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Tertiary Level Students' Learning English:Dependent and Independent Learners*

Üniversite Öğrencilerinin İngilizce Öğrenimi:Bağımlı ve Bağımsız Öğrenenler

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Öz

Bu çalışmanın amacı, Reid (1984) tarafından geliştirilen ve 6 öğrenme türünü ölçen Algısal Öğrenme Stili Tercih Anketi'ni (AÖSA) üniversitede yabancı diller bölümünde okuyan öğrenciler üzerine uygulamaktır. Ankette, görsel, işitsel, dokunsal, haraketsel, bireysel ve grupla öğrenme stilleriyle ilgili 6 alt boyut bulunmaktadır. Yazınla uyumlu olarak, tek başına kitaptaki ders konusunu okuyup anlayabilenler bağımsız öğrenenler, başka kişinin (örnek, öğretmen) açıklaması ve yardımıyla konuyu anlayanlar da bağımlı öğrenenler olarak nitelenmiştir. Anketteki bireysel öğrenme (ders çalışma) maddeleri bağımsız öğrenenler ve grupla öğrenme maddeleri bağımlı öğrenenler açısından yorumlanmıştır. Çalışma, anket maddelerini bireysel veya grupla ders çalışma, bağımlı ve bağımsız öğrenme, cinsiyet ve el kullanımı açısından incelemiştir. Çalışma, ayrıca, anket alt boyutlarından bireysel ve grupla öğrenme maddelerine verilen cevaplar ile kontrol sorularından bağımsız ve bağımlı öğrenme değişkeni arasındaki ilişkiyi incelemiştir. Çalışmaya, 2019 yılında İngiliz Dili ve Edebiyatı Bölümü'nde (İDE) farklı sınıflardan toplam 206 öğrenci gönüllü olarak katılmıştır. İç güvenirlik Cronbach alfa kullanılarak hesaplanmıştır (Tablo 2). Diğer hesaplamalar için ortalama, standart sapma, doğrulayıcı faktör analizi, Mann-Whitney U ve Shapiro Wilk testleri kullanıldı. AÖSA'nın bazı alt faktörleri ile cinsiyet, el kullanımı, çalışma tarzı ve bağımlı ve bağımsız öğrenenler değişkenleri arasında bir ilişki bulunmuştur. Mevcut anket ve ölçeklere yeni kontrol soruları eklenerek farklı ve özgün çalışmaların yapılabileceği önerilmiştir.

Anahtar Kelimeler: Öğrenme Stilleri, Bireysel, Grup, Bağımlı, Bağımsız

Abstract

The purpose of this study is to apply the Perceptual Learning Style Preference Questionnaire (PLSQ) developed by Reid (1984), which measures 6 learning types, to students in the university's foreign language department. In the questionnaire, there are 6 sub-dimensions related to visual, auditory, tactile, kinesthetic, individual and group learning styles. In accordance with the literature, those who can read and understand the topic of instruction in a book on their own are called independent learners, and those who can understand a topic with the help of another person (e.g., teacher) are called dependent learners. Individual learning items in the questionnaire were interpreted in terms of independent learners and group learning items in terms of dependent learners The study examined questionnaire items related to individual or group study, dependent and independent learning, gender, and hand use. The study also examined the relationship between responses to the individual and group learning items, which are sub-dimensions of the questionnaire, and the independent and dependent learning variable from the control questions. A total of 206 students from different classes in the English Language and Literature Department (ELL) voluntarily participated in the study in 2019. Internal reliability was calculated using Cronbach's alpha (Table 2). For other calculations, mean, standard deviation, confirmatory factor analysis, Mann-Whitney U, and Shapiro Wilk tests were used. A relationship was found between some subfactors of PLPQ and the variables gender, hand use, study style and dependent and independent learners. It has been suggested that different and original studies can be conducted by adding new control questions to the current questionnaires and scales.

Keywords: *Learning Styles, Individual, Group, Dependent, Independent*

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INTRODUCTION

The first study on learning styles was conducted by Witkin (1962, cited in Naserieh & Sarab, 2013: 123). Initially, a research area within educational psychology (Dunn & Dunn) and research on perceptual learning were transferred to research on second language acquisition and teaching English as a second and foreign language (Reid, 1987, others cited in Isemonger & Sheppard (2007:357). The learning style questionnaire, developed by Reid (1984), is most commonly used in educational sciences and primary and secondary education inour country (Ataseven & Oguz, 2015). The questionnaire asks about four perceptual styles (visual, auditory, tactile, and kinesthetic) and two social learning styles (individual and group). There are 5 items for each learning style and a total of 30 items. The questionnaire is readily availablein the book named Reflective Teaching edited by Richards & Lockhart (1995:76).

The PLSQ has been used as a data collection tool in many language teaching/learning research both abroad and in our country. According to Ataseven & Oğuz (2015), although 78 studies were registered with the YOK Thesis Center between 2004 and 2014, only 4 of them were related to foreign language teaching. Demirkol (2009) studied the listening comprehension and perceptual styles of university students in preparatory classes and found that students primarily preferred visual, then auditory, and finally kinesthetic learning styles. The study also showed that students' perceptual learning preferences varied by gender and language level. Bedir (2012) investigated the effect of perceptual learning style on learning and remembering words in a foreign language. Ay (2021) examined secondary students' creative thinking skills and perceptual learning style preferences and found a statistically significant difference between students' learning styles, age, and father's education level. She found that there was no statistically significant difference between the variables of gender, number of siblings, and mother's educational level.

PLSQ has been used in our in some postgraduate studies other than foreign language teaching in Turkey. Ugur (2008) studied the 4th grade elementary school social studies textbook and teachers' practices in terms of perceived learning style. Babacan (2010) investigated the applicability of perceptual learning styles in initial piano education. Cicek (2020) investigated perceptual learning styles in mathematics education, and Savaccı (2020) examined the relationship between mathematical problem-solving skills and perceptual learning styles.

PLSQ is used in the article with different variables in addition to postgraduate studies. Besoluk & Onder (2010: 685) examined the learning approaches, learning styles, and critical thinking dispositions of prospective teachers and found that "the predominant learning styles are kinesthetic, individual, and auditory, respectively." Atabay & Kurtman (2013:142) studied students' learning styles in preparation classes, teachers' teaching styles, and academic achievement and found that "students used the kinesthetic learning style the most and the social learning style the least." Palabıyık (2014: 60) studied the perceptual learning preferences of Turkish high school students and found that the kinesthetic, auditory, and visual styles were most preferred. Ciftlikli (2018) investigated the relationship between students' perceptual learning styles and reading comprehension and found a significant relationship between success in IELTS reading comprehension and the success of students using the kinesthetic learning style.

The PLSQ has been used in foreign language teaching research in various countries and cultures abroad. Reid (1984) studied a sample of ESL learners and native English speakers representing 98 countries and studying 29 different disciplines; participants preferred the kinesthetic and tactile styles and responded negatively to group instruction. Rossi-Lee (1989) examined the relationship between perceptual learning and learning strategies, and participants preferred kinesthetic and tactile learning styles; males preferred more tactile learning styles than females. Hayland (1993) studied the learning styles of 440 Japanese students and found that Japanese students did not have a dominant learning style and that female students preferred a tactile learning style than males (cited in Naserieh & Sarab, 2013:123).

Stebbins (1995) compared the learning styles of ESL learners and native speakers and found that kinesthetic and tactile learning styles were strongly preferred by ESL learners compared to native speakers. Wintergerst & DeCapua (1998: 2001) examined the learning style preferences of 32 learners of Russian in the United States and found that kinesthetic and auditory styles were dominant. Peacock (2001), in a study of 206 Hong Kong university students learning English as a foreign language, found that participants preferred the kinesthetic and auditory learning styles rather than the individual and group learning styles. Isemonger & Shappard (2003) found that 710 Korean university students learning English as a foreign language preferred primarily kinesthetic, then auditory, and finally tactile learning styles. It

was also found that female students preferred kinesthetic and group learning. Riazi & Mansoorian (2008) investigated the learning styles of 150 female and 150 male Iranian students and found that participants primarily preferred auditory, visual, kinesthetic, and tactile learning styles. In addition, it was reported that males significantly preferred tactile, group, and kinesthetic learning styles (URL-1). In Karthigryan & Nirmanla's (2013) study of 508 students, they primarily preferred visual and then auditory learning styles.

There are many learning style questionnaires in the literature, and it is not the goal of this study to cover all learning styles that exist in the literature. The following studies refer to learning styles, but they used different questionnaires. Tas & Erdem (2013) investigated the learning styles of students learning French, and they preferred 40% visual learning and 41.7% kinesthetic learning. Bedir & Bedir (2017), in their study on perceptual learning conducted with 55 ninth grade students, found that students preferred visual, auditory, and kinesthetic learning styles, respectively. Tomrukcu (2022: 20) studied the learning styles of students learning Turkish as a foreign language and found that students used kinesthetic, auditory, and visual learning styles simultaneously.

As a result, numerous studies on learning style have been conducted both in our country and in the world, and it is impossible to cover them all in one article in terms of time and space. Moreover, the results of research on perceptual learning change depending on "research context, heredity, environment, previous experiences (Naserieh & Sarab, 2013: 124), age, gender, process, motivation level, responsibility, and other factors" (Dybvig, 2004, cited in Naserieh & Sarab, 2013: 125). For this reason, students' learning method, learning style, and learning strategy should be examined at the beginning of the school year, and lessons, topics should be explained according to these findings.

OBJECTIVES

General objectives of the study are to explore the relation of the questionnaire items with the control questions such as gender, hand use, study style and especially focussing on if the participants are dependent or independent learners. The study had the following objectives:

To explore if participants' choices of individual and group learning statements asked in the questionnaire support the control question - alone and group study?

To find out if the participants' choices of individual and group learning statements asked in the questionnaire support the control question - dependent and independent learning?

To examine if the PLSQ differs according to gender, hand use, study style and learning type?

METHOD

Approach, Method and Techniques

The research used a quantitative approach, the survey method, and the techniques listed under the title of data analysis.

Participants

206 students from the 1st, 2nd, 3rd, and 4th grade of the ELL department voluntarily completed the questionnaire. The students were informed about the questionnaire and its components. In this way, ethical issues and informed consent for the study were applied. Of the participants, 67 (32.52%) were dependent, 139 (67.48%) were independent learners; 187 people (90.78%) are right-handed, 19 people (9.22%) are left-handed; 171 people (83.01) preferred to study alone, 35 people (16.99) preferred to study in groups. Of the participants, 154 (74.76%) are female and 52 (25.24%) are male, see Table 1.

Table 1: Frequency Information on Participants

	Variables	n	%	Cum. %
Method	Dependent	67	32.52	32.52
	Independent	139	67.48	100
Hand Use	Right	187	90.78	90.78
	Left	19	9.22	100
Study Style	Alone	171	83.01	83.01
	With group	35	16.99	100
Gender	Female	154	74.76	74.76
	Male	52	25.24	100
Total		206	100	100

Data Collection

The questionnaire proposed by Joy Reid (1984) first the first time, the author took it from the book by Richards & Lockhart (1995: 76). There is also such information about the origin of the questionnaire at the end of questionnaire page. (Adapted from the C.I.T.E. Learning Styles Instrument, Murdoch Teacher Center, Wichita, Kansas 67208)[1].

Data Analysis

Cronbach's alpha, frequency, percentage, mean, standard deviation, correlation values, Shapiro-Wilk test, and Mann-Whitney U test were used for data analysis. Calculations were performed using the SPSS 24 statistical program.

Reliability and Validity Analysis for PLSQ

Reliability and validity analyses of the PLSQ questionnaire developed by Reid (1987) are as follows: The questionnaire contains a total of 30 items, each of which is expressed with 5 items and includes 6 different learning styles. The reliability of the questionnaire was examined separately for 6 subfactors using the reliability coefficient Cronbach's alpha; construct validity was examined by applying confirmatory factor analysis to this six-factor structure.

Descriptive Statistics and Reliability Analysis for PLSQ

While the Cronbach's alpha confidence coefficients reported in the literature for the six subfactors of the questionnaire were quite high for some dimensions, they are at an acceptable level for some dimensions and below the accepted limits for others (see Naserieh & Sarab, 2013). In our study, the items composing each sub-dimension of the questionnaire, as well as the descriptive statistics (mean, sd) and Cronbach's alpha confidence values for these dimensions are presented in Table 2.

Table 2: Reliability and Descriptive Statistics for PLSQ

Preference	Item Numbers	Mean	SD	Cr. Alfa
Visual	6-10-12-24-29	3.690	0.640	0.50
Tactile	11-14-16-22-25	3.413	0.849	0.68
Auditory	1-7-9-17-20	3.850	0.616	0.49
Group	3-4-5-21-23	2.899	1.003	0.83
Kinesthetic	2-8-15-19-26	3.473	0.829	0.71
Individual	13-18-27-28-30	3.844	0.957	0.83

[1] https://www.studocu.com/ph/document/tanza-national-trade-school/physical/perceptual-learning-style-preference-questionnaire /20448185, 27.01.2023.

By examining the table, it was found that the Cronbach's alpha reliability value in the visual and auditory sub-factors of the questionnaire is low, which confirms the literature (see Table 3). Naserieh & Sarab (2013: 127) discussed in detail such situations arising for the PLSQ in their studies, noting that the measurement tool had shortcomings in reliability and validity in previous studies.

Table 3: Comparison of the Cronbach's alpha values for the PLSQ from different studies.

Study	**N**	**Style preference**					
		Visual	Tactile	Aud.	Group	Kin	Ind.
Itzen (1995)	126	0.54	0.72	0.56	0.87	0.63	0.8
Yamashita (1995)	582	0.51	0.72	0.48	0.82	0.68	0.81
Liversidge (1996)	237	0.36	0.67	0.35	0.8	0.75	0.75
Wintergerst et al. (2001)	100	0.37	0.59	0.39	0.87	0.69	0.75
Isemonger and Sheppard (2007)	691	0.37	0.67	0.39	0.83	0.76	0.84
Naserieh & Sarab (2013)	138	0.50	0.69	0.59	0.79	0.64	0.82
Our study.	206	0.50	0.68	0.49	0.83	0.71	0.83

Note: Taken from Naserieh & Sarab (2013:127).

On the other hand, descriptive statistics revealed that auditory (mean = 3.850) and individual (mean = 3.844) learning styles were, on average, the most preferred learning methods among those presented in the PLSQ. In contrast, it was found that the learning method to which participants were least oriented was the group learning style (mean = 2.899).

Construct Validity for PLSQ

As with the reliability (internal consistency) analysis in the literature, the validity of Reid's proposed 6-factor structure is disputed in the validity analyses of the measurement instrument (Naserieh & Sarab, 2013). The five fit indices commonly used for construct validity maintained in our current study using confirmatory factor analysis (CFA) are shown in Table 4. Although the fit indices seem to support the relevant 6-factor structure, the values CFI =.85 (comparative fit index) and SRMR=.089 (standardised root mean square residual) suggest that there may be some problems in the proposed theoretical structure.

Table 4: Model Fit Measures

Measure	**Estimate**	**Threshold**	**Interpretation**
CMIN	652.892	--	--
DF	388	--	--
CMIN/DF	1.683	Between 1 and 3	Excellent
CFI	0.85	>0.95	Poor
SRMR	0.089	<0.08	Acceptable
RMSEA	0.058	<0.06	Excellent
PClose	0.051	>0.05	Excellent

Correlations Between Sub-Factors for PLSQ

The relationships between the styles preferred by the participants in language learning were investigated using the Spearman Rho, ρ correlation coefficient. The results obtained are presented in Table 5. According to this, there is a positive but low correlation between participants' orientation to visual and auditory methods (ρ=.179, p<.01), while a moderately positive relationship with those who prefer individual study was observed (ρ=.402, p<.01). A positive and relatively high relationship was found between those who chose a tactile learning style and those who preferred learning with kinesthetic activities

(ρ=.596, p<.01). As expected, a moderately negative relationship was found between those who chose the individual style and those who learn with the group (ρ=-.392, p<.01).

Table 5: (Spearman Rho) Correlations Among Six Subscales of PLSQ

N=206	Mean	Std.	Visual	Tactile	Auditory	Group	Kinesthetic	Individual
Visual	3.69	0.64	1					
Tactile	3.41	0.85	0.094	1				
Auditory	3.85	0.62	**.179****	**.298****	1			
Group	2.90	1.00	-0.046	**.394****	**.252****	1		
Kinesthetic	3.47	0.83	0.039	**.596****	**.399****	**.391****	1	
Individual	3.84	0.96	**.402****	-0.083	-0.017	**-.392****	**-.224****	1

** Correlation is significant at the 0.01 level (2-tailed).

Limitations

Data from the questionnaire items used in the study were analyzed quantitatively, and a random sample is usually selected in quantitative research (Salkind, 2000). Individuals who do not wish to completequestionnaires or scales in the random sample may be included in the study by the researcher, as there is n possibility that each person in a list will be included in the study. In this case, it does not seem logical to draw conclusions and pose recommendations from the data of the people who do not want to participate in the study and fill in questionnaires or scales. For this reason, the purposive sampling method, which is usually used in qualitative research (Robson, 1995), was used by the researcher.

RESULTS

In analysing the scores obtained from the PLSQ dimensions according to different variables, we examined whether participants' orientation to each learning style differed according to the variables of gender, hand use, learning style, and study preference. Data were tested for normal distribution by each variable using the Shapiro-Wilk test, but the nonparametric Mann-Whitney U test was used in all analysesdue to violation of this assumption.

Analysis of Differences by Gender

According to the gender variable, the visual and individual learning orientations of the participants showed statistically significant differences (respectively U=2533, p<.01 and U=2493.5, p<.01,). According to these results, it was found that the tendency of male students (M=3.385, sd=.622) to use visual styles in language learning was lower than that of female students. Similarly, it can be observed that female students (M=4.027, df=.813) use more individual learning styles than male students (M=3.3, sd=.1.138), see Table 6.

Table 6: Mann-Whitney U test results for statistical differences

PLSPQ andits subscales	Gender	N	Mean	SD	SD Err.	Mann-WhitneyU	p-
Visual	Female	154	3.794	0.614	0.049	2533	**0.000**
	Male	52	3.385	0.622	0.086		
Tactile	Female	154	3.461	0.844	0.068	3391	0.098
	Male	52	3.269	0.855	0.119		
Auditory	Female	154	3.874	0.599	0.048	3731.5	0.460
	Male	52	3.777	0.664	0.092		
Group	Female	154	2.853	1.022	0.082	3653	0.344
	Male	52	3.035	0.941	0.131		
Kinesthetic	Female	154	3.452	0.859	0.069	3905	0.789
	Male	52	3.535	0.740	0.103		
Individual	Female	154	4.027	0.813	0.066	2493.5	**0.000**
	Male	52	3.300	1.138	0.158		

Analysis of Differences by Hand Usage

Whether there is a difference between learning styles depending on the hand variable used by participants in their daily lives was examined using the Mann-Whitney U statistical test, and the results are shown in Table 7. Accordingly, the mean scores of the auditory factor of the left-handed students (M=3.632, sd=.491) were statistically different and lower (U=1259.5, sd=.624) p<.05) than the mean scores of the right handed students (M=3.872, sd=.624).

Table 7: Mann-Whitney U Test Results for Statistical Differences of Hand Use

PLSPQ and its subscales	Handedness	N	Mean	SD	SD Err.	Mann-Whitney U	p-
Visual	Right	187	3.699	0.648	0.047	1620.5	0.527
	Left	19	3.600	0.558	0.128		
Tactile	Right	187	3.402	0.843	0.062	1611.5	0.504
	Left	19	3.516	0.920	0.211		
Auditory	Right	187	3.872	0.624	0.046	1259.5	**0.036**
	Left	19	3.632	0.491	0.113		
Group	Right	187	2.908	1.015	0.074	1662.5	0.645
	Left	19	2.811	0.901	0.207		
Kinesthetic	Right	187	3.486	0.813	0.059	1676.5	0.685
	Left	19	3.347	0.991	0.227		
Individual	Right	187	3.843	0.973	0.071	1720.5	0.820
	Left	19	3.853	0.811	0.186		

Analysis of Differences by Study Choice

According to the Mann-Whitney U test, which was performed to show statistical differences depending on participants' preferences to learn alone or in a group, differences were found in the visual, group, and individual subfactors of the questionnaire. Accordingly, it was observed that individuals who preferred to learn alone rather than in a group tended to prefer the visual form of learning (Md=.370, p<.01). On the other hand, the other results corroborate and support the data set, and it was found that participants' study preferences and the subdimensions representing these preferences in the study were similar. Clearly, while the average scores of individuals who prefer to study alone are lower for the group subdimension of the questionnaire (Md=-1.202, p<.01) compared to individuals who prefer to study in a group, it is higher for the individual dimension of the questionnaire (Md=1.326, p<.01), see Table 8.

Note: M_d: mean difference.

Table 8: Mann-Whitney U Test Results for Statistical Differences for Study Preference

PLSPQ and its subscales	Study Type	N	Mean	SD	SD Err.	Mann-Whitney U	p-
Visual	Alone	171	3.753	0.630	0.048	1904	**0.001**
	With group	35	3.383	0.607	0.103		
Tactile	Alone	171	3.399	0.864	0.066	2846	0.648
	With group	35	3.480	0.778	0.131		
Auditory	Alone	171	3.816	0.648	0.050	2556.5	0.172
	With group	35	4.011	0.394	0.067		

Table 8 (devamı): Mann-Whitney U Test Results for Statistical Differences for Study Preference

Group	Alone	171	2.695	0.935	0.071	902.5	**0.000**
	With group	35	3.897	0.680	0.115		
Kinesthetic	Alone	171	3.427	0.841	0.064	2443	0.086
	With group	35	3.697	0.741	0.125		
Individual	Alone	171	4.069	0.768	0.059	944.5	**0.000**
	With group	35	2.743	1.035	0.175		

Analysis of Differences by Learning Method

As can be seen in Table 9, participants were asked to classify themselves as dependent or independent learners, and as a result of the statistical analyses conducted under this variable, statistical differences were found in the group and auditory sub-dimensions of the questionnaire. The average score (M=4.015, sd=.550) obtained from the auditory dimension of the participants who reported the learning style as dependent was statistically significant and higher (U=3492, p<.01) at 99% compared to the average score (M=3.770, sd=.631) of the participants who used the independent learning style. Similarly, and as expected, the scores obtained from the group sub-dimension of the participants who applied the independent learning method (M=2.778, sd=.956) were statistically 95% lower (U=3708.5, p<.05) than the average of those who chose the dependent learning method (M=3.149, sd=1.059).

Table 9: Mann-Whitney U Test Results for Statistical Differences for Learning Method

PLSPQ and its subscales	**Method**	**N**	**Mean**	**SD**	**SD Err.**	**Mann-Whitney U**	**p-**
Visual	Dependent	67	3.651	0.683	0.083	4472.5	0.645
	Independent	139	3.709	0.620	0.053		
Tactile	Dependent	67	3.403	0.878	0.107	4631.5	0.950
	Independent	139	3.417	0.838	0.071		
Auditory	Dependent	67	4.015	0.550	0.067	3492	**0.003**
	Independent	139	3.770	0.631	0.054		
Group	Dependent	67	3.149	1.059	0.129	3708.5	**0.018**
	Independent	139	2.778	0.956	0.081		
Kinesthetic	Dependent	67	3.528	0.808	0.099	4505.5	0.706
	Independent	139	3.446	0.841	0.071		
Individual	Dependent	67	3.666	1.099	0.134	4116.5	0.176
	Independent	139	3.929	0.872	0.074		

DISCUSSION

In the study, Reid's (1984) 30-item questionnaire, cited in Richards & Lochart (1995), generally used in foreign language teaching research, was applied and evaluated according to four different variables.

The study was designed to answer the question, "does the PLSQ differ by gender, study preference, hand use, study style, and learning method? Data collected from 206 volunteer participants were analyzed, and the reliability of the PLSQ was found to be low in some subdimensions. Overview of the results are: Participants' visual and individual learning orientations differed statistically significantly according to the variable gender. Average scores of left- handed students on auditory factors are statistically different and lower than the average scores of right- handed students. Differences were found in the subfactors of visual, group, and individual study according to the preference for group or individual study. Finally,

statistical differences in the subdimensions group and auditory were found in the analysis of the dependent and independent study.

According to the gender variable, the reason why females prefer visual styles more than male students can be explained by the fact that they are talkative and social. Namely, the language and speech center is located in the left lobe of the brain, while visualization is handled by the right lobe (Fromkin & Rodman, 1998). Moreover, the highest rate (75%) in terms of the effects of learning on the 5 senses is due to the visual sense (Kucukahmet, 2000:43, cited in Gulten & Gulten, 2004: 76). Hence, it can be argued that female use not only their left hemisphere, but also their right hemisphere at the same time in language learning. This could be the reason why the number of female students in foreign language departments is generally higher than that of male students. Similarly, the reason why females prefer individual learning rather than men could be the disease of our time, individuality. Why men prefer group learning could also be due to their habit of playing group games such as okey and card games.

The reason that left-handed students perform worse than right-handed students in listening comprehension may be due to the cross-control of the body by the brain and the location of the language learning centre. The language learning centre is located in the left hemisphere of the brain; Broca's area enables us to speak and Wernicke's area enables us to understand (to listen). The left lobe of the brain controls the right side of the body and the right lobe controls the left side (Yule, 1993). There seems to be a direct connection between the left lobe - the language learning centre - and right handedness. For this reason, it can be said that right-handers are more successful in the area of listening.

According to the data analysis, the reason why individual learners prefer visual learning is that because they are free to learn the way they want. Students who learn visually can draw pictures, create figures, make tables, make acrostics with key words, and use highlighters to underline the lines of the topic. That is, students learning alone can embody the topic they are reading and studying with pictures, figures, and tables. When learning in a group, visualisation can be difficult. For example, in a setting where three or four people are learning by visualising a lesson, one person may suggest making a table, another person may suggest drawing a figure. The more people in the group, the greater the number of alternatives. For this reason, it was found that participants attached importance to individual visualisation.

The reason why the average score of dependent learners in the auditory dimension is higher and more significant than the average score of independent learners can be explained as follows. The most important characteristic of in/dependent learners is that for dependent learners "the individual view is derived from others; an independent learner finds an individual view/idea on his own" (Ellis, 1995: 115). In terms of education, this means that someone else explains the lesson or topic for dependent learners to make them understand, but independent learners study and learn on their own. Hearing, listening, and understanding a language are interrelated. Pronunciation of words such as stress, abbreviation, conjugation, catenation, etc. may be difficult for independent learners to learn; learners may need someone else to pronounce the words. The independent learners in the study may have felt that they could not master the above elements of listening comprehension on their own. The dependent learners, on the other hand, may have thought that they could learn these elements such as stress, pronunciation, and conjugation in listening comprehension better with the help of another person (teacher, friend). Therefore, their average score may have been high. For example, the sentence "What is this?" is usually pronounced as /wɒt ɪz ɪt? in our country, but according to the "catenation rule" it is pronounced as /wo ti zit/. Therefore, hearing from others can be an advantage to learn the correct pronunciation for dependent learners in the group (URL-2)[2].

Some research on learning styles can be criticized in the following ways. For example, Tas & Erdem (2013) created a new questionnaire based on Dun & Dun's questionnaire and applied it to 60 people, the percentage and frequency were calculated, but the Cronbach's alpha value was not calculated. Karthigeyan & Nirmala (2013) used Reid's questionnaire with 30 items and reduced it to 25 items, performed calculations and compared the results with other studies. Using a smaller number of questionnaire items might have affected the mean, standard deviation, etc.

Finally, Ataseven & Oğuz (2015) examined 78 master's and doctoral studies conducted between 2004 and 2014 and found that the most commonly used variables were achievement, gender, class, parental education and attitude. He noted that 4 of these studies dealt with foreign language education. Although the results of our study are consistent with some findings in the literature, the results on learning style differ

[2] eslbase.com, (04.01.2023).

according to gender, age, culture, etc. depending on the variables, as Naserieh & Sarab (2013) stated. For example, there is no only one kind of result/finding in the studies on learning styles conducted in our country, but results are different. Therefore, we should not try to generalise one study strictly to other studies. In the future, new research can be conducted by adding new control questions to the current questionnaires / scales. Studies on learning style have not yet made indirect comparisons as we have done. In our study, the individual and group learning items of the questionnaire were implicitly compared with the control questions - individual and group learning; dependent and independent learning.

Ethical Declaration

Data were collected from volunteering students before the pandemic period in 2019, but analysed late due to several reasons. As mentioned earlier, the researchers explained the purpose of the study and the parts ofthe questionnaire to the students. Those who were convinced and volunteered were asked to complete the questionnaire. The principle of informed consent and permission was considered. Besides, the purposive sampling method supports consent and agreement.

The study was conducted and written entirely by the researcher. No help or donation was received from any person or institution, neither in the application of the questionnaire nor in the writing of the paper.

REFERENCES

Atabay, M. M. & Kurtman, E. (2013). Matches Between Learning Styles of Students At Compulsory English Program and Teaching Styles at Lecturer and Differences Among the Students' Achedemic Achievement. *Karaelmas Journal of Education Sciences*, 0(1), 140-156.

Ataseven, N. & Oguz, A. (2015). Türkiyede Öğrenme Stilleri Konusunda Yapılan Tezlerin İncelenmesi. *Eğitim ve Öğretim Dergisi*, 4(2), 192-205.

Ay, F. (2001). Öğrencilerin Yaratıcı Düşünce Becerileri ve Algısal Öğrenme Stil Tercihlerinin İncelenmesi. (Yayımlanmamış Yüksek Lisans Tezi). (Danışman: Doç. Dr. Cevdet Epçaçan). Siirt: Siirt Üniversitesi, Sosyal Bilimler Enstitüsü.

Babacan, E. (2010). Başlangıç Piyano Eğitiminde Algısal Öğrenme Stillerinin Uygulanabilirliği. (Yayımlanmamış Doktora Tezi). (Danışman: Prof. Dr. Z. S. Gökbudak & Prof. Dr. Ö. Üre). Konya: Selçuk Üniversitesi, Eğitim Bilimleri Enstitüsü.

Bedir, S. B. (2012). Algısal Öğrenme Stillerinin Yabancı Dilde Kelime Öğrenmeye ve Hatırlamaya Etkisi. (Yayımlanmamış Yüksek Lisans Tezi). (Danışman. Dr. Öğr. Üyesi Gülay Bedir). Tokat: Gaziosmanpaşa Üniversitesi, Eğitim Bilimleri Enstitüsü.

Bedir, G. & Bedir, S. B. (2017). Algısal Öğrenme Stillerinin Yabancı Dilde Kelime Öğrenmeye ve Hatırlamaya Etkisi. *Bilimsel Eğitim Araştırmaları,* 1(1), 18-40.

Beşoluk, S. & Önder, İ. (2010). Investigation of Teacher Candidates' Learning Approaches, Learning Styles and Critical Thinking Dispositions. *Elementary Education Online*, 9(2), 679-693.

Çiflikli, S. (2018). The Relationship Between Perceptual Learning Styles and Language Learners' Success in Reading Tests. *Folklore/Edebiyat*, 24(4), 173-190.

Çiçek, S. C. (2020). Farklı Algısal Öğrenme Stiline Sahip Ortaokul Öğrencilerinin Tam Sayılarla Ilişkin Kavram Yanılgılarının Giderilmesinde Bilgisayar Destekli Matematik Öğretiminin Rolü. (Yayımlanmamış Yüksek Lisans Tezi). (Danışman: Dr. Öğr. Üyesi Türkan Berrin Köse). Giresun: Giresun Üniversitesi, Fen Bilimleri Enstitüsü.

Demirkol, T. (2009). Türk Üniversitelerindeki Hazırlık Sınıfı Öğrencilerinin Yabancı Dilde Dinlediğini Anlama Problemlerinin ve Algısal Öğrenme Stillerinin Araştırılması. (Yayımlanmamış Yüksek Lisans Tezi). (Superivsor: Asst. Prof. Dr. P. Durran). İstanbul: İhsan Doğramacı Bilkent Üniversitesi, Sosyal Bilimler Enstitüsü.

Ellis, R. (1995). *Understanding Second Language Acqusition*. Oxford: Oxford University Press.

Fromkin, V. & Rodman, R. (1998). *An Introduction to Language*, (6th edition). Philadelphia, San Diego: Harcourt Brace Jovanovich Publishers.

Gülten, D. G. & Gülten, İ. (2004). Lise 2. Sınıf Öğrencilerinin Geometri Dersi Notları ile Öğrenme Stilleri Arasındaki İlişki Üzerine Bir Araştırma. *Eurasian Journal of Educational Research*, 0(16), 74-87.

Isemonger, I. & Sheppard, C. (2007). A Construct-Related Validity Study on a Korean Version of the Perceptual Learning Styles Preference Questionnaire. *Educational and Psychological Measurement*, 67(2), 357-368.

Karthigeyan, K. & Nirmala, K. (2013). Learning Style Preference of English Language Learners. *Educationia Confab*, 2(1), 134-140.

Naserieh, F. & Sarab, M. R. A. (2013). Perceptual Learning Style Preferences Among Iranian Graduate Students. *System*, 0(41), 122-133.

Palabıyık, P. Y. (2014). Perceptual Learning Style Preferences Among Turkish Juniour High School Students. *Journal of Education and Training*, 0(6), 59-70.

Reid, M. J. (1987). The Learning Style Preferences of ESL Students. *TESOL Quarterly*, 0(21), 87-103.

Robson, C. (1995). *Real World Research*, London: Blackwell.

Salkind, N. J. (2000). *Exploring Research*, Boston: Pearson.

Savaşcı, H. S. (2020). Öğrencilerin Matematiksel Problem Çözme Becerileri ile Algısal Öğrenme Stilleri Arasındaki Ilişki. (Yayımlanmamış Yüksek Lisans Tezi). (Danışman: Prof. Dr. Ekber Tomul). Burdur: Burdur Mehmet Akif Ersoy Üniversitesi, Eğitim Bilimleri Enstitüsü.

Tomrukçu, B. (2022). Türkçeyi Yabancı Dil Olarak Öğrenen Öğrencilerin Öğrenme Biçimlerinin Incelenmesi. *Uluslararası Türkçe Öğretimi Araştırmaları Dergisi*, 2(1), 20-36.

Uğur, N. (2008). Algısal Öğrenme Stilleri Açisindan İlköğretim 4. Sınıf Sosyal Bilgiler Ders Kitaplarinin ve Öğretmen Uygulamalarinin Incelenmesi. (Yayımlanmamış Yüksek Lisans Tezi). (Danışman: Dr. Öğr. Üyesi Ö. K. Hasırcı). Adana: Çukurova Üniversitesi, Sosyal Bilimler Enstitüsü.

Yule, G. (1993). *The Study of Language*. Cambridge: Cambridge University Press.

URL-1 https://researchers.mq.edu.au/en/publications/learning-style-preferences-among-iranian-male-and-female-efl-stud (Access: 01.02.2023).

URL-2 eslbase.com (Access: 04.01.2023).

APPENDIX –A

Reid's (1987) PLSQ was designed and used in the following way.

Features of Field Dependent Learners	Features of Field Independent Learners
- *Personal orientation:* they rely on external frame of reference in processing information. - *Holistic*: perceives a field (e.g. English literature) as a whole, rather than just to parts of it. - *Dependent*: Their self –view is derived from others. -*Socially sensitive*: they have greater skill in interpersonal/social relationships.	- *Impersonal orientation*: they rely on internal frame of reference in processing information. - *Analytic:* They believed to operate analytically (e.g. they percieve the field in terms of its components). -*Independent*: They have a sense of separate identity. -*Not so socially aware*: they have less skill in interpersonal or social relationships. Ellis, (1994: 115).

Read the questions and tick only one option.

How do you define your learning?	:	a) dependent	b) independent
Which hand do you use mostly?	:	a) left	b) right
How do you study?	:	a) alone	b) group
Gender?	:	a) male	b) female

Read and tick only one option for each statement	**A**	**A**	**U**	**D**	**SD**
1. When the teacher tells me the instructions I understand better.					
2. I prefer to learn by doing something in class.					
3. I get more work done when I work with others.					
4. I learn more when I study with a group.					
5. In class, I learn best when I work with others.					
6. I learn better by reading what the teacher writes on the chalkboard.					
7. When someone tells me how to do something in class, I learn it better.					
8. When I do things in class, I learn better.					
9. I remember things I have heard in class better than things I have read.					
10. When I read instructions, I remember them better.					
11. I learn more when I can make a model of something.					
12. I understand better when I read instructions.					
13. When I study alone, I remember things better.					
14. I learn more when I make something for a class project.					
15. I enjoy learning in class by doing experiments.					
16. I learn better when I make drawings as I study.					

17. I learn better in class when the teacher gives a lecture.					
18. When I work alone, I learn better.					
19. I understand things better in class when I participate in role-playing.					
20. I learn better in class when I listen to someone.					
21. I enjoy working on an assignment with two or three classmates.					
22. When I build something, I remember what I have learned better.					
23. I prefer to study with others.					
24. I learn better by reading than by listening to someone.					
25. I enjoy making something for a class project.					
26. I learn best in class when I can participate in related activities.					
27. In class, I work better when I work alone.					
28. I prefer working on projects by myself.					
29. I learn more by reading textbooks than by listening to lectures.					
30. I prefer to work by myself.					