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The Effect of Cooperative Learning on the Learning Approaches of Students with Different Learning Styles

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Abstract

Problem Statement: For this study, a cooperative learning process was designed in which students with different learning styles could help each other in heterogeneous groups to perform teamwork-based activities. One aspect deemed important in this context was whether the instructional environment designed to reach students with different learning styles would allow students to better engage in deep learning.

Purpose of Study: The purpose of the study was to determine the effectiveness of cooperative learning activities in ensuring deep learning according to students' learning styles.

Methods: For this single-group pretest–posttest study, a purposive sampling method was used to form the sample of 39 students attending the course Special Teaching Methods as part of a pedagogical certification program at a state university in Turkey. During the study, the Grasha–Riechmann Student Learning Style Inventory was used to determine students' learning styles and the study process questionnaire to determine their learning approaches. Covariance analysis was performed for all research questions.

Findings and Results: Posttest student scores for the deep learning approach demonstrated significant differences depending on learning style. According to these scores, students with cooperative and competitive learning styles fared better with the deep learning approach than students with avoidant, dependent, and participative learning styles. By contrast, the students' posttest scores for surface learning demonstrated no significant differences regarding learning styles.

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Conclusions and Recommendations: The researchers recommend increasing both the duration of study activities and their focus on different techniques of cooperative learning, as well as considering the basic principles of cooperative learning to ensure effective designs for teamwork-based discussion activities, including those used for research.

Keywords: Cooperative learning, learning style, deep learning, surface learning

Introduction

"For many of us, the Learning Paradigm has always lived in our hearts. As teachers, we want above all else for our students to learn and succeed, but the heart's feeling has not lived clearly and powerfully in our heads. Now, the elements of the Learning Paradigm permeate the air. Our heads are beginning to understand what our hearts have known. However, none of us has yet put all the elements of the Learning Paradigm together in a conscious, integrated whole" (Barr & Tagg, 1995, p.2).

In the 20 years that have passed since Barr and Tagg (1995) expressed the abovementioned opinion, the importance accorded to effective learning has increased considerably, and numerous studies have been conducted on different aspects of the learning paradigm in order to answer the question, "How can we ensure effective learning?" Effective learning refers to a process in which students actively employ metacognitive strategies that involve planning, observation, and reflection (Watkins, Carnell, Lodge, Wagner, & Whalley, 2002). In this context, the term effective learners refers to students who are aware of their own learning processes and who systematically endeavor to make their learning experiences more meaningful in order to achieve their goals. Used for achieving effective learning, this approach is also called deep learning, a concept first described in 1976 by Marton and Säljö (Biggs, Kember, & Leung, 2001) and defined as one of two approaches used by students when they engage in learning activities. Deep learning is associated with a need for meaningful learning experiences. For example, students who display the deep learning approach participate in learning processes with genuine interest and by asking questions that they wish to see answered, while also deriving more enjoyment from the overall learning process (Biggs & Tang, 2011). The other approach described in Marton and Säljö's (1976) study is the surface learning approach, which in contrast to deep learning involves negative feeling toward the learning process and an emphasis on remembering information instead of questioning and understanding (Biggs & Tang, 2011). Achieving meaningful learning—that is, achieving effective learning—is possible only for students who employ a deep learning approach.

In Barr and Tagg's views described above (1995, p. 2), creating environments in which students can experience effective and deep learning requires a holistic consideration of all learning variables. Among the numerous different variables associated with learning, the researchers focused first on the learning style, believed to have a determining role on students' learning approaches due to differences in

their individual preferences regarding learning activities, and second on instructional methods, which assume a key role in creating learning environments influenced by students' individual preferences.

The chief view of the concept of learning styles is that different individuals exhibit different ways of learning and that effective learning is achieved when the instructional process is compatible with these styles. Learning styles may vary according to an individual's personality, the approaches that he or she uses to process information, and/or his or her preference regarding social interactions. Parallel to Sonnenwald and Li's (2003) approach, this study has adopted a learning style classification system based on student's preferences regarding social interactions given the importance accorded social interactions in learning activities. According to Grasha (1990), who previously conducted studies of the classification of learning styles based on social interaction preferences, learning styles reflect students' thoughts, ways of interacting with others, and preferences regarding learning environments and experiences. In this context, it is possible to describe six learning styles: competitive, cooperative, avoidant, participative, dependent, and independent. Students showing a competitive learning style engage in learning mostly to perform better than other students in their class, whereas students with a cooperative learning style believe that they can learn by sharing their opinions and skills with other students. Meanwhile, students with an avoidant learning style are disinterested in the topics taught and show unwillingness to participate in any class or learning activity. Students demonstrating a participative learning style, by contrast, enjoy taking part in class and learning activities. Lastly, students with a dependent learning style display very little interest toward the class and work only to meet minimum requirements, while students with an independent learning style are confident in their skills and prefer to learn information that they consider to be important (Grasha, 2002).

The most important factor involved in creating instructional environments that ensure deep learning for all of the different learning styles is the instructional method. Certain researchers (Kreke, Fields, & Towns, 1998; Tuan, Chin, Tsai, & Cheng, 2005) have described that cooperative group learning can ensure effective learning for students with different learning styles. Cooperative learning is a method in which students work together in small groups to learn academic content (Slavin, 2011). Sonnenwald and Li (2003) have described cooperative learning to be able to improve academic performance and success among all students, regardless of individual differences. Added to being inherently sensitive to students' learning styles, cooperative learning also favorably affects students' thinking and questioning skills (Felder & Brent, 2007; Klimovienė, Urbonienė, & Barzdžiukienė, 2006), largely because working in teams—and thereby engaging an environment and context closer to real-life—increases students' critical thinking skills and supports their ability to put theory into practice (Brown, Sivabalan, McKenzie, & Booth, 2001). Furthermore, learning by working in teams also makes it easier for students to engage in deep learning (Macpherson, 2007; Millis, 2010), since activities in the cooperative learning approach are designed especially to ensure a rich deep learning experience

(Macpherson, 2007). Given these characteristics, cooperative learning is well-suited both for creating instructional environments compatible with all learning styles and for ensuring deep learning among students.

The opinion that being sensitive to students' learning styles is important in ensuring effective learning is not new, but something that other studies have asserted for decades (Felder & Brent, 1994; Grasha, 2002; Kolb & Kolb, 2005; Mutlu & Aydoğdu, 2003; Sonnenwald & Li, 2003). Surprisingly, however, is that despite regular emphasis on the importance of individual differences, such differences continue to be only incompletely taken into consideration in learning environments. In response, a cooperative learning process was designed for this study in which students with different learning styles help each other in heterogeneous groups to perform teamwork-based activities. One aspect deemed important in this context was whether the learning environment designed to reach students with different learning styles would allow students to better engage in deep learning. Given this consideration, the researchers attempted to answer the following questions during the study:

1. Does the cooperative instructional design promote any differences in students' deep learning posttest scores according to learning styles when pretest scores are controlled for?
2. Does the cooperative instructional design promote any differences in students' surface learning posttest scores according to their learning styles when pretest scores are controlled for?

Method

Research Design

The study adopted a single-group pretest–posttest design. Subject scores regarding the dependent variable obtained prior to the study activities were referred to as the pretest scores, while scores obtained after the completion of the study activities were referred to as the posttest scores. Both types were obtained by using the same subjects and study tools (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2010).

Study Group

A purposive sampling method was used to determine the study group, which is a method that allows the in-depth evaluation of cases and situations with a wealth of information to consider (Patton, 1999). This study was conducted with a group of 39 students attending the course Special Teaching Methods as part of a pedagogical certification program provided at a state university in Turkey. Of the students in the study group, 28 (72%) were women and 11 (28%) were men.

Research Instrument and Procedure

Grasha–Riechmann Student Learning Style Inventory. This inventory developed by Grasha–Reichmann (Grasha, 2002) was used to determine students' learning styles. The scale was previously adapted to Turkish by Zereyak (2005), who also performed its associated validity and reliability studies. In this study, the inventory

was administered to 239 students receiving their education in four different departments of Ankara University's Faculty of Education. Based on data obtained from the study group, Cronbach's alpha internal consistency coefficient of the entire scale was .83, while the coefficient of the subdimensions varied from .53–.78. In this study, the internal consistency of the entire scale was .77.

Study process questionnaire. To assess students' study approaches, this study used the study process questionnaire developed by Biggs et al. (2001) for university students that was previously adapted to Turkish by Yılmaz and Orhan (2011). The questionnaire consisted of 20 items organized under two dimensions: deep learning and surface learning. Of the items on this questionnaire, 10 related to deep learning and the other 10 to surface learning. For the questionnaire, the Cronbach's alpha coefficient for the deep learning approach was .79, while the coefficient for the surface learning approach was .73. For this study, Cronbach's alpha coefficient for the deep learning approach was .81, while the coefficient for the surface learning approach was .75.

Procedure

The study was conducted for a period of 6 weeks with a group of 39 students attending the course titled Special Teaching Methods during the second semester of a pedagogical certification program in a Turkish state university. A week before commencing the study procedures, the Grasha–Riechmann Student Learning Style Inventory and study process questionnaire were administered to the students, who were also given information regarding the overall framework of the study procedures and the basic principles of cooperative learning and teamwork. Following this, the students were assigned into heterogeneous groups in consideration of their first-semester grades, inventory scores, gender, and department. To ensure that the groups socialized and developed a team spirit among their members, the master designer technique was employed (Açıkgöz, 1992). To further reinforce team spirit, each group was also instructed to choose a group name and group prize.

The theoretical and applied activities related to the instructional methods included in this study (i.e., cooperative learning, the 5E teaching method, multiple intelligence, six hats, examples, discussions, drama, role playing, problem-based teaching, and project-based teaching methods) were implemented during the 6-week study period by using different cooperative learning techniques (i.e., team game tournament, student teams achievement divisions, jigsaw, and group investigation). The principles of cooperative learning were followed during these study activities, and each week a lesson plan was formed regarding the method being used and implemented. Prior to applying assessment criteria regarding the lesson plans, students were informed of the criteria. Feedback regarding the activities and study process was also obtained every week. At the end of the study activities, the study process approach questionnaire was administered again.

Data Analysis

All statistical analyses of the study data were performed by using the Statistical Package for the Social Sciences version 17.0. Covariance analysis (ANCOVA) was performed for all of the study's research questions. Within the context of ANCOVA,

the LSD test was used to perform multiple comparisons of the mean scores. The level of statistical significance was accepted to be $p < .05$.

SD values were used to group learning style subdimensions. Score ranges within the five-point scales were determined based on a single SD value. Afterward, the arithmetic mean for each learning style was calculated for every student to determine his or her predominant learning style.

Table 1

Score Ranges for the Grasha–Reichmann Student Learning Style Inventory

Learning Style	Very Low	Low	Average	High	Very High
Independent	[1.0–3.0]	[3.1–3.4]	[3.5–3.9]	[4.0–4.4]	[4.5–5.0]
Avoidant	[1.0–2.0]	[2.1–2.3]	[2.4–2.7]	[2.8–3.1]	[3.2–5.0]
Cooperative	[1.0–2.7]	[2.8–3.3]	[3.4–3.9]	[4.0–4.5]	[4.6–5.0]
Dependent	[1.0–2.9]	[3.0–3.4]	[3.5–3.9]	[4.0–4.4]	[4.5–5.0]
Competitive	[1.0–1.2]	[1.3–1.9]	[2.0–2.7]	[2.8–3.5]	[3.6–5.0]
Participative	[1.0–2.2]	[2.3–2.7]	[2.8–3.3]	[3.4–3.9]	[4.0–5.0]

Table 1 provides the ranges used to evaluate scores from the Grasha–Reichmann Student Learning Style Inventory. To group students according to the subdimensions of the learning styles, the arithmetic means of their scores from the inventory were considered according to the ranges described above. For each student, a learning style whose range corresponded to the student's highest score was accepted as his or her predominant learning style. The frequency of learning styles among the students appears in Table 2.

Table 2

Frequency of Student Learning Styles

Style	Frequency	Percentage (%)
Independent	7	17.9
Avoidant	7	17.9
Cooperative	6	15.4
Dependent	5	12.8
Competitive	7	17.9
Participative	7	17.9
Total	39	100.0

As shown in Table 2, the distribution of learning styles among the 39 students was roughly equal. Independent, avoidant, competitive, and participative learning styles were each applicable for seven students, the cooperative learning style for six students, and the dependent learning style for five students.

Resulst

Findings Related to the First Research Question

To perform ANCOVA, it was necessary to satisfy assumptions regarding normality, the equation of the variance, and the equation of the regression lines. Based on analyses performed to satisfy the assumptions, it was determined with the Kolmogorov–Smirnov test that the pre- and posttest deep learning scores had normal distribution (pretest deep learning approach $z = .76$, $p = .61$; posttest deep learning approach $z = .82$, $p = .51$). Levene's test demonstrated that the variance of the data was homogenous ($F(5–33) = 1.79$; $p = .14$; $p > .05$). It was also observed that the effect of the group pretest results on posttest scores was not significant ($F(5–27) = 1.554$; $p = .21$, $p > .05$). Based on this observation, the slopes of the regression lines calculated for predicting posttest results were equal. The corrected means of the deep approach scores appear in Table 3.

Table 3

Corrected Mean Values of Deep Approach Scores

Variable	Mean	Corrected Mean
Independent	35.00	32.83
Avoidant	29.71	31.96
Cooperative	37.83	38.04
Dependent	32.20	31.76
Competitive	38.42	37.71
Participative	31.00	31.79

As shown in Table 3, cooperative and competitive learning styles had the highest mean values (38.04 and 37.71, respectively). ANCOVA was performed to determine whether there was any significant difference between the groups' corrected posttest scores, the results of which appear in Table 4.

Table 4

Covariance Analysis Results for Deep Learning Approach Posttest Scores

Source of Variance	Sum of Squares	df	Mean of Squares	F	p
Pretest	188.22	1	188.22	9.25	.005
Style	287.30	5	57.46	2.82	.03
Error	650.55	2	20.33		
Total	46431.00	39			
Corrected Total	1278.97	38			
Change in R2 = .49 (Corrected R2= .40)					

As presented in Table 4, a significant difference was observed between the groups concerning their posttest scores corrected according to their pretest ones ($F(5–32) = 2.82$, $p < .05$). To determine the source of this difference, a least significant difference (LSD) test was performed for the corrected mean scores, the results of which reveal a significant difference between the cooperative learning style and the avoidant, dependent, and participative learning styles, as well as between these three styles and the competitive learning style. It was thus observed that students with the cooperative ($X = 38.04$) and competitive ($X = 37.71$) learning styles had higher scores with the deep learning approach than students with the avoidant ($X = 31.96$), dependent ($X = 31.76$), and participative ($X = 31.79$) learning styles.

Findings Related to the Second Research Question

To perform ANCOVA, it was necessary to satisfy assumptions regarding normality, the equation of the variance, and the equation of the regression lines. Based on the analysis performed to satisfy the assumptions, it was determined with the Kolmogorov–Smirnov test that pre- and posttest surface learning scores had normal distribution (pretest surface learning approach, $z = 1.04$, $p = .22$; posttest surface learning approach, $z = .50$, $p = .96$). Levene's test demonstrated that the variances of data were homogenous ($F(5–33) = 1.67$; $p = .17$; $p > .05$). It was also observed that the effect of the group pretest results on posttest scores was not significant ($F(5–27) = 1.63$; $p = .19$, $p > .05$), which indicates that the slopes of the regression lines calculated for predicting the posttest results were equal. The values of the corrected means for the surface approach scores appear in Table 5.

Table 5

Corrected Mean Values for Surface Approach Scores

Variable	Mean	Corrected Mean
Independent	26.00	26.72
Avoidant	32.57	32.25
Cooperative	24.66	25.26
Dependent	30.00	29.58
Competitive	27.00	26.29
Participative	26.28	26.40

As shown in Table 5, the avoidant and dependent learning styles had the highest mean values (X = 32.25 and X = 29.581, respectively). ANCOVA was performed to determine whether there was any significant difference between the corrected posttest scores of the groups, the results of which are provided in Table 6.

Table 6

Covariance Analysis Results for Surface Learning Approach Posttest Scores

Source of Variance	Sum of Squares	df	Mean of Squares	F	p
Pretest	118.96	1	118.96	2.37	.13
Style	227.14	5	45.43	0.90	.48
Error	1601.51	32	50.04		
Total	31969.00	39			
Corrected Total	2005.89	38			
Change in R2 = .202 (Corrected R2= .052)					

As shown in Table 6, no significant difference was observed between the groups concerning their posttest scores corrected according to their pretest ones. As such, the posttest scores of the surface learning approach demonstrated no significance differences regarding student learning styles ($F(5–32) = 45.43$, $p > .05$).

Discussion and Conclusion

According to ANCOVA results for the first research question, students showing cooperative and competitive learning styles had higher deep learning approach scores than students with the avoidant, dependent, and participative learning styles.

A greater increase was observed in the deep learning scores of students with the cooperative and competitive learning styles than other students. This observation can be explained by the greater suitability of the teamwork approach used during this study for students displaying the cooperative learning style, as well as with the motivation resulting from the award described at the beginning of the study for students displaying the competitive learning style. At the same time, the results also indicated that students exhibiting the avoidant, dependent, and independent learning styles could not adapt to the cooperative learning method implemented during the 6-week study period. To explain, most likely the avoidant learning style is associated with a dislike of interactions, while the dependent learning style is more suitable for teacher-based approaches; at the same time, the independent learning style is more compatible with teaching based on more individualized steps and activities. In this context, it might be necessary to implement the cooperative learning approach for longer periods in order to obtain better results for all learning styles. As different researchers (Kreke et al., 1998; Shindler, 2004; Sonnenwald & Li, 2003) have described, a learning environment based on cooperation will provide a better opportunity for reaching students with different learning styles. The long-term application of this approach will also enlarge the student group that can be effectively reached. Many studies have described that student-centered models involving activities such as group problem-solving exercises, group presentations, and group homework have the effect of increasing the deep learning approach scores of students (Hall, Ramsay, & Raven, 2002; Liddle, 2000). Fok and Watkins (2007) implemented a cooperative learning approach supported by constructivist teaching methods to secondary-school students for a period of 2 months and described improvement in the deep learning approach of these students. Azmahani, Khairiyah, Amirmudin, and Jamaludin (2013), by contrast, implemented the cooperative problem-based learning approach to first-year university engineering students for three semesters and made similar observations regarding the increase in students' deep learning scores by the end of the period. In another study, courses for third-year teacher candidates were conducted by using the student teams achievement division technique for a period of 12 weeks, after which it was described that the technique increased the students' deep learning strategies in comparison to direct teaching approaches (Wyk, 2012).

Interestingly, the study procedures did not result in any significant difference in the scores of students showing the participative learning style. Considering the characteristics of the different learning styles, it was expected that cooperative learning activities, which follow a learner-centered approach, would positively impact the learning approaches of participative students. In the literature, methods involving discussion and cooperative learning are described as being effective for students exhibiting cooperative, competitive, and participative learning styles (Hamidah, Sarina, & Kamaruzaman, 2009). Similarly, in describing the characteristics of the participative learning style, Grasha (2002) described how individuals with this learning style could benefit from group discussion activities. Considering findings in current literature, the unexpected results of our study regarding the participative learning style might have stemmed from the difficulties experienced by group

members in properly structuring and organizing their discussion activities during teamwork-based activities.

Uysal (2010) determined that the cooperative learning academic contrast technique positively affected the problem-solving skills of students with cooperative and competitive learning styles. Based on the view that deep learners possess the necessary skills for effective problem solving, such as the ability to focus on chief points to solve a problem, and the ability to identify relationships between a problem and available evidence (Houghton, 2004), a parallel can be drawn between this study and Uysal's (2010). In the context of the current study, the increase in deep learning scores observed among students with cooperative and competitive learning styles can be described in a manner similar to Uysal (2010) as the result of an environment created by cooperative learning favorable to the development of positive learning characteristics in these students.

Based on ANCOVA results of the second research question, posttest surface learning scores did not demonstrate any significant difference regarding student learning styles. However, an evaluation of the corrected means indicated that surface learning scores were especially higher among students with the avoidant and dependent learning styles.

Dart (2000; cited by Ellezi & Sezgin, 2002) has described how the deep learning approach might be associated with constructivism insofar as individuals use cognitive processes and improve them in order to constitute knowledge and meaning. The surface learning approach, by contrast, is related to teacher-centered instruction in which information is instantly transferred from teacher to student. Though instructors' insist upon the opposite, it is known that surface learning continues as the predominant approach in institutions of higher education (Coffield, Moseley, Hall, & Ecclestone, 2004). Various researchers (Marburger, 2005; Millis, 2010; Shimazoe & Aldrich, 2010) have described cooperative learning as a learner-centered approach that is effective for reducing surface learning among students and promoting deep learning instead. However, these researchers have also expressed that, in light of current data and given its predominance in higher education, the surface learning approach is not likely to be abandoned in the near future.

No significant difference was observed in the current study between learning styles with respect to surface learning scores. However, an evaluation of the corrected means demonstrated that the dependent and avoidant learning styles had the highest means in terms of surface learning. Since these learning styles also represent the most distant to student-centered learning processes, the observed results are unsurprising given the learning styles' characteristics. For students with a dependent learning style, the teacher is the primary source of learning and guidance is continually necessary. Students with the avoidant learning style, by contrast, do not act in a participative manner during learning processes, show no willingness to participate in any activity, and avoid all responsibility (Jonassen & Grabowski, 2011). Students exhibiting the dependent and avoidant learning styles thus experience difficulties in adapting to cooperative learning environments that emphasize team

motivation, individual responsibility, and team dependence. In these environments, such students become introverted, preferring to engage more in surface learning and to work only to meet minimum requirements.

The results also indicated that students continued to maintain their long-standing surface learning approaches. Similarly, in a study conducted by Hermann (2013) of university students for one semester, it was observed that cooperative learning activities did not result in any significant difference regarding students' surface learning scores. Earlier, in a study conducted by Çolak (2006) of high-school students for 6 months without taking learning styles into account, it was demonstrated that cooperative learning did not have any significant effect on surface learning scores. Nevertheless, implementing cooperative learning for longer periods could prompt different results. The strong influence of cooperative learning on learning styles might have the potential to manifest among the surface learning points of different learning styles. In sum, study data indicated that surface learning cannot be changed by short-term activities among individuals with different learning characteristics, especially in the context of an education system based on traditional exams. Considering the didactic approaches to which students have been exposed during much of their academic lives, it can be expected that they will experience short-term difficulties in adapting to study groups operating according to different approaches.

Conclusion and Recommendations

In this study, posttest student scores for the deep learning approach demonstrated significant differences depending on the students' learning style. As such, it was observed that students with the cooperative and competitive learning styles had higher scores in the deep learning approach than students with the avoidant, dependent, and participative learning styles. By contrast, students' posttest scores for surface learning demonstrated no significance differences regarding student learning styles, though an evaluation of the corrected means indicated that the surface learning scores were especially higher among students with the avoidant and dependent learning styles.

For future studies of the subject, the researchers recommend increasing the duration of the study activities and focusing more on different techniques of cooperative learning. In cooperative learning activities, it is important for students to have a favorable attitude toward cooperative learning, as well as for instructors and students to have a similar understanding of the cooperative learning activities being performed. For this reason, it is critical for instructors to pay attention to the preliminary preparation of cooperative learning activities, to consider the basic principles of cooperative learning, and to ensure an effective design for the teamwork discussion activities performed during cooperative learning. In this sense, the researchers also recommend that instructors pay attention to all of the abovementioned aspects while implementing cooperative learning and provide creative and authentic learning tasks and activities that will pique students' interest.

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The Effect of Cooperative Learning on the Learning Approaches of Students with Different Learning Styles

Atıf:

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Özet

Problem Durumu: "Nitelikli öğrenmeyi nasıl sağlayabiliriz?" sorusu eğitim bilimleri alanında yapılan çalışmaların odak noktasını oluşturan bir sorudur. Nitelikli öğrenenler kendi öğrenme süreçlerinin farkında olan, amaca ulaşmak üzere öğrenme sürecini planlı bir şekilde anlamlı kılmaya çalışan öğrenenlerdir. Nitelikli öğrenmeye yönelik bu yaklaşım, öğrencilerin bir öğrenme görevine yönelik kullandığı iki yaklaşımdan biri olan derin yaklaşım olarak da tanımlanır. Öğrenciler nitelikli bir öğrenme sürecinden uzaklaşarak ezberlemeye ve dışsal motivasyon odaklarına yöneldiğinde ise öğrenme yaklaşımlarının diğer bir boyutu olan yüzeysel öğrenme ortaya çıkar. Kalıcı ve anlamlı bir başka deyişle nitelikli öğrenmeye ulaşmak ise ancak nitelikli bir öğrenme sürecine odaklanan derin öğrenme yaklaşımını kullanan öğrenciler için olası görülmektedir. O zaman tüm öğrencilerde bu yaklaşıma doğru bir yönelimin sağlanması önemli görülmektedir. Ancak bireylerin öğrenmeye yönelik farklı yolları vardır; öğrenme sürecinde rol oynayan pek çok değişken bulunmaktadır. Bu çalışmada bu değişkenlerden biri olan öğrenme stilleri de araştırma sürecine dahil edilmiştir. Buradaki temel gerekçe bireylerin öğrenmeye yönelik farklı yolları olduğu ve öğretim süreci bu stillere uyduğunda öğrenmenin sağlanacağı düşüncesidir. Bu bağlamda önemli olan da farklı öğrenme stillerine sahip tüm öğrencilerin nitelikli öğrenmeler sağlayabileceği, derin öğrenmeye ulaşabileceği ortamların yaratılmasıdır. Böyle bir ortamı yaratmada en önemli faktör ise kullanılacak öğretim yöntemidir. İşbirlikli öğrenmenin farklı öğrenme stiline sahip öğrencilerde öğrenmeyi sağlayabildiği belirtilmektedir. Çünkü takımlar halinde çalışmak ve gerçek yaşam bağlamlarını oluşturmak öğrencilerin kritik düşünme becerilerini arttırır ve teoriyi uygulamaya dönüştürmelerini destekler; bu

yolla derin öğrenenler olmalarının da kapısını açar. Çünkü işbirlikli öğrenmede, etkinlikler öğrenenlerde derin ve zengin öğrenmeyi sağlamak üzere yapılandırılır. İşte bu özellikleri nedeni ile işbirlikli öğrenme hem öğrenme stillerine duyarlı bir öğretim ortamı yaratmada hem de derin öğrenmeyi sağlamada önemli bir fırsat sunmaktadır. Çalışmada ayrışık gruplar anlayışı ile farklı özellikler taşıyan bireyleri takım çalışması içinde bir araya getiren işbirlikli öğrenme anlayışına yönelik bir öğretim süreci düzenlenmiş ve bu yolla farklı öğrenme stiline sahip öğrencilere ulaşılması hedeflenmiştir. Burada sorulması gereken asıl soru ise farklı öğrenme stillerine sahip öğrencilere ulaşmak amacı ile gerçekleştirilen bu öğretimin öğrencilerin öğrenme işine daha derinlemesine girişmelerine fırsat sağlayıp sağlamayacağıdır. Bu noktadan hareketle çalışmada "işbirliğine dayalı öğretim tasarımı ile ders alan öğrencilerin derin öğrenme ve yüzeysel öğrenme yaklaşımından aldıkları puanlar öğrenme stillerine göre farklılık göstermekte midir?" problemi odak noktasına alınmıştır.

Araştırmanın Amacı: Çalışmada nitelikli öğrenmenin öneminden hareketle, öğrenme stillerine duyarlı bir yapı içeren işbirlikli öğrenmenin öğrencilerin derin öğrenmeye yönelmesini sağlamadaki etkisinin belirlenmesi amaçlanmıştır. Bu amaç çerçevesinde iki probleme cevap aranmıştır. (1) Öğrencilerin derin öğrenme öntest puanları kontrol edildiğinde işbirliğine dayalı öğretim tasarımı ile ders alan öğrencilerin derin öğrenme sontest puanları öğrenme stillerine göre farklılık göstermekte midir? (2) Öğrencilerin yüzeysel öğrenme öntest puanları kontrol edildiğinde işbirliğine dayalı öğretim tasarımı ile ders alan öğrencilerin yüzeysel öğrenme sontest puanları öğrenme stillerine göre farklılık göstermekte midir?

Araştırmanın Yöntemi: Çalışmada tek grup öntest sontest deseni kullanılmıştır. Deneklerin bağımlı değişkene ilişkin ölçümleri uygulama öncesinde öntest, sonrasında sontest olarak aynı denekler ve aynı ölçme araçları kullanılarak elde edilmiştir. Çalışma grubunun belirlenmesinde bilgi açısından zengin durumlarda derinlemesine çalışılmasına izin veren amaçlı örnekleme yöntemi kullanılmıştır. Araştırma bir devlet üniversitesinde pedagojik formasyon sertifika programı kapsamında Özel Öğretim Yöntemleri dersini almakta olan 39 kişilik bir öğrenci grubu üzerinde yürütülmüştür. Araştırmada öğrencilerin öğrenme stillerini belirlemek amacıyla, Grasha–Riechmann Öğrenme Stilleri ölçeği kullanılmıştır. Öğrencilerin öğrenme yaklaşımlarını belirlemek için ise üniversite öğrencileri için geliştirilen Ders Çalışma Yaklaşımı Ölçeği kullanılmıştır. Altı hafta süreyle gerçekleştirilen işbirlikli öğrenme uygulamasının başında öğrencilerin öğrenme stilleri belirlenmiş, işbirlikli öğrenme uygulamasının başında ve sonunda Ders Çalışma Yaklaşımı Ölçeği uygulanmıştır. Araştırmanın tüm denenceleri için kovaryans analizi (Tek Faktörlü ANCOVA) kullanılmıştır. Kovaryans analizi uygulanmadan önce dağılımın normaliği, varyansların ve regresyon doğrularının eşitliği varsayımları karşılanmıştır. Kovaryans analizi kapsamında ortalama puanlarının çoklu karşılaştırılmasında LSD Testi kullanılmıştır. Anlamlılık düzeyi olarak, $p < .05$ değeri alınmıştır.

Araştırmanın Bulguları: Araştırmada derin öğrenme son uygulamasından alınan puanların öğrenme stillerine göre anlamlı bir farklılık gösterdiği bulunmuştur. Buna

göre; işbirlikli öğrenme ve yarışmacı öğrenme stiline sahip öğrencilerin; kaçınan, bağımlı ve katılımcı öğrenme stiline sahip öğrencilere göre derin öğrenme yaklaşımından daha yüksek puan aldığı görülmüştür. Çalışmada yüzeysel öğrenme son uygulamasından alınan puanlar ise öğrenme stillerine göre anlamlı bir farklılık göstermemektedir. Ancak düzeltilmiş ortalamalar incelendiğinde özellikle kaçınan ve bağımlı öğrenme stiline ait yüzeysel öğrenme puanlarının daha yüksek olduğu gözlenmiştir.

Araştırmanın Sonuçları ve Önerileri: Elde edilen bulgular ilgili literatür bağlamında değerlendirilerek yorumlanmış; uygulayıcı ve araştırmacılar için öneriler geliştirilmiştir. Bu kapsamda, deneysel araştırmalarda uygulama süresinin daha uzun tutulması ve işbirlikli öğrenmenin farklı tekniklerinin odak noktasına alındığı araştırmalara yönelinmesi önerilmektedir. Deneysel çalışmaların nitel boyut katılarak zenginleştirilmesi, daha derinlemesine bir analize de fırsat sağlayacaktır. İşbirlikli öğrenme uygulamalarında, öğrenenlerin işbirlikli öğrenmeye yönelik olumlu bir tutum içinde olmaları, yöntemin uygulanışına ilişkin uygulayıcı ve öğrenenlerin aynı anlayışa sahip olmaları da önemlidir. Ayrıca işbirlikli öğrenmenin temel ilkelerine özen gösterilmesi, özellikle takım çalışmasının tartışma sürecini iyi bir şekilde yapılandıracak şekilde kurgulanmasına da dikkat edilmelidir. Bu açıdan öğreticilerin uygulama sürecinde belirtilen boyutlara önem vermesi ve tüm öğrenenlerin ilgisini çekecek yaratıcı ve özgün öğrenme görevlerinin işe koşulmasının sağlanması da önerilmektedir.

Anahtar Sözcükler: İşbirlikli öğrenme, öğrenme stili, derin öğrenme, yüzeysel öğrenme