Investigation of The Attitudes of Secondary School Students with Different Learning Styles For E-Learning

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Article Info	ABSTRACT
	In this study, it was aimed to investigate the attitudes of secondary school students with different learning styles towards e-learning. The study is a descriptive research designed as a relationship survey method. The sample of the study consists of 360 students in a public school in Konya in the 2018-2019 academic year. "Grasha-Riechmann Learning Styles Scale" and "Attitude Scale Towards E-Learning" were used as data collection tools in the research. Data were analyzed using descriptive statistics, independent t test and one way ANOVA. Data were analyzed using SPSS 25.0 statistical package program. According to the results of the study, when the learning styles were ranked as preferred, the students (35.2%) had "Independent" and at least (5.6%) "Avoidant" learning styles. The mean scores of students' attitudes towards E-learning were 4,12. This value shows that students' attitudes towards E-learning are positive. As a result of the study, the attitudes of the students towards E-learning show a statistically significant difference according to their learning styles (F (358) = 42.86, p <.01).

Introduction

In recent years, changes and developments in science and technology are closely related to education and training as well as in many other fields. Therefore, this effect has brought important innovations to the field of education. Thanks to this interaction, technology contributes to learning and resources and materials are provided for almost every subject area to be used directly in the lessons. Thus, the appearance and assessment methods of learning environments change radically (Gürol and Sevindik, 2001).

In this direction, different designs have been prepared to enable the course contents to reach the learners over the internet. Nowadays, all these developments give up to new learning tools and methods instead of traditional teaching and learning methods. In line with these innovations, technology has become increasingly important in the field of education. It has started to be supported by technology and even technology-based teaching systems have

emerged. With these new technology-based teaching systems and developments in educational technology, the demands for individual learning have gained importance.

It is accepted as important principles in terms of education and learning that the student can freely organize and maintain the learning initiatives, take part in the assessment of his / her own learning, actively participate in the learning process and progress according to his / her own pace. In line with these principles, the student-centered structure has become increasingly common.

At this point, in student-centered education, it is important to know the learning characteristics of the students and to determine their learning styles. Because knowing the learning styles helps to improve the weaknesses by identifying the strengths and weaknesses of individuals in the learning cycle, bringing together the most suitable individuals to work together and creating the most suitable teaching environments for the students (Peker, 2003).

Different methods have been developed on the use of computers and internet in education. One of these is distance education. Distance education is accepted as one of the searches for solutions of education problems that cannot be solved by traditional methods. Moreover, due to the opportunities and flexibility it provides, it is developing in a way to bring along the solution of problems that will arise (Informatics Council, 2004).

During the development process of distance education in our country, various studies have been made about the presentation of course contents to learners, designs have been developed and these designs have been continuously developed and put into practice. One of these applications is E-learning.

The results of the e-learning method adopted by the students and their results are important in terms of seeing the benefits of e-learning in educational environments. In addition, students are often offered the opportunity to benefit from E-learning applications to adopt E-learning and E-learning applications to spread.

Purpose of the research

The aim of this study is to determine the attitudes of secondary school students with different learning styles on their perspectives on e-learning applications.

In accordance with this purpose;

1. What are the learning styles of the students?

2. What are the attitudes of students with different learning styles towards mobile learning?

3. What is the relationship between the attitudes of the students with different learning styles towards mobile learning and their learning styles? The answers to the questions were sought in the research.

Method

The research has been conducted by using descriptive and relational scanning method which is one of the general survey models. In relational survey model researches, analysis can be done by correlation type and comparison. In determining the relationship by comparison, it is examined whether there is a difference between independent and dependent variables (Karasar, 2006).

Study Group

The study group consisted of 360 secondary school students attending a public school in Konya in the 2018-2019 academic year.

Data Collection Tools

In this research, "Grasha-Reichmann learning style scale", which was prepared by Grasha-Reichmann (1974) and adapted to Turkish translations by Sarıtaş and Süral (2010), was used in determining learning styles as a data collection tool. "Attitude scale for e-learning" was used by the Haznedar (2012) in a study of validity and reliability.

The required validity and reliability of the scales were completed by the researchers and the Cronbach Alpha internal consistency coefficient of the Grasha-Reichmann learning style scale was 0.81 and the Cronbach Alpha internal consistency coefficient of the attitude towards E-learning scale was 0.93. In this study, the internal consistency coefficients of the scales were 0.88 and 0.91, respectively. These results showed that the scales used were reliable.

Data Analysis

Descriptive statistics, t-test and one-way analysis of variance (Anova) were used as statistical techniques. All these statistical analyzes were performed with SPSS 25 program on computer. Cronbach Alpha was used to calculate the reliability coefficient of the scales.

Findings

In this section, based on the purpose of the research, the distribution of the learning styles of the students, their attitudes towards E-learning and the relationship between the two variables are presented.

Learning Style Findings

The scale subscale, in which each student obtained the highest average score, was accepted as the learning style. In the case of the equality of means, the sub-dimension with the narrower class width was preferred and learning styles of the students were determined. The distribution of the students according to their learning style preferences is presented in Table 1.

Table 1: Distribution of Students by Learning Style Preferences

	Learning Style					
	Independent	**Avoidant**	**Collaborative**	**Dependent**	**Competitive**	**Participant**
n	127	20	83	64	26	40
%	35.2	5.6	23.1	17.8	7.2	11.1
$\bar{X}$	4.24	4.23	4.32	4.23	4.33	4.08
Level	High	High	High	High	High	Medium
S_X	.71	.65	.82	.34	.65	.58

(n=360)

When Table 1 is examined;

When the learning styles of the students are ranked in the ratio of preference; 35.2% independent; 23.1% with Collaborative; Dependent with 17.8%; Participant with 11.1%;

Competitive rank with 7.2% and avoidant with 5.6%. According to the Grasha-Reichmann Learning Style Scal each learning style is either in "low", "medium", or "high" level. These levels are given on Table 1: (Saritas & Sural, 2010). Accordingly, participant learning style is medium level, while other learning styles are high level.

Findings of Attitudes towards E-learning

The 5-point Likert-type scale was given a score of 5 for the most positive response (strongly agree) and a score of 1 for the most negative answer (strongly disagree). Arithmetic means were calculated to determine whether students' attitudes towards E-learning were positive or negative.

The arithmetic averages of the attitudes towards e-learning were calculated out of 5. While the average neutral attitude of 3 is the determinant of negative attitude towards e-learning, scores below 3 are considered as an indicator of positive attitude above 3. The results of the attitudes of the students participating in the study towards E-learning are presented in Table 2.

Table 2: Findings Regarding Attitude Scores of Students for E-learning

	n	$\bar{X}$	S_X
All students	360	4,12	0,81

When Table 2 is examined; The average of the attitude scores of students towards E-learning was 4.12. This value shows that students' attitudes towards E-learning are positive.

Findings on the Relationship Between Learning Style and Attitude towards E-Learning

One-way analysis of variance was used to determine whether students' attitudes toward E-learning changed according to their learning style preferences. According to this; The learning style preferences of the students were taken as independent groups and their attitude scores towards E-learning were compared. The results are presented in Table 3.

Table 3: Comparison of Students' Learning Style Preferences and Attitude Scores for E-learning

Learning Styles	Source of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F
Independent	Between	4399,82	2	1466,61	.581*
	Within Groups	743653,19	358	252,51	
	Total	748053,01	360		
Avoidant	Between	893,04	2	297,68	1.186
	Within Groups	660487,97	358	252,68	
	Total	661381,01	360		
Collaborative	Between	1525,11	2	381,28	.317*
	Within Groups	746132,98	358	253,61	
	Total	747658,09	360		
Dependent	Between	4399,82	2	1466,61	.581*
	Within Groups	743653,19	358	252,51	
	Total	748053,01	360		

Competitive	Between	893,04	2	297,68	1.186
	Within Groups	660487,97	358	252,68	
	Total	661381,01	360		
Participant	Between	1525,11	2	381,28	.317*
	Within Groups	746132,98	358	253,61	
	Total	747658,09	360		

(n=360) *p<0.05

According to Table 3; F statistics calculated for learning styles scale sub-dimensions respectively; .581; 1186; .317; .581; 1186; .317. For these "independent", "collaborative", "dependent" and "participant" learning styles, α = 0.05 was significant. So, according to the present study; It was found that students' attitudes towards E-learning changes according to their learning styles.

According to the students, E-learning increases learning effectiveness, facilitates learning, adapts to students' learning style, provides learning control and improves the quality of learning. In addition, students want to know to what extent their own learning will change before participating in an E-learning application.

Discussion and Conclusion

In this study, the attitudes of the students with different learning styles towards E-learning were examined and the results obtained in line with the sub-problems and the discussions about these results are given below.

When the students' learning styles preferences are examined; It is seen that the total of those who have "independent", "collaborative" and "participant" learning styles are more than those who prefer "dependent", "competitive"and "avoidant" learning styles.

This can be interpreted as the majority of them adopting and applying student-centered approaches. (Grasha, 2002). As a matter of fact, in Grasha's (2002) study; collaborative and participant learning styles were more prevalent in the classrooms where student-centered approaches focused on group work; it was stated that dependent and avoidant learning styles were more common among students in teacher-structured teacher-centered classrooms. This result is in line with the research findings.

According to the findings of the research, it was determined that the attitudes of the students towards E-learning were positive. This result may be due to the fact that students have sufficient knowledge and experience in e-learning. This finding is in line with Tekinarslan (2008), Özgür and Tosun (2010) studies.

Another result of the study is that there is a significant difference between the learning styles of the students' attitude scores towards E-learning. With this result, the learning styles that the students have at the beginning of the e-learning process can be identified, and if the learning and teaching environment is arranged in accordance with the learning styles of the students in the e-learning environment and this process is used effectively, it can be ensured that the students have positive attitude towards e-learning.

The results obtained from the research coincide with the results of similar studies in the literature. (Güngör and Aşkar, 2004; McNutt & Brennan, 2005; Federico, 2000; Ekici, 2003;

Şahin, 2008). Therefore, it is important to determine the learning styles of students at the beginning of the learning process and to design learning environments appropriate to the learning style. In addition, appropriate activities should be added for students with different learning styles.

Suggestions

The results of the study indicate that the majority of the participants adopt student-centered approaches. It is essential that students adopt a student-centered learning style to plan teaching environments appropriate to their dominant learning styles. Therefore, instead of teacher-centered and knowledge-based approaches, contemporary approaches to learning styles and individual differences should be included in the education-teaching process.

The small number of studies examining the relationship between learning style and attitudes towards E-learning in Turkey reveals the need for research on this subject. The effect of the learning styles of the students on their attitudes towards E-learning and the effectiveness of the learning styles in this relationship is an issue that needs to be emphasized. For this reason, it is recommended to conduct various researches on this subject.

References

Ekici, G. (2003). Uzaktan eğitim ortamlarının seçiminde öğrencilerin öğrenme stillerinin önemi. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi. Sayı: 24, 48- 55.

Federico, P. A. (2000). Learning styles and student attitudes toward various aspects of network-based instruction. Computers in Human Behavior, 16(4), 359-379.

Grasha, A. F. (2002). The Dynamics Of One-On-One Teaching. College Teaching, 50 (4), 139-146.

Grasha, A. F. ve Riechmann, S. W. (1974). A Rational Approach to Developing and Assessing the Construct Validity of a Student Learning Style Scales Instrument. The Journal of Psychology , 87, 213-223.

Güngör, C. & Aşkar, P. (2004). E-öğrenmenin ve bilişsel stilin öğrenci başarısı ve internet öz yeterlik algısı üzerindeki etkisi. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 27, 116-125.

Gürol, M. & Sevindik, T. (2001). İnternet tabanlı uzaktan eğitim uygulamaları. Türkiye'de internet Konferansları(inet-tr) - 7, İstanbul.

Haznedar, Ö. (2012). Üniversite Öğrencilerinin Bilgi Ve İletişim Teknolojileri Becerilerinin Ve E-öğrenmeye Yönelik Tutumlarının Farklı Değişkenler Açısından İncelenmesi. Yayınlanmamış Yüksek Lisans Tezi, Dokuz Eylül Üniversitesi Eğitim Bilimleri Enstitüsü, İzmir.

Karasar, N. (2006). Bilimsel araştırma yöntemleri. Nobel Yayınevi, Ankara, 2006.

McNutt, L. & Brennan, M. (2005). Work in progress – learning styles and elearning, what is the connection? 35th ASEE/IEEE Frontiers in Education Conference, Indianapolis.

Özgür, H. & Tosun, N. (2010). İnternet destekli eğitimin e-öğrenme tutumlarına etkisi. XV. Türkiye'de İnternet Konferansı, İstanbul.

Peker, M. (2003). Öğrenme Stilleri ve 4 MAT Yönteminin Öğrencilerin Matematik Tutum ve Başarılarına Etkisi. Yayınlanmamış Yüksek Lisans Tezi, Gazi Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Sarıtaş, E. & Süral, S. (2010). Grasha-Reichmann Öğrenme ve Öğretme Stili Ölçeklerinin Türkçe Uyarlama Çalışması. E-Journal of New World Sciences Academy, 5 (4).

Şahin S. (2008). The relationship between student characteristics, including learning styles, and their perceptions and satisfaction in web-based courses in higher education. Turkish Online Journal of Distance Education-TOJDE, 9(1), 123-138.

Tekinarslan, E. (2008). Attitudes of Turkish distance learners toward internet-based learning: an investigation depending on demographical characteristics. Turkish Online Journal of Distance Education-TOJDE, 9(1), 67-84.