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Learning styles of candidates of geography teaching

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Abstract

The aim of this study is to find out answers to the question how the learning styles of the candidates of geography teaching are. Learning styles can be defined as "each student's using different ways while preparing, learning and recalling a new and difficult information." It is quite important to know these styles and to do activities which are proper to them for increasing success in educational proceedings. In this research, scanning model of quantitative research type is used. 229 students from Marmara and Karadeniz Technical University Geography Teaching Department and Ondokuz Mayıs University Geography Department constitute the paradigm of this research. Data for the research is obtained via Kolb Learning Style Inventory-3 which is adopted to Turkish by Evin Gencel in 2007. Data which is obtained according to the aim of the research is analyzed with Chi-Square test in SPSS-17 program package. Obtained data can be summarized as: "It is seen that the most dominant style is assimilator learning style (38,4%) and it is followed by converger learning style (26,2%). Any significant statistical difference was not found between teaching candidates' gender (male/female), years (1, 2, 3, 4, 5), and faculty type (education or letters and science faculty) and learning styles. Significant difference was only seen between university types X2(sd=6, n=229)=20,54, p<,05). Among the students of Marmara University assimilator and converger, in Ondokuz Mayıs University assimilator and diverger, and among Karadeniz Technical University students diverger and assimilator learning styles are more commonly seen.

Keywords: Geography; Teaching Candidates; Kolb Learning Styles.

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1. Introduction

To oversee individual differences in today's educational understanding is one of the mostly spoken subjects. Evidences in the field of educational sciences, psychology, and even medicine show that there occur important differences to the upmost. Statements like "Everyone has their own peculiar style" or "learning and thinking ways of people differs like their finger prints do" are actually statements that point the reality and importance of individual differences.

On the other hand, in recent years, quite widely accepted idea of student's constructing the information actively according to constructivist education method, has also caused important changes in the roles of teacher and students. Constructivist teachers should offer opinions according to learners' personal differences, but should be a guide and mentor to the learners in making up their own minds. In this respect, learners' presence levels, former lives, learning styles are the elements directing their learning. In the process of learning, there are different styles and methods that each person uses first. This style of learning which differs from person to person is seen as that person's learning style. According to some researchers (Dunn, Beudury and Klavas, 1989), learning style is just like a signature of the individual, and it helps to choose and arrange the learning environment with regard to scientific techniques (Cited: Çelik and Şahin, 2011).

The way a student learns best in his or her learning style. A student's perception, relations with other people and cognitive, affective and physiologic structure that affect his or her behaviors in learning environment determine his or her learning style. In here, it can be said that there is no good or bad learning style in the context of personal differences. What is important is to ensure each student to learn with the most proper style for them.

According to Morris and McCarthy (1990) "There are two important differences about how we learn the information. First of them is how we perceive it and the second one is how we process the information we perceived. Each of us perceive the reality in different ways place them in our minds by different methods. Some of us realize the truths by feeling, some of us by watching, some of us by thinking and some of us by doing." (Demirkaya, 2004).

If what are the learning styles of individual is determined, how individuals learn and which teaching style should be used can be more easily understood. Thus, teacher, primarily for himself, then for the student; can create proper teaching environment for this.

Kolb (1984) defined learning styles as the method that somebody perceives and processes the information. This definition consists of his four-stage experiential learning circle. Kolb gives the definition of empirical learning which is concerning where the information is created within transactional cycle of experience (Chen, Toh, İsmail, 2005:111-124… cited: Çelik and Şahin, 2011).

Kolb stressed in his works on learning styles field in 1970 that the experiences gained as a result of learning are important. Kolb, who is still doing researches about the term learning style, classified learning styles and explained their features as it is in figure 1 below (Subaşı, 2010).

As it is understood from the figure, the basic principle of the experimental learning method is "learning". The other principle is that every individual does not learn in the same way. Main scheme of the theory is constructed from these two principles and there occurs a four stage circle as in the figure. This four stage circle constitutes Kolb's learning styles. While he was showing these styles as they are in Figure-1, Kolb has firstly tried to explain basic dimensions on horizontal and vertical coordinates. These dimensions are comprehension and conversion. When we explain these two concepts on the figure above: Vertical line on the figure constitutes comprehension dimension, horizontal line constitutes conversion dimension.

While comprehension, one of these dimensions, explains learning with tangible experience and intuitive ways; conversion explains learning by internal reflection and external motion. From these dimensions, tangible experience and intuitive conceptualization which constitutes comprehension dimension takes place in vertical dimension; reflective observation and active experience learning style which constitutes conversion takes place in horizontal dimension. Kolb has indicated that people improve in four fields while he was handling these learning styles. These are:

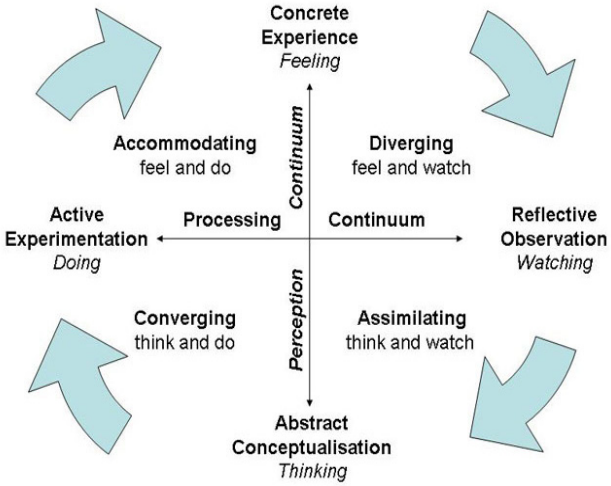

Figure 1: "Learning Circle" according to environmental learning theory.

1) Sentimentalism which occurs as a result of improvement of sensitivity and feeling abilities
2) Symbolicalness which occurs as a result of improvement of cognitive and thinking abilities
3) Behaviorism which occurs as a result of improvement of moving and gaining behavior abilities
4) Susceptibility which occurs as a result of improvement of observation abilities

Kolb has stated that people have four learning styles. It is possible to summarize these learning styles and teaching approaches that students who has these learning styles prefers (Subaşı, 2010, Karakış, 2006).

Assimilator: To create cognitive models, reflective observation and learning are their most explicit features. They focus on intangible ideas while learning something. So, to create cognitive models, to focus on intangible concepts and ideas during a learning process, to think by watching and concepts are the most explicit features of people who has this learning style consists of the union of reflective observation and intangible conceptualization.

Teaching Approach Which the Students Prefer

- To use visual objects
- To do narration
- To do individual researches
- To provide gathering information from mass communication
- To prepare symposiums
- To benefit from experts

To sum up, individuals who have assimilator learning style focus on intangible concepts and ideas. Reasonable values of the ideas are important, instead of to put them into practice. Individuals who have this style of learning are much more looked for professions about science field.

Converger: The reason why this style of learning is called "converger" is that individuals who have this style of learning are successful in intelligence tests in which there is only one answer or solution for each question and problem (Peker, 2003, Cited: Subaşı, 2010).

Teaching Approach Which the Students Prefer

- Homework
- Solving Problems
- Preparing individual research reports

- Laboratory Studies
- Using narration and visual objects together
- Teaching with computer support

To sum up, individuals who have converger learning style show successful behaviors in solving problems whenever they face with any problem.

Accommodator: To make plan and to decide are the most explicit features of the individuals who have this style of learning.

Teaching Approach Which the Students Prefer

- Group working
- Role playing
- Student's presentation on given subjects
- Solving problems
- Preparing projects with groups
- Debates
- Asking question intended to investigation and research
- To do simulations
- Laboratory studies

Individuals who have this style of learning are open-minded. They easily keep up with changes. Individuals who have this style of learning learn by doing and surviving and feeling.

Diverger: Ability to think, to be aware of the value and the sense, to learn by tangible experience and reflective observation are their most explicit features.

Features of the individuals who have diverger learning style can be classified as below:

Teaching Approach Which the Students Prefer

- Using question-answer
- Reading stories
- Using the technique of simulate
- Debates
- Narration
- Group working
- Preparing projects

To sum up, individuals who have this style of learning are patient and objective. They conclude a relevant outcome by revising tangible situations in different angles.

2. Method

Method of the Research: This research is a figurative study in scanning model to inspect learning styles according to variables of candidates of geography teaching such as gender (male/female), high-schools they graduated from (general, Anatolian, vocational, social sciences high schools), year (1,2,3,4,5), and faculty kind (educational/science and letters faculty). Scanning models are research approaches which intend to define a situation which happened in the past or still happening as it is (Karasar, 2000:77).

Universe and Paradigm: Universe of this research is the candidates of geography teaching in the universities of Turkey. Randomly chosen 229 students from these candidates attended this research. These candidates are from Marmara and Karadeniz Technical University Geography teaching Department and Ondokuz Mayıs University Geography Department.

Data Collection Tool: In the stage of data collection Kolb learning Style Inventory-3 with 12 item which was tasted for validity and security, and was developed by Kolb (1976), rearranged by Kolb (1985) and adopted to Turkish by Evin Gencel (2007) is used to determine learning styles of the candidates of teaching. For every item on the scale Pearson Correlation parameters were calculated and total correlation is found 0,77 (Evin Gencel, 2008).

Collecting Data: Answers of the questions found in Kolb learning scale are given in the ranking of tangible experience (TE), reflective observation (RO), intangible conceptualization (IC), and real experience (RE). According to the rankings made by each teaching candidate for each question, at the end of the scale, point sums of the tangible experience (TE), reflective observation (RO), intangible conceptualization (IO), and real experience (RE) were calculated and IC-TE and RE-RO differences were found. According to these rates, which style the candidate has determined by a graphic developed by, again, Kolb. Inventory in question includes twelve situations in each there were four options. The inventory was configured with a kind of foursome classification with answers like "the most proper-4, second proper-3, third proper-2, the least proper-1" for every situation. These acquired values were placed on a graphic which was designed according to empiric learning theory. This graphic is divided into four stages as transducer, distinctive, converter, assimilative. According to the quantitative values acquired from IC-TE and RE-RO, it is determined of this graphic which one of the four learning styles the students have. After this study, every learning style is given a quantitative value and according to this learning styles of the students were entered to computer environment. Quantitative values about every candidate's learning styles were transferred into the file in which the personal information is kept.

Analysis of the Data: Frequency (f), percentage (%) and Chi-Square test were used for the quantitative comparisons to determine whether learning styles of teaching candidates differ according to various features. Chi-Square independency test is used to find out if there is a connection between two or more variable groups. Statistical analysis of the research data were done by using SPSS (Statistical Package for the Social Sciences). Meaningfulness level in the statistical analysis of the research was adopted 0,5.

3. Findings

Table 1: Frequency and percentage values of students' learning styles

		Learning Styles				
		Diverger	Accommodator	Converger	Assimilator	Total
Total	N	53	28	60	88	229
	%	23,1	12,2	26,2	38,4	100

As it is seen in Table-1, an important ratio (38,4%) of geography teaching candidates have assimilator learning style. It is remarkable that converger learning style is the second dominant learning style, and diverger style is in the third place with a ratio close to this. Accommodator style's having the least ratio with 12,2% is another remarkable point.

Table 2: Chi-Square test results related to students' learning styles and gender variable

	Learning Styles				
Gender	Diverger	Accommodator	Converger	Assimilator	Total
Female	22	8	25	35	90
	24,4%	8,9%	27,8%	38,9%	100%
Male	31	20	35	53	139
	22,3%	14,4%	25,2%	38,1%	100%
X^2=1,60, SD=3, p=,657					

When Table-2 is examined, there is no meaningful relation between students' learning styles and their gender (X^2 (sd=3, n=229) = 1,60, p>,05). According to the table, while an important part of both male and female students (about 38-39 %) have assimilator learning style, the least seen learning style for both variable is again accommodator learning style (female:8,9%, male:20%).

Table 3: Chi-Square test results related to students' learning styles and high-school kinds variables

	Learning Styles				
High-School Kind	**Diverger**	**Accommodator**	**Converger**	**Assimilator**	**Total**
General High-School	30	20	44	52	146
	20,5%	13,7%	30,1%	35,6%	100%
Anatolian and Anatolian Teaching	12	5	14	26	57
	21,1%	8,8%	24,6%	45,6%	100%
Vocational	1	1	1	4	7
	14,3%	14,3%	14,3%	57,1%	100%
Other	10	2	1	6	19
	52,6%	10,5%	5,3%	31,6%	100%

X^2=15,20, SD=9, p=,085

When Table-3 is examined, it is seen that there is not any meaningful relation between students' learning style and their high-school kinds(X2 (sd=9, n=229) = 15,20, p>,05). Here, assimilator learning style, which is seen commonly among general, Anatolian and vocational high-schools, left its place to diverger learning style (52,6%) in other kinds of high-schools (generally social sciences and super high-schools).

Table 4: Chi-Square test results related to students' learning styles and their year variables

	Learning Styles				
Year	Diverger	Accommodator	Converger	Assimilator	Total
1	4	4	10	20	38
	10,5%	10,5%	26,3%	52,6%	100%
2	15	5	13	24	57
	26,3%	8,8%	22,8%	42,1%	100%
3	13	10	19	23	65
	20%	15,4%	29,2%	35,4%	100%
4	9	6	9	11	35
	25,7%	17,1%	25,7%	31,4%	100%
5	12	3	9	10	34
	35,3%	8,8%	26,4%	29,4%	100%

X^2=11,59 SD=12, p=,478

Table-4 also shows that there is no meaningful relation between learning styles and class variables (X2 (sd=12, n=229) = 11,59, p>,05). In spite of the dominance of assimilator learning styles in all classes, it is seen that this rate gets lower through upper classes.

Meaningful difference between learning styles and faculty kinds also is not detected in Table-5 [(X2 (sd=3, n=229) = 5,22, p>,05)]. But, a remarkable matter is that the most seen learning style among education faculty students is converger learning style with a ratio of 29,7%. Whereas, the dominance of assimilator style with a value (47,4%) higher than general average, is also seen among the students of science and letters faculty.

Data in Table-6 shows that there is a meaningful difference between learning styles and university variables [(X2 (sd=6, n=229) = 20,54, p<,05)]. Assimilator learning style, which is so common among the students of Marmara (41, 2%) and Ondokuz Mayıs (47, 4%), left its place to diverger learning style in Karadeniz Technical University (30,7%). The ratio of accommodator style is seen quite reduced among the students of Marmara University (7,2%).

Table 5: Chi-Square test results related to students' learning styles and their faculty kinds variables

	Learning Styles				
Faculty	Diverger	Accommodator	Converger	Assimilator	Total
Education	38	22	51	61	172
	22,1%	12,8%	29,7%	25,5%	100%
Science and Letters	15	6	9	27	57
	26,3%	10,5%	15,8%	47,4%	100%

X^2=5,22 SD=3, p=,156

Table 6: Chi-Square test results related to students' learning styles and university variables

	Learning Styles				
University	Diverger	Accommodator	Converger	Assimilator	Total
Marmara	15	7	35	40	97
	15,5%	7,2%	36,1%	41,2%	100%
Ondokuz Mayıs	15	6	9	27	57
	26,3%	10,5%	15,8%	47,4%	100%
Karadeniz Technical	23	15	16	21	75
	30,7%	20%	21,3%	28%	100%

X^2=20,54 SD=6, p=,002

4. Conclusion, Argument, and Suggestions

Learning or teaching styles are basic features which the individual has since birth and affects his or her success. The best way and methods that the individual will follow during the process of learning may differ from other individuals. Therefore, it is important to know these learning styles for the success of educational activities by every partner who takes place in education process.

In this study, learning styles of 229 geography teaching candidate were detected according to Kolb learning theory. At the end, it is determined that the most seen learning style is assimilator (38%) and the least seen learning style is accommodator style (12%). 26% of the candidates have converger, 23% of them have diverger learning style. Any statistical difference between learning styles and gender, high school they graduated from, faculty kinds, years of teaching candidates, but mathematical differences take attention. Statistically a meaningful difference takes attention only between universities from our variables. Although assimilator learning style is dominant learning area among all the students, the ratio of assimilators differs in total. As follows, while 28% of Karadeniz Technical University students have assimilator learning style, it is about 47% among Ondokuz Mayıs University students.

Results of this study show similarities to the results of former studies and differences to the some other studies. For example, it shows parallelism to our research results that there does not occur any meaningful difference between learning styles and gender and year variables in Çelik and Şahin's (2011) study. Especially, there is not any meaningful difference between years variables and this supports that learning style is innate and not an easily changeable feature during the life (Kaplan and Kies, 1995, cited., Çelik and Şahin, 2011). It does not match with our research that there occurs a meaningful differences between gender variables in the study of Çaycı and Ünal (2007). However, it shows parallelism to our study that at the end of this study most of the class teaching candidates have the assimilator learning style. A similar result has been acquired at the end of the research done by Mutlu (2008). Also in the study on Turkish department students' learning styles (Demir, 2008), while results like most of the teaching candidates' having assimilator and converger learning styles and gender's not causing differences on styles

are similar, it shows a difference with our study that there occurs a meaningful difference between learning styles and high school the students graduated from.

Finally, based on the reality that the most common learning style is assimilator style according to Kolb Learning Style Inventory, it is thought that it will give more meaningful results to do exercises suitable to this learning style in the educational activities and events. As it is stated above, learning approaches preferred by individuals with this learning style those: To use visual objects, to do narration, to do individual researches, to gather information from mass-communication devices, to conduct a seminar and to benefit from experts. On the other hand, it is useful to give precedence to those learning approaches in education faculties, because the dominant style among the candidates in there is converger style. These are homework, to solve problems, to prepare individual research reports, laboratory studies, to use visualization and narration together, to do teaching with computer. Besides, learning approaches of the diverger learning style, which is dominant among the students of Karadeniz Technical University and especially students graduated from social sciences and super high schools, are those: to use simulations, to debate, to narrate, group working, to prepare projects. Basically, there are more or less teaching candidates from every learning style, and this necessitates using a wide variety of activities, strategies, method-technique and tools. It can be possible to reach the students at the maximum level only by these approaches. It should be enabled to develop individuals' investigation and creative thinking abilities by thinking that learning questions for the students with this learning style are for assimilators *what*, for convergers *how,* for divergers *why,* and for accommodators *if* and by creating interactive environment in class environment. It should be seen as a prior condition that teaching personnel's and teaching candidates' having the adequate knowledge about learning styles for doing the all activities and creating an interactive class environment.

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