "are the sub-dimensions of the constructivist learning environments scale a significant predictor of academic procrastination behaviors?", multiple linear regression analysis was performed.

Findings

To answer, "what is the frequency of academic procrastination behaviors and the level of realization of constructivist learning environment characteristics according to students?", descriptive statistics regarding the sub-problem expressed in the form are presented in Table 3. When the descriptive statistics given in Table 3 are examined, the mean scores of the academic procrastination scale scores of the students are ($\bar{X} = 2.00$

+ .68) in the "irresponsibility and preference" dimension, ($\bar{X} = 1.93 + .65$) in the "environment and feelings" dimension, and ($\bar{X} = 1.95 + .59$) in the overall academic procrastination scale. The study determined that the level of agreement with the items in each dimension, generally, was at the level of "rarely." In this context, it can be said that students evaluate themselves as rarely exhibiting academic procrastination behaviors. The mean scores of the constructivist learning environments scale based on dimensions are as follows: 'learning about the world' dimension ($\bar{X} = 2.94 + .90$), 'learning about science' dimension ($\bar{X} = 3.11 + 1.03$), 'learning to express thoughts' dimension ($\bar{X} = 2.49 + 1.01$), 'learning to learn' dimension ($\bar{X} = 2.67 + .97$), 'learning to communicate' dimension ($\bar{X} = 3.03 + 1.03$) and the general structure of the scale ($\bar{X} = 2.86 + .68$), and the level of agreement with the items is at the level of 'sometimes' frequency. It is understood that students think that constructivist learning environment features are realized "sometimes."

The Relationship Between Constructivist Learning Environment and Academic Procrastination

The Pearson Correlation Coefficients are presented in Table 4. A significant negative relationship was found between the total scale score of constructivist learning environments and the total score of the academic procrastination behavior scale ($r = -0.323$) at a moderate level. There was a moderate negative significant relationship between the total scale score of constructivist learning environments and the total score of the academic procrastination behavior scale ($r = -0.323$) at a moderate level. There was a moderate negative significant relationship between the total scale score of constructivist learning environments and the environment and feelings dimension of the academic procrastination scale ($r = -0.306$) and a low negative significant relationship with the "irresponsibility and preference" dimension ($r = -0.259$).

Table 4. Correlation analysis results between the sub-dimensions of the academic procrastination scale and the sub-dimensions of the constructivist learning environments scale

Variables	1	1a	1b	2	2a	2b	2c	2d	2e
1-Academic Procrastination	1								
1a-Irresponsibility and Preference	.788**	1							
1b-Environment and Feelings	.956**	.572**	1						
2-Constructivist Learning Environments	-.323**	-.259**	-.306**	1					
2a-Learning About the World	-.205**	-.171**	-.191**	.679**	1				
2b-Learning About Science	-.364**	-.313**	-.335**	.751**	.549**	1			
2c- Learning to Express Thoughts	-.073*	-.040	-.078	.570**	.244**	.300**	1		
2d-Learning to Learn	-.214**	-.164**	-.207**	.727**	.309**	.357**	.297**	1	
2e-Learning to Communicate	-.223**	-.176**	-.213**	.683**	.277**	.359**	.248**	.404**	1

* $p < 0.05$, ** $p < 0.01$

Table 5. Simple linear regression analysis results for the prediction of academic procrastination scale scores

Variable	B	Standard Error (SE)	β	t	p
Fixed	52.501	1.427	-	36.784	.000
Constructivist Learning Environments	-0.215	0.019	-0.323	-11.080	.000
R = 0.323 R ² = 0.104					
F (1, 1054) = 122.763 p = .000					

The irresponsibility and preference dimension of the academic procrastination scale has a low-level negative relationship with the "learning about the world" dimension ($r = -0.171$), a moderate-level negative relationship with the "learning about science" dimension ($r = -0.313$), a low-level negative relationship with the "learning to learn" dimension ($r = -0.164$) and a low-level negative relationship with the "learning to communicate" dimension ($r = -0.176$). When the relationship between the "environment and feelings" dimension of the academic procrastination scale and the sub-dimensions of the constructivist learning environments scale was examined, the study found that there was a low-level negative relationship with the "learning about the world" dimension ($r = -0.191$), a moderate-level negative relationship with the "learning about science" dimension ($r = -0.335$), a low-level negative relationship with the "learning to learn" dimension ($r = -0.207$), and a low-level negative relationship with the "learning to communicate" dimension ($r = -0.213$). No significant relationship was found between both dimensions of the academic procrastination scale and the "learning to Express thoughts" dimension of the constructivist learning environments scale. The study determined that there was a significant negative relationship between the other dimensions of the constructivist learning environment and the dimensions of the academic procrastination scale, except for the dimension of learning to express their thoughts. In this context, it can be said that as the level of realization of constructivist learning environment characteristics increases, students' academic

procrastination behaviors decrease, or as students' academic procrastination behaviors increase, the level of realization of constructivist learning environment characteristics decreases.

The Predictive Power of Constructivist Learning Environment on Academic Procrastination Behaviors

The findings obtained from simple linear regression analysis for the solution of the sub-problem are presented in Table 5. When Table 5 is examined, as a result of simple linear regression analysis, it is seen that the constructivist learning environments scale score has a significant moderate negative relationship with academic procrastination scale scores ($R = 0.323$, $R^2 = 0.104$, $p < .001$). Accordingly, it can be said that the level of realization of the predictor variable constructivist learning environments explains 10% of students' academic procrastination behaviors. In other words, 10% of the change in academic procrastination behaviors scale scores can be explained by the frequency level of constructivist learning environment features. When the standardized ($\beta = -0.323$) and t values are examined, it is understood that the level of realization of constructivist learning environment features is a significant predictor of academic procrastination behaviors. When the t values related to the significance of the regression coefficients are examined, a 1 (one) unit increase in the level of realization of constructivist learning environment characteristics can cause a 0.215-unit decrease in

Table 6. Multiple linear regression analysis results for the prediction of academic procrastination behaviors by the sub-dimensions of the constructivist learning environments scale

Variables	B	SE	β	t	p
Fixed	51.667	1.414	-	36.550	.000
Learning About Science	-0.718	0.079	-0.327	-9.081	.000
Learning to Communicate	-0.201	0.071	-0.092	-2.833	.005
Learning to Learn	-0.163	0.063	-0.084	-2.568	.010
Learning to Express Thoughts	0.199	0.086	0.071	2.312	.021
Learning About the World	0.022	0.087	0.009	0.255	.798
R = 0.388 R ² = 0.151					
F (5, 1050) = 37.205 p = .000					

academic procrastination behaviors. In this context, it can be said that a constructivist learning environment affects the decrease in students' academic procrastination behaviors.

The Predictive Power of the Sub-Dimensions of the Constructivist Learning Environments Scale on Academic Procrastination Behaviors

Table 6 presents multiple linear regression analysis findings to solve the sub-problem "Are the sub-dimensions of the constructivist learning environments scale a significant predictor of academic procrastination behaviors?" When Table 6 is examined, there is a significant relationship ($R = 0.388$, $R^2 = 0.151$, $p < 0.01$) between learning science, learning to communicate, learning to learn, learning to express thoughts, and learning the world dimensions of the constructivist learning environments scale and academic procrastination behaviors.

The dimensions of the constructivist learning environments scale together to explain 15% of the total variance of academic procrastination. According to the standardized regression coefficients (β), the relative order of importance of the predictor variables on academic procrastination is learning science ($\beta = -0.327$), learning to communicate ($\beta = -0.092$), learning to learn ($\beta = -0.084$), learning to express thoughts ($\beta = 0.071$) and learning the world ($\beta = 0.009$). When the t values related to the significance of the regression coefficients are examined, it is seen that all dimensions of the constructivist learning environments scale except the learning the world dimension are significant predictors of academic procrastination. According to the regression analysis results, the regression equation predicting academic procrastination is as follows:

$$\text{Academic Procrastination} = 51.667 + (-0.718 \times \text{Learning About Science Scale Score}) + (-0.201 \times \text{Learning to Communicate Scale Score}) + (-0.163 \times \text{Learning to Learn Scale Score}) + (0.199 \times \text{Learning to Express Thoughts}) + (0.022 \times \text{Learning About the World Scale Score})$$

Discussion, Conclusion, and Recommendations

As a result of the analysis of the total scores obtained from the scales, the study found that there was a significant negative relationship between the level of

realization of constructivist learning environment characteristics and academic procrastination behaviors. In addition, as a result of regression analysis, the study found that the level of realization of constructivist learning environment characteristics was a significant predictor of students' academic procrastination behaviors. When the t values related to the significance of the regression coefficients are examined, a 1 (one) unit increase in the level of realization of constructivist learning environment features can cause a 0.215-unit decrease in academic procrastination behaviors. The dimensions of the constructivist learning environments scale together explain 15% of the total variance of academic procrastination. Based on these findings, the study concluded that students' academic procrastination behaviors decrease as the realization of constructivist learning environment features increases. According to this result, it can be said that having or not having constructivist learning environment characteristics affects students' academic procrastination behaviors at a certain level. If there are characteristics of the constructivist learning environment in the learning environment, academic procrastination behaviors occur less in students. Therefore, providing the necessary conditions for creating constructivist learning environments is essential in reducing academic procrastination behaviors. In constructivist learning environments, the teacher expects students to fulfill their responsibility for learning. This learning environment requires students to be active in their academic tasks. Although direct research in the literature to support these findings has not been found, many studies have determined that there is a significant relationship between academic procrastination behaviors and students' motivation (Forbes et al., 2001; Rakes & Dunn, 2010; Schuhmacher, 2022) and self-regulation skills (Grunschel et al., 2013; Zacks & Hen, 2018). The reason for finding a significant relationship between the constructivist learning environment and academic procrastination behaviors may be that motivation and self-regulation skills are essential features of the constructivist learning environment. Do et al. (2023) found that learners' motivation to learn increases significantly when the constructivist learning environment can be improved. According to Zajda (2023), learners' characteristics, participation, and motivational strategies affect the quality of the constructivist learning environment. Tynjälä (1999) found that a constructivist

learning environment supports intrinsic motivation. According to Dignath-van Ewijk and Van der Werf (2012), a constructivist learning environment enables self-regulated learning. Li et al. (2023) found that constructivist practices in the learning environment were related to students' self-regulation skills. In this context, it can be said that increasing learners' motivation and developing self-regulation leads to decreased academic procrastination behaviors in a constructivist learning environment. In the study conducted by Santyasa et al. (2020), the results determined that project-based learning, one of the learning models of the constructivist approach, positively affected student achievement and academic procrastination behaviors. It can be said that it supports the result of this research. In addition, the results of different studies investigating the relationship between different learning environments, such as online, blended, and face-to-face learning environments, and academic procrastination behaviors show that there is a significant relationship between learning environment and academic procrastination (Bayrak, 2018; Klingsieck et al., 2012; Sun & Kim, 2022; Yaraş, 2021; Yılmaz, 2017).

When the relationships between the dimensions of the scales were examined, a moderate negative relationship was found between both the "irresponsibility and preference" and "environment and feelings" dimensions of academic procrastination and the "learning about science" dimension of the constructivist learning environment. The relationships between the academic procrastination scale and the other dimensions of the constructivist learning environment scale, except for the learning science dimension, were found to be at a low level. As a result of the multiple regression analysis, the study determined that the other dimensions of the constructivist learning environments scale, except the learning the world dimension, were significant predictors of academic procrastination, and the "learning about science" dimension ranked first in terms of the relative importance of the predictor variables on academic procrastination. This dimension describes a learning environment where even unconventional ideas are welcomed, and teachers work diligently to create a friendly, supportive learning environment to encourage student participation in learning science (Nix et al., 2005). However, since the science learning dimension is based on student research, it is understood that it is also related to academic procrastination behaviors. The "learning about science" dimension of the constructivist learning environments scale requires the student to access information through research, questioning, and his/her efforts rather than presenting ready-made information to the student. For students to be in this effort, it can be said that they should not engage in academic procrastination behavior. It was concluded that learning about science, one of the features of a constructivist learning environment is more effective in reducing academic procrastination behaviors than other constructivist learning environment features. The results of this study show that in reducing academic procrastination

behaviors, external variables such as the learning environment should not be ignored in addition to internal variables such as the learner's characteristics.

Especially as a result of this research, it is noteworthy that there is a significant negative relationship between the "learning science" feature of the constructivist learning environment and academic procrastination and that this dimension has more predictive power for academic procrastination. In this context, it can be said that academic procrastination behaviors will decrease if a sincere and supportive learning environment can be created that arouses curiosity to learn science, allowing learners to experience that scientific knowledge is in continuous development, where unusual ideas are welcomed. They know that they will not be ridiculed.

Considering that a constructivist learning environment is a significant predictor of academic procrastination behaviors, efforts should be made to create more constructivist learning environments to reduce academic procrastination behaviors at a certain level. In addition, qualitative or mixed-method studies can be conducted to examine the academic procrastination behaviors of students in schools where programs based on a constructivist learning approach can be effectively implemented.

The limitations of this study include the fact that the schools in which this research was conducted did not reflect the characteristics of the constructivist learning environment at a high level, only the student perception of the constructivist learning environment and the demographic characteristics of the students. This research data was collected from schools (such as overcrowded classrooms) that have negativities in providing the necessary conditions for a constructivist learning environment, which can be seen as a limitation. For this reason, this research can be conducted in schools with more features of a constructivist learning environment, technical equipment, and digital competence. In addition, experimental research can be conducted to determine whether academic procrastination behaviors are reduced by creating constructivist learning environments in a school where academic procrastination behaviors are expected.

Ethics Committee Permission

Ethical permission for this research was obtained from the ethics committee of Pamukkale University Social and Human Sciences Research with the decision dated 21.07.2022 and numbered 68282350/2022/G16.

Genişletilmiş Özet

Giriş

Yapılandırmacı öğrenme yaklaşımını temele alan öğrenme ortamlarının öğrenenlerin bilişsel ve duyuşsal gelişimleri üzerinde olumlu etkilerinin olduğuna ilişkin bir çok araştırma sonucu alanyazında bulunmaktadır. (Ayaz ve Şekerci, 2015; Baş ve Beyhan, 2017; Batdı, 2023; Do vd.,

2023; Kim, 2005). Yapılan araştırmalarda yapılandırmacı öğrenme ortamı özelliklerinin hem öğrenen motivasyonu hem de öğrenenlerin öz düzenleme becerileri üzerinde olumlu etkileri olduğu belirlenmiştir (Bay vd., 2010; Do vd., 2023; Doğanay ve Sarı, 2012; Zajda, 2023). Bu bağlamda yapılandırmacı öğrenme ortamı özelliklerinin öğrencilerin akademik erteleme davranışları üzerinde etkili olabileceği düşünülerek bu araştırma tasarlanmıştır. Yapılandırmacı öğrenme ortamlarında öğrenme sorumluluğunun ve öğrenme sürecinin kontrolünün öğrenende olması öğrenenin akademik görevlerini zamanında ve aksatmadan tamamlamasını gerektirmektedir. Yapılandırmacı öğrenme ortamının öğrenenlerin motivasyonundaki artışa yol açmasının, tutum ve başarı üzerinde olumlu etkisi yanında öğrenme ortamını olumsuz etkileyen değişkenlerden biri olan akademik erteleme davranışları üzerinde de olumlu etki oluşturması beklenmektedir. Alanyazında akademik erteleme davranışları ile ilgili yapılan araştırmaların yoğunlukla akademik ertelemeyi etkileyen içsel yani kişisel, psikolojik etmenler üzerinde yapıldığı anlaşılmaktadır. Akademik erteleme eğiliminin içsel nedenlerini azaltmak ya da önlemek elbette oldukça önemlidir. Ancak dışsal nedenleri kontrol altına alma ve müdahale etmenin içsel nedenlere göre daha kolay olabileceği söylenebilir. Bu nedenle bu araştırmada öğrenme ortamının akademik erteleme eğilimi üzerindeki etkisinin araştırılmasına odaklanılmıştır. Bu araştırmanın, hem alanyazındaki eksikliğin giderilmesine hem de akademik erteleme davranışlarını azaltmada etkili olabilecek öğrenme ortamının tasarlanmasına katkı sağlayacağı düşünülmüştür.

Bu araştırmada, akademik erteleme davranışları ile yapılandırmacı öğrenme ortamı arasındaki ilişkiyi, öğrenci algılarına göre incelemek ve bununla birlikte yapılandırmacı öğrenme ortamının akademik erteleme davranışlarını yordama gücünü belirlemek amaçlanmıştır.

Yöntem

Araştırmada ilişkisel tarama modeli kullanılmıştır. Araştırmanın çalışma evrenini, Şanlıurfa ili merkez ilçelerindeki ortaokul öğrencileri oluşturmaktadır. Araştırmada oranlı tabakalı örnekleme yöntemi kullanılmıştır. Tabakalandırma yoluyla, araştırmaya katılan bireylerin bireysel özellikleri ve çalışma evreninin bu bireylerin oranını doğru bir şekilde temsil etmesi sağlanmaktadır (Creswell, 2003). Toplam 1505 ortaokul öğrencisinden veriler toplanmıştır. Ancak ölçek maddelerinin büyük bir kısmını boş bırakan öğrencilerin ölçekleri ile uç veriler çıkarıldıktan sonra ulaşılan 1056 ölçek üzerinde analiz yapılabilmektedir. Araştırmanın verileri, Ocak ve Karataş (2019) tarafından geliştirilen "Ortaokul Öğrencilerinin Akademik Erteleme Davranışı Ölçeği" ve Küçüközer vd. (2012) tarafından Türkçeye uyarlanan "Yapılandırmacı Öğrenme Ortamları Ölçeği" ile toplanmıştır. Verilerin analizinde, korelasyon, basit ve çoklu doğrusal regresyon analizi kullanılmıştır.

Bulgular

Ölçeklerin boyutları arasındaki ilişkiler incelendiğinde; akademik erteleme ölçeğinin hem "sorumluluk ve tercih etme" hem de "çevre ve hisler" boyutu ile yapılandırmacı öğrenme ortamı ölçeğinin "bilimi öğrenme" boyutu arasında orta düzeyde negatif yönde ilişki bulunmuştur. Akademik erteleme ölçeğinin boyutları ile yapılandırmacı öğrenme ortamı ölçeğinin bilimi öğrenme boyutu dışında diğer boyutlar arasındaki ilişkilerin ise düşük düzeyde olduğu belirlenmiştir. Ayrıca yapılandırmacı öğrenme ortamları ölçeği boyutları birlikte, akademik erteleme davranışları arasında anlamlı bir ilişki ($R = 0.388$, $R^2 = 0.151$) bulunmuştur. Yapılandırmacı öğrenme ortamları ölçeğinin boyutlarının, akademik erteleme davranışlarını anlamlı olarak yordadığı ve akademik ertelemenin toplam varyansının %15'ini açıkladığı belirlenmiştir. Standardize edilmiş regresyon katsayılarına (β) göre; yordayıcı değişkenlerin akademik erteleme üzerindeki görece önem sırası, bilimi öğrenme ($\beta=-0.327$), iletişim kurmayı öğrenme ($\beta=-0.092$), öğrenmeyi öğrenme ($\beta=-0.084$), düşünceleri ifade etmeyi öğrenme ($\beta=0.071$) ve dünyayı öğrenme ($\beta=0.009$) biçimindedir. Regresyon katsayılarının anlamlılığına ilişkin t değerleri incelendiğinde ise; yapılandırmacı öğrenme ortamları ölçeğinin dünyayı öğrenme boyutu hariç diğer boyutlarının akademik ertelemenin anlamlı yordayıcıları olduğu görülmektedir. Öğrencilerin yapılandırmacı öğrenme ortamı algı düzeyi arttıkça öğrencilerin akademik erteleme davranışlarının azaldığı sonucuna ulaşılmıştır.

Tartışma ve Sonuç

Araştırmanın bulgularını destekleyecek alanyazında doğrudan bir araştırma olmamakla birlikte, yapılan bir çok araştırmada akademik erteleme davranışları ile öğrencilerin motivasyonu (Forbes vd., 2001; Schuhmacher, 2022; Rakes ve Dunn 2010), öz düzenleme becerileri arasında anlamlı ilişki olduğu (Zacks ve Hen, 2018; Grunschel vd., 2013) belirlenmiştir. Yapılandırmacı öğrenme ortamı ile akademik erteleme davranışları arasında anlamlı bir ilişki bulunmasının nedeni, motivasyon ve öz düzenleme becerilerinin yapılandırmacı öğrenme ortamının önemli bir özelliği olmasından kaynaklı olabilir. Do vd. (2023) tarafından yapılan araştırma sonucunda, yapılandırmacı öğrenme ortamı iyileştirilebildiğinde, öğrenenlerin öğrenme motivasyonlarının önemli ölçüde arttığı bulunmuştur. Zajda'a (2023) göre de öğrenenlerin özellikleri, katılımı ve motivasyon stratejileri yapılandırmacı öğrenme ortamının niteliğini etkilemektedir. Tynjälä (1999) yapılandırmacı öğrenme ortamının içsel motivasyonu desteklediğini belirlemiştir. Dignath-van Ewijk, ve Van der Werf'e (2012) göre, yapılandırmacı öğrenme ortamı öz düzenlemeli öğrenmeye olanak sağlamaktadır. Li vd. (2023), öğrenme ortamındaki yapılandırmacı uygulamaların öğrencilerin öz-düzenleme becerileri ile ilişkili olduğu belirlenmiştir. Bu bağlamda yapılandırmacı öğrenme ortamında, öğrenenlerin motivasyonunun artması ve öz düzenleme becerilerinin gelişmesinin akademik erteleme davranışlarını azalmasına neden olduğu söylenebilir.

Santayasa vd. (2020) tarafından yapılan araştırmada, yapılandırmacı yaklaşımın öğrenme modellerinden biri olan proje tabanlı öğrenmenin hem öğrenci başarısı üzerinde hem de akademik erteleme davranışları üzerinde olumlu etkiye sahip olduğu belirlenmiştir. Ayrıca çevrimiçi, harmanlanmış, yüz yüze biçiminde farklı öğrenme ortamları ile akademik erteleme davranışları arasındaki ilişkileri araştıran farklı araştırma sonuçları da öğrenme ortamı ile akademik erteleme arasında anlamlı bir ilişki olduğunu göstermektedir (Bayrak, 2018; Klingsieck vd., 2012; Sun ve Kim 2022; Yaraş, 2021; Yılmaz, 2017).

Akademik erteleme üzerindeki görece önem sırasına göre de “bilimi öğrenme” boyutunun ilk sırada yer aldığı belirlenmiştir. Bu boyut; bilimi öğrenmeye öğrencilerin katılımını teşvik etmek için onların alışılmadık fikirlerinin dahi olumlu karşılandığı ve öğretmenlerin samimi, destekleyici bir öğrenme ortamı oluşturmak için özenle çalıştığı bir öğrenme ortamını tanımlamaktadır (Nix vd., 2005). Dolayısıyla bu öğrenme ortamının akademik erteleme davranışlarını azaltmada etkili olduğu söylenebilir.

Öneri

Bu araştırmanın sonuçları, akademik erteleme davranışlarının azaltılmasında öğrenenin kişisel özellikleri gibi içsel değişkenler yanında öğrenme ortamı gibi dışsal değişkenlerin de göz ardı edilmemesi gerektiğini göstermektedir. Yapılandırmacı öğrenme ortamının akademik erteleme davranışlarının anlamlı yordayıcısı olduğu düşünüldüğünde akademik erteleme davranışlarının belli bir düzeyde azalması için daha fazla yapılandırmacı öğrenme ortamlarının oluşturulması için çaba harcanabilir. Ayrıca yapılandırmacı öğrenme yaklaşımını temele alan programların etkili bir biçimde uygulanabildiği okullardaki öğrencilerin akademik erteleme davranışlarını derinlemesine incelemeye yönelik nitel veya karma yöntemle araştırmalar yapılabilir.

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