

Pre-service teachers' perceptions about their own learning styles

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Abstract: The purpose of the study was to investigate pre-service teachers' perceptions of their own learning styles. The study was carried out with 144 pre-service teachers. Participants of the study were instructed about learning styles and also the features of the visual, auditory and kinesthetic learning styles were explained in depth. Pre-service teachers were asked open-ended questions regarding what might be the most appropriate learning style to them. The data were coded and grouped under relevant categories. The findings indicated that most of the pre-service teachers believe that they have visual (49.8%) learning style. 28.9 percent of the pre-service teachers perceive themselves as kinesthetic and 23.3 percent of them are of the opinion that they are auditory. Besides, some of the pre-service teachers have also expressed that they have more than one learning style.

Key words: Learning styles, pre-service teachers, learning.

Introduction

With increasing importance attached to cognitive conception of learning arguing that learning is an active intellectual process and constructivist approach assuming that learning is a personal endeavor, greater emphasis has been put on individual differences in the field of education. Cognitive and constructivist learning approaches have drawn the attention to the reception of information by the learner, processing of it and constructing of it. These processes occur in different ways for different individuals; hence, individual differences should be taken into consideration in learning. One of the individual characteristics of the learner regarded to be important in learning process is learning styles.

Learning styles can be described as approaches specific to an individual learner used during the processes of reception and processing of information. When the models explaining learning styles having cognitive, affective and physiologic dimensions are examined, it can be concluded that learning styles are specific to individuals. The models emphasizing the cognitive dimensions of learning styles are concerned with the reception of information, processing, storing, encoding and decoding of it. The models emphasizing the affective dimension are concerned with the personality characteristics such as motivation, attention, locus of control, interests, willingness to take risks, perseverance, taking responsibility and liking social life. The learning styles models emphasizing physiological dimension are concerned with the perception through senses (visual, auditory, kinesthetic, and tactile), properties of the setting (level of noise, heat, light and organization of the room), sustenance (need for food and drink) and biorhythms (in which part of the day, they feel the best to learn) (Başbüyük, 2004; Dağhan & Akkoyunlu, 2011). These models dealing with the different dimensions of learning styles explain learning styles through different classifications.

According to Given (1996) learning style models tend to fall into one or more of the following five categories: a) personality and emotional models, b) psychological, cognitive and information processing models, c) social models, d) physical models, and e) environmental and instructional models. Kolb (1984) constructed a bidimensional model resulting in four basic types or styles: diverger, assimilator, converger, and accommodator. The vertical axis in Kolb's model represents a continuum of preferences for how information is grasped or perceived which ranges from apprehending concrete experiences to comprehending abstract concepts. The horizontal axis represents how information once perceived is transformed into meaning. At one end is active experimentation with

reflective observation at the other end. It is the crossing of these two continua that creates Kolb's four major learning styles. Anthony Gregorc (1982) also created a bidimensional model and he called his four "mind channels" concrete sequential, abstract sequential, abstract random, and concrete random learning styles. Gregorc believes that individuals can adjust to varying circumstances through their non-dominant channels so long as the dominant style is permitted opportunity to develop. Dunn and Dunn (1992; 1993) investigated emotional factors of style including how students are motivated to learn, how persistent they are when pursuing a task, and the level of responsibility assumed for completing the task. Grasha (1972) developed learning style scales which included aspects of personality to social preferences: independent, dependent, collaborative, competitive, participant, and avoidant learning patterns. Brandt (1983) identified three dysfunctional styles that may appear functional. They were the acquiescent, self-important, and deprived styles. McCarthy (1987) developed the 4MAT System based on brain hemisphericity. The result was a quadrilateral curriculum design with each quadrant divided into left brain/right brain characteristics. McCarthy advocates designing lessons according to the eight step sequence that includes: a) creating an experience-right mode, b) reflecting, analyzing experience-left mode, c) integrating reflective analysis into concepts—right mode, d) developing concepts, skills-left mode, e) practicing defined "givens"-left mode, f) practicing and adding something of oneself-right mode, g) analyzing application for relevance, usefulness-left mode, and h) doing it and applying to new, more complex experience-right mode (Given, 1996).

Sensory modalities (visual, auditory and kinesthetic) are other primary ways researchers categorize learning style. A modality approach has high face validity because of its practical clarity. Because individuals often display insights into the way they best learn (Given, 1996). For example, visual learners are natural at reading, spelling, proofreading, remembering faces of people (but forgets names), remembering details and colors and creating mental (visual) images. Visual learners solve problems by reading information, listing problems, by preparing graphic organizers to organize thoughts and by using flow charts. Also they learn best by taking notes, making lists, by reading information, by learning from books, videotapes, filmstrips, printouts and by seeing a demonstration. Besides, visual learners read for pleasure/relaxation. They can spend long periods of time studying and require quiet during study. They read rapidly and learn to spell words in configurations rather than phonetically. The difficulties in schools of visual learners can be listed as need to take action before seeing what needs to be done; working in an environment with noise or movement; tuning out sounds; listening to lectures without visual picture or illustrations; dealing with unappealing physical appearance of teacher; working in classrooms with no decorations or drab colors; working under fluorescent lights - makes it hard to concentrate for visual learners. On the other hand for auditory learners, speaking extemporaneously, noticing sounds in environment, remembering names of people (forget faces), and working with words and languages are natural. Auditory learners solve problems by talking about options, by asking others what they would do in a situation, by verbalizing the goal until it sounds right and by auditory repetition. They learn best by talking aloud, by listening to a lecture, by discussing in small or large groups and by hearing music without words as a background in the learning environment. Auditory learners read dialogues and play and sub vocalizes internally or externally for comprehension. They stop while reading to talk to self or others about what is read and they are good at phonetically sounding out new words. The difficulties that auditory learners can be encounter in schools are: reading quickly while they read more slowly than visual learner; reading silently for prolonged periods of times; reading directions while they often unaware of illustrations; taking timed tests that must be read and written; living with enforced silence (can't wait to talk); and seeing significant details. Some other learners, who are natural at sports, dance, adventure, competition, challenge, running, jumping, leaping, rolling and at action using large motor muscles classified as kinesthetic learners. These learners solve problems by taking action, then planning based on results and by attacking problems physically. They seek solutions that involve great physical activity and prefer to solve problems individually or in small groups. Kinesthetic learners learn best by doing, hands-on approach -- manipulation, simulations, live events. They need to be physical involvement in learning. Field trips to gain knowledge and small group discussions are the ways that they learn best. A kinesthetic learner reads primarily for meaning and function, rather than enjoyment. He/she reads action-oriented books/plays and studies for short periods interspersed with moving around. They usually lay on floor or bed to study. The difficulties that the kinesthetic learners can be encounter in school are: sitting still; listening to lectures of more than four minutes; spelling; recalling what was seen or heard (remember everything that was done); expressing emotions without physical movement. (<http://www.westga.edu/~jdbutler/ClassNotes/learnstyles.html>)

Researches reveal that when students are taught through their preferred learning style they demonstrate: a) statistically significant improvement in their attitudes toward instruction, b) increased tolerance for cognitive diversity, c) statistically significant increased academic achievement, d) better discipline/behavior, and e) greater

self-discipline for homework completion (Given, 1996).

If a student knows his/her learning style and utilizes it during learning process, he/she can learn more easily and faster and be more probably successful at the end of the learning process (Biggs, 2001; cited in Dağhan & Akkoyunlu, 2011). In addition, what is important for students' achievement is not only knowing which style is their preferred one but also knowing whether they are aware of the characteristics of their dominant style or not (Dağhan & Akkoyunlu, 2011). Aşkar and Akkoyunlu (1993) state that one's knowing which learning style is the best for himself/herself may help him/her to enhance his/her learning potential. Besides Babadoğan (2003) report that when the students with poor academic achievement make use of their dominant learning styles, they can significantly improve their learning performance. When learning styles are systematically taught to students, in a short time, improvement is seen in the amount of information learned and retention of it (Given, 1996).

Students' having quality information about their learning styles thought to contribute to their cognitive and affective qualifications throughout supporting their learning. Being informed about one's own learning style is important because, this leads to their effective arrangement of their learning processes and improvement of their academic achievement and self-confidence. For pre-service teachers to be effective in their professional teaching career, they need to be made aware of their learning styles, which contribute to their achievement and their self-confidence during their learning processes. In light of these facts, the present study aims to investigate the pre-service teachers' perceptions of their own learning styles. Pre-service teachers' being informed about learning styles may help them to take their own students' learning styles into consideration while designing their lessons, so that they will be able to design lessons matching the learning styles of their students in the future.

Method

The present study investigating the pre-service teachers' perceptions of their own learning styles employs qualitative research methods. Totally 144 pre-service teachers from the departments of English Language Teaching, Mathematics Teaching, Science Teaching and Social Studies Teaching participated in the present study. The pre-service teachers were informed about learning styles and detailed explanations were given about the characteristics of visual, auditory and kinesthetic learning styles and some examples were presented. Şimşek (2002) stated that a student tend to use one of these learning modalities. Open-ended questions were asked to the participants to determine which learning style they think is most suitable for themselves. The data obtained were coded and collected under the related categories. The results that found by calculating the frequencies and percentages were arranged and then interpreted. Furthermore relevant quotations from pre-service teachers' responses were presented.

Results

The findings of the study were obtained by reducing the statements in the responses given to the open-ended questions. 49.8% of the students participating in the present study think that they have visual learning style. In Table 1, the frequencies and percentages calculated for the statements of the students thinking that they have visual learning style are presented.

Table 1: Frequencies and percentages of the students' statements, who think that they have visual learning style.

Statements	f	%
I take detailed notes.	27	22.0
I am successful in interpreting and learning visual items.	21	17.1
I best learn and understand by seeing/reading	13	10.6
I make observations.	3	2.4
It is important for me to watch my teacher.	10	8.1
I do not forget what I have seen.	20	16.3
I cannot understand the things I haven't read.	3	2.4
I can visualize the things I have read/learned.	20	16.3
I get distracted unless I make eye contact.	1	0.8
I can learn better by writing.	2	1.6
While studying, I make use of drawings and colors.	3	2.4

As can be seen in Table 1, the pre-service teachers thinking that they have visual learning style state that they can learn better by seeing, understand visual things better, like taking notes and they work by drawing. These pre-service teachers also stated that they visualize what they have learned and read and they do not forget what they have seen; hence, their dominant learning style is visual. Some of the quotations from the statements expressed by the pre-service teachers thinking they have the visual learning style are as follows:

“I solve the problems by visualizing where or on which page their answers are.”

“I take detailed notes and I only understand the notes I have myself taken.”

“The things which I have only listened quickly fade away from my mind; I remember the notes taken in great detail.”

“While listening to the lesson, I closely watch my teacher’s behaviors. I feel as if I could not understand if I do not see my teacher.”

“I do not forget easily what I have seen.”

“While listening to the teacher, I do not focus on what he/she says rather the visual presentations prepared by him/her.”

“In order to retain information, I must read it myself, I cannot understand the subject when others explain it to me.”

“When I go to a destination I do not know, I do not get the directions from others, I myself look at the map and visualize it.”

The percentage of the pre-service teachers thinking that they have auditory learning style was found to be 21.3. Percentages and frequencies calculated for the statements of the pre-service teachers thinking that they have auditory learning style are presented in Table 2.

Table 2: Frequencies and percentages of the students’ statements, who think that they have auditory learning style.

Statements	f	%
I can listen to for a long time, I like listening.	3	6.5
I am highly interested in tone of voice and stresses.	7	15.2
I learn better when I study by telling	2	4.3
I am sensitive to sounds.	4	8.7
I learn/understand better by listening.	15	32.6
I do not forget what I have heard.	3	6.5
I revise the subjects by talking/reading/discussing/interpreting loudly.	10	21.7
I record and listen to my own voice while studying.	1	2.2
I repeat orally not to forget.	1	2.2

As can be seen in Table 2, the pre-service teachers thinking that their dominant learning style is auditory stated that they generally prefer to study by reading loudly, they are interested in the tone of voice and stresses and they best learn by listening. Moreover, these pre-service teachers stated that they like listening and speaking for a long time, they do not forget what they have heard; hence, their learning style is auditory. Some quotations from the responses of pre-service teachers thinking that their dominant style is auditory are given below:

“When I listen to the topics from others, I understand better and they become more permanent.”

“When I read novels loudly, I understand more easily.”

“When there is no silence in the setting, I cannot concentrate.”

“I revise for my exams by telling myself or listening from others, I clearly remember the tone of voice and stresses of the narrator.”

“While studying, I study loudly; even while I am solving problems I explain them loudly to myself.”

“I repeat the information which I mustn’t forget loudly to myself.”

“While studying, it is more effective to study by hearing my own voice.”

“Rather than reading what has been written on the board by the teacher, I prefer to listen to him/her explaining the topic.”

The percentage of the pre-service teachers thinking that they have kinesthetic learning style is 28.9. The percentages and frequencies calculated for the statements of the pre-service teachers thinking that they have kinesthetic learning style are presented in Table 3.

Table 3: Frequencies and percentages of the students' statements, who think that they have kinesthetic learning style

Statements	f	%
I do not like staying motionless/passive for a long time.	16	25.4
While studying, I like touching my fingers/pens/hair etc.	8	12.7
I learn better by doing.	10	15.9
I am good at designing projects/plans/drafts.	8	12.7
Using materials facilitates my learning.	2	3.2
I can understand better when I touch/feel.	7	11.1
I do not forget what I have done and others' movements	5	7.9
I talk by using my hands/body/gestures and mimics.	7	11.1

As can be seen in Table 3, the pre-service teachers thinking that they have kinesthetic learning style stated that in general they learn better by doing, they get bored with staying motionless for a long time, they like doing projects and they use their body while solving problems, thinking or speaking. Moreover, these pre-service teachers stated that use of materials facilitates their learning and they can only understand by touching the material; hence, their dominant learning style is kinesthetic. Some of the statements of the pre-service teachers thinking that they have kinesthetic learning style are presented below:

"I cannot listen to the lesson for a long time without moving. While studying, I need to walk around with the book in my hands; otherwise, I cannot learn fast enough."

"I cannot sit and listen for a long time. I learn something by myself touching."

"I usually feel bored while writing; I can commit many punctuation mistakes while writing."

"I cannot add numbers fast, I need to count with my fingers first."

"While telling something to someone I always move. While imagining, I like animate with my hands."

"When I read a recipe of a cake or someone tells it to me, I do not understand it, I need to watch it being cooked or do it myself."

"Even if I see someone solving a problem, I cannot understand it well without doing myself."

"My friends always tell me 'why you are touching the things you see'."

Some of the pre-service teachers participating in the present study stated that they have more than one style. Some quotations of these pre-service teachers' statements are given below:

"If one tells the topic to me and uses some kind of visualization while explaining, my learning becomes more effective."

"I understand the lesson by listening but visual materials strengthen my understanding; that is, I need both to hear and see to learn."

"Figures, pictures and maps draw my attention and with these materials I learn better. I do not only watch but also want to touch and describe the materials."

The findings of the present study show that the dominant style preferred by nearly half of the pre-service teachers (49.8%) to learn matches with visual learning style. This is followed by the pre-service teachers thinking that they have kinesthetic learning style (28.9%). The least preferred style by the pre-service teachers is auditory among the learning styles (21.3%).

Conclusions and Discussion

The effects of learning styles on learning and their contribution to the organization of the learning environment have been reported in related researches (Felder, 1993; Given, 1996; Babadoğan, 2000; Collison, 2000; Hein & Budny, 2000). Unlike the studies carried out to determine the learners' learning styles, the present study looks at the learners' perception of their own learning styles. When pre-service teachers are aware of their own

learning styles, even if they encounter different teaching settings, they can effectively organize their own learning processes. Therefore, the present study aims to investigate which learning style the pre-service teachers think they possess rather than determine their learning styles.

In light of the findings of the present study, it can be argued that the most common style adopted as primary style by the pre-service teachers is visual learning style and this is followed by kinesthetic and auditory learning styles, respectively. The pre-service teachers thinking that they have visual style stated that they learn better by seeing and reading, they understand visual elements better, they like taking notes and they study by drawing figures and shapes. As they visualize what they have learned and read in their minds and as they do not forget what they have seen, they think that their dominant style is visual. Some of the pre-service teachers stated that they learn better by doing, they are good at doing projects and use of materials facilitates their learning; hence, they think that their dominant learning style is kinesthetic. The other pre-service teachers; on the other hand, stated that they prefer reading loudly, they are interested in tone of voice and stresses and they learn best by listening. Moreover, these pre-service teachers stated that they like listening and speaking for a long time and as they do not forget what they have heard, they think that their dominant learning style is auditory.

Through the present study, the pre-service teachers were made aware of their own learning styles. They also understood that they can organize learning environment better when the characteristics of learning styles are known. In this way, it is believed that some contribution was made to their academic achievement and self-confidence. In addition, when pre-service teachers are knowledgeable about learning styles, they will more probably take their future students' learning styles into consideration while designing teaching environment for these students.

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