

## **Examining the Learning Styles of Prospective Classroom Teachers**

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This study was sourced by an oral study presentation at the 11<sup>th</sup> National Classroom Teaching Education Symposium that was organized by the Faculty of Education, Recep Tayyip Erdoğan University (24-26 May 2012).

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## **Abstract**

*The aim of this study is to determine the dominant learning styles among Kolb's Learning Styles that are preferred by prospective teachers of Classroom Teaching at the Faculty of Education in Atatürk University and to examine the differences among gender and class levels. The Survey model was used in the research. A total of 93 prospective teachers, who were registered to the Department of Classroom Teaching in the 2011-2012 academic year, participated in the study. Kolb's Learning Style Inventory (LSI), which was translated into Turkish by Aşkar and Akkoyunlu (1993), was used as the data collection tool in the research. Frequency, percentage values and Chi-Square Independence Test Techniques were used in analyzing the data. According to the obtained data, it was found that most frequently the prospective classroom teachers had an "assimilating" learning style, whereas the "accommodating" learning style was the least frequent. In view of the research, no significant difference was observed among the learning styles and constituents of prospective classroom teachers in terms of gender and class levels.*

**Keywords:** *Learning, Learning Styles, Kolb's Learning Styles*

## **Introduction**

The future of individuals and societies depends on their skills to reach, use and produce information in our age where we experience rapid information sharing and production. The idea of active construction of information by students has caused significant changes in teacher and student roles in accordance with the constructivist education understanding that has been rather widely accepted in the field of education in recent years (Çelik & Şahin, 2011).

The fact that each student has a way and style with which he/she learns the best, in other words, the fact that each student learns via different ways results from the fact that they have different learning styles and they use these learning styles effectively. Just as the personality traits, preferences and needs of each individual are different from each other and specific to each individual, the learning styles are also specific to each person and none of them is superior to the other (Galloway and Labarca, 1990; Reported by Erden and Altun, 2006). The real problem existing in many traditional education systems is not the fact that some students are "learning disabled" but the fact that many teachers are reluctant to adapt their teaching approaches according to the students who learn via different ways (Saban, 2001).

Learning style can be defined as the individual approach differences in the course of obtaining and processing information (Felder, 1996; Reported by Yenice and Saracaloğlu, 2009: 162). Felder (1996) states that there are a number of methods preferred by the students in the course of obtaining and processing information. He adds that some students focus on the data and operations whereas some of them are more comfortable in theories and mathematical models; some students react to the visual forms of information such as diagrams, pictures and graphs more strongly whereas some of them react to the written and verbal explanations more strongly; a group of students prefer efficient and interactive learning whereas another group of students prefer more internal and individual methods. According to the writer, the mentioned differences reveal that the students have different learning styles.

Kolb's learning style model (Kolb, 1984; Aşkar & Akkoyunlu, 1993), the basis of which is Kolb's Experiential Learning Theory, is one of the models widely used. Kolb's Learning Style is composed of two dimensions, namely obtaining information and processing information. The first dimension defines concrete experience and abstract conceptualization

whereas the second dimension defines active experimentation and reflective observation (Rayner & Riding, 1997). The students are classified according to their preference of concrete experience or abstract conceptualization (how they obtain and comprehend the information) and active experimentation or reflective observation (how they transform and internalize the information) in this model (Felder, 1996). However, there is not just one style that defines the individual's learning style (Aşkar and Akkoyunlu, 1993; Jonassen and Grabowski, 1999). An individual's learning style is explained with the interaction of four basic learning styles in different ways. These learning styles are as follows: "Diverging", "Assimilating", "Converging" and "Accommodating". These four different learning styles reveal not only the individual's dominant learning style but also his/her learning preferences (Kolb, 1985:5, Aşkar & Akkoyunlu, 1993).

*1-Diverging Learning Style:* The combination of concrete experience (via feeling) and reflective observation (via watching) gives us the diverging learning style. Individuals who have this learning style are successful in looking at concrete situations from many different aspects. These individuals are skillful in focusing on ideas and connecting ideas, as in brainstorming. Individuals who have this learning style have broad cultural interests. These individuals consider their own feelings and opinions while structuring opinions. The question "Why?" is the defining question of these individuals who prefer working individually in learning activities. This type of learners explain course materials by associating them with their experiences, interests and their prospective occupations. As motivators, teachers must help this type of learners (Kolb, 1984; Jonassen and Grabowski, 1993; Felder, 1996; Riding and Rayner, 1998; Guild & Garger, 1991).

*2-Assimilating Learning Style:* The combination of abstract conceptualization (via thinking) and reflective observation (via watching) gives us the assimilating learning style. Their thinking skill and their awareness of values and meanings are among the most important features of the individuals who have this learning style. These individuals focus on abstract concepts and ideas while learning something. The question "What?" is the defining question of this type of learners. Individuals who have assimilating learning style prefer structured systematic information. The information that is offered to the individuals with this learning style must be ordered, logical and detailed. They prefer audio-visual presentations and course implementations. Teachers with this learning style must act as an expert in order to be effective (Kolb, 1984; Jonassen and Grabowski, 1993; Felder, 1996; Guild & Garger, 1991).

*3-Converging Learning Style:* The combination of abstract conceptualization (via thinking) and active experimentation (via doing) gives us the converging learning style. Solving problems, deciding, logical and systematic planning of ideas are primary features of the individuals who have this learning style. These individuals prefer dealing with technical problems instead of social and personal activities. Converging individuals attach importance to details. They try to understand the whole from the parts. They follow the steps in an order during learning activities. The question "How?" is the defining question of those who prefer this type of learning. The teacher must act as a trainer (coach) in order to be effective (Kolb, 1984; Jonassen and Grabowski, 1993; Felder, 1996; Guild & Garger, 1991).

*4-Accommodating Learning Style:* The combination of concrete experience (via feeling) and active experimentation (via doing) gives us the accommodating learning style. Planning, executing the decisions and involving in new experiences are among the notable features of the individuals with this learning style. They enjoy learning through research and discovery. The question "If... then what?" is the defining question of this type of learners. In order to be effective, the educator must offer opportunities at the highest level to the students

so that they discover something on their own, and he/she must take a back seat (Kolb, 1984; Jonassen and Grabowski, 1993; Felder, 1996; Guild & Garger, 1991).

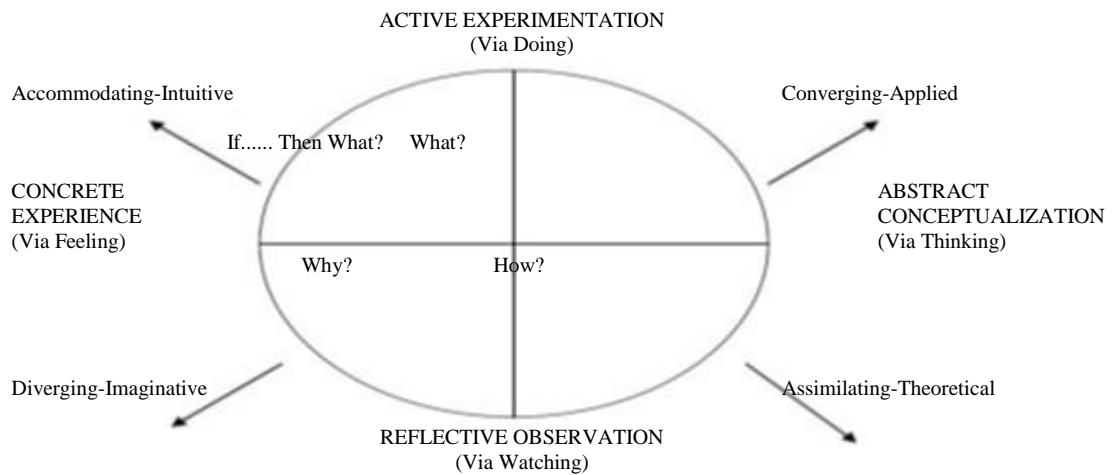


Figure-1 *Diagram to Identify the Learning Styles*

## Method

### *Research Model*

Descriptive survey model was used in this study. General survey models are survey formations that are performed on the entire universe or a group, section or sample taken from that universe in order to pass a general judgment on the universe in a universe that is composed of many number of elements (Karasar, 2006: 79).

### *Sample*

The sample of the study was composed of 93 first-year and fourth-year prospective teachers, who were studying in daytime and evening education at the Department of Classroom Teaching at Kazım Karabekir Faculty of Education in Atatürk University, who were selected via random sampling method.

### *Data Collection Tools*

Kolb's Learning Style Inventory (LSI), which was developed by Kolb (1985) and translated into Turkish by Aşkar and Akkoyunlu (1993), was used in the data collection stage in order to determine the learning styles of prospective classroom teachers. Among the four basic learning styles within the inventory, Cronbach's alpha reliability value was determined as 0.58 for the concrete experience; 0.70 for the reflective observation; 0.71 for the abstract conceptualization and 0.65 for the active experimentation. The learning style inventory was composed of 12 questions, and there were four options in each question. For the options in the questions, four grading types were structured as answer options as follows: "4 as the most suitable, 3 as the second suitable, 2 as the third suitable and 1 as the least suitable". The answers to the questions within Kolb's learning scale were given in the following order:

- 1: Concrete Experience (CE),
- 2: Reflective Observation (RO),
- 3: Abstract Conceptualization (AC),
- 4: Active Experimentation (AE)

After CE point, RO point, AC point and AE point of 12 items had been calculated, combined points were determined as AE-RO, AC-CE. These obtained values were placed on a graph

that was organized in accordance with experiential learning. This graph was divided into four fields, namely accommodating, converging, diverging and assimilating. According to the numerical values obtained from AC-CE and AE-RO, it was determined to which of the four learning styles the students belonged.

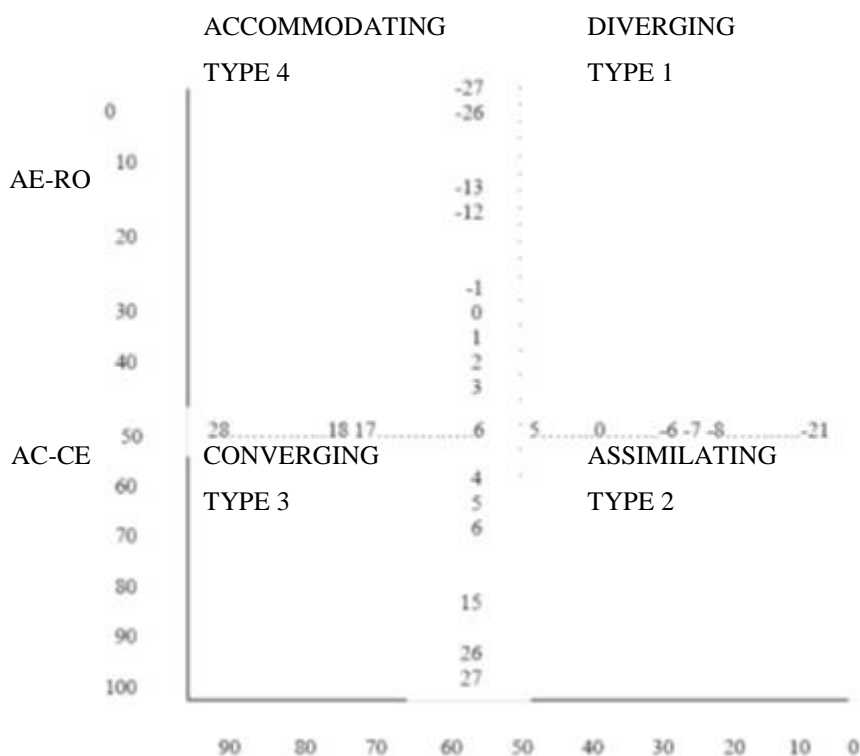


Figure-2 Learning Style Inventory Analysis Diagram

The fact that the individual knows the most suitable learning style for himself/herself helps him/her to increase his/her learning power (Aşkar and Akkoyunlu, 1993). On the other hand, an educator, who knows the features of his/her style, can design a more effective teaching service by finding the equivalents to his/her styles. He/She can even develop distinctive course designs for every course that he/she will give (Babadoğan, 2000). Determining the learning styles of the students can assist the teachers in deciding what kind of a method to develop in the teaching process (Akkoyunlu, 1995). For this reason, the aim of this study is to determine the dominant learning styles among Kolb's Learning Styles that are preferred by prospective teachers of Classroom Teaching at the Faculty of Education in Atatürk University. And to this aim, answers were sought to the following questions:

- 1- Is there a significant relationship between the gender and learning styles of prospective classroom teachers?
- 2- Is there a significant relationship between the class levels and learning styles of prospective classroom teachers?

#### Data Analysis

The learning styles of prospective classroom teachers were presented by benefiting from descriptive statistics and forming frequency (f) and percentage (%) tables. Moreover, the "Chi-square Test" was utilized in the research questions. The Chi-square independence test was used in order to establish whether there is a relationship between two or more variable groups. The observation results have to be presented as a classified or grouped combined series in order to conduct this test (Kalaycı 2006). SPSS 16 (Statistical Package for the Social Sciences) package program was used for the statistical analyses of the research data. The level

of significance was taken as .05 for the statistical analyses that were conducted in the research.

## Findings

The Chi-square Test was conducted in order to test whether there was a significant relationship between gender and learning style, and its results are given in Table 1.

Table 1: *Chi-square Test Results Regarding Gender and Learning Styles*

Learning Style	Gender (f) and (%)				Total	
	Male f	Male %	Female f	Female %	f	%
Assimilating	13	31.0	19	37.3	32	34.4
Diverging	8	19.0	11	21.6	19	20.4
Converging	15	35.7	13	25.5	28	30.1
Accommodating	6	14.3	8	15.7	14	15.1
Total	42	100.0	51	100.0	93	100.0
X <sup>2</sup> : 1.167		Sd: 3		p > .05		

As seen in Table 1, it was found that there was no significant relationship between gender and learning style according to the results of the Chi-square test ( $X^2_{(3)} : 1.167, p > .05$ ). Among a total of 93 prospective classroom teachers, it was observed that 34.4% (f=32) of them had assimilating learning style, 20.4% of them had (f=19) diverging learning style, 30.1% (f=28) of them had converging learning style and 15.1% (f=14) of them had accommodating learning style.

When the learning styles of female and male prospective teachers are considered, it is observed that female students preferred assimilating style with a highest ratio of 37.3% (f=32) whereas male students preferred converging learning style with a highest ratio of 35.7% (f=13). It is observed that female prospective teachers preferred accommodating learning style with a least ratio of 15.7% (f=14) and male prospective teachers also preferred accommodating learning style with a least ratio of 14.3% (f=6).

Table 2: *Distribution of Prospective Teachers in Terms of Class Level and Learning Style*

Learning Style	Class Level (f) and (%)				Total	
	1 <sup>st</sup> Year f	1 <sup>st</sup> Year %	4 <sup>th</sup> Year f	4 <sup>th</sup> Year %	f	%
Assimilating	19	35.8	13	32.5	32	34.4
Diverging	11	20.8	8	20.0	19	20.4
Converging	15	28.3	13	32.5	28	30.1
Accommodating	8	15.1	6	15.0	14	15.1
Total	53	100.0	40	100.0	93	100.0
X <sup>2</sup> : .214		Sd: 3		p > .05		

It was observed that there was no significant relationship between class levels and learning styles of the students according to the results of the Chi-square test ( $X^2_{(3)} : .214, p > .05$ ). According to Table 4, it is observed that 32 (34.4%) of the prospective classroom teachers had the assimilating learning style with the highest ratio whereas 14 (15.1%) of them had the accommodating learning style with the least ratio. When the class levels are considered, close values are observed. In view of this, it can be stated that the learning styles

of first-year students and fourth-year students show similarity. There is a significant difference between the learning styles of first-year students and fourth-year students. Assimilating learning style was the most observed learning style among the first-year students whereas the converging learning style was the most observed learning style among the fourth-year students.

## **Discussion and Conclusion**

In view of the findings of the research that was conducted in order to determine whether there was a significant difference between gender and learning styles, it is observed that assimilating learning style had the highest ratio %34.4 (f=32) whereas accommodating learning style had the lowest ratio %15.1 (f=14). In the surveys conducted with Kolb's Learning Style Inventory, it is stated that the number of students who prefer the assimilating learning style is considerably higher than the number of students who prefer other learning styles, and the number of students who preferred the accommodating learning style is generally fewer in number. This result corresponds to the findings of Ames (2003), Güzel (2004), Uzuntiryaki, Bilgin and Geban (2004), Arslan and Babadoğan (2005), Demir (2006), Numanoğlu and Şen (2006), Bahar, Özen and Gülaçtı (2007), Okur, Bahar, Akgün and Bekdemir (2011) and Mutlu (2008).

In the study conducted by Aşkar and Akkoyunlu (1993), Kolb's Learning Style Inventory was implemented on 103 adults. It was found that 65% of them had the assimilating learning style, 17% of them had the converging learning style, 11% of them had the diverging learning style and 7% of them had the accommodating learning style.

In the study conducted by Çelik and Şahin (2011) on 81 prospective physical education teachers, the ratio of the learning styles of the prospective teachers were as follows: 17.3% for Type I diverging learning style, 43.2% for Type II assimilating learning style, 27% Type III converging learning style and 2.3% for Type IV accommodating learning style.

In the study conducted by Okur, Bahar, Akgün and Bekdemir (2011) on 452 students, 47.3% of them had the assimilating learning style, 36.7% of them had the converging learning style, 8.7% of them had the diverging learning style and 7.3% of them had the accommodating learning style.

In parallel with the studies within the related literature, it is interesting that those who prefer the assimilating learning style are larger in number whereas those who prefer the accommodating learning style are fewer in number. This finding shows parallelism with the studies in the related literature.

Another aim of this study was to determine whether the learning styles differed in terms of class levels. In the Chi-square analysis conducted for that purpose, it is observed that there is no significant difference at .05 level. In the study conducted by Kaf Hasırcı (2006) in order to find the dominant learning styles of the students and determine whether there was a difference in terms of class level, he found that the dominant learning styles did not show a statistically significant difference in terms of class level. This result supports the opinion that the learning style emerges as an innate feature that does not easily change throughout one's life as stated by Kaplan and Kies (1995).

In a study conducted by Ergür (1998), he found that learning styles affected people's academic careers. In view of the researches conducted in recent years, it was found that people from professions such as psychology, social services, art/theater, literature, design and journalism dominantly prefer the diverging learning style; people from professions such as biology, mathematics, physics, education researchers, sociologists and lawyers dominantly

prefer the assimilating learning style; people from professions such as engineering, computer sciences, medical technology, economy, forming and forestry dominantly prefer the converging learning style; and people from professions such as management, public finance, marketing, human resources dominantly prefer the accommodating learning style (Kolb, Boyatzis and Mainemelis, 1999). On the other hand, Aşkar and Akkoyunlu (1993: 44) emphasize that people who are interested in education and teachers prefer the assimilating learning style. In the conducted study, it is observed that the findings obtained from the prospective teachers according to class levels are parallel with the related literature.

This study can guide academicians who work in institutions that provide teacher training, and highlight the fact that they should pay particular attention to the learning styles of the prospective teachers on the courses that they give. This study can also assist prospective teachers in learning easily and developing positive attitudes towards learning and courses throughout their education.

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