

RESEARCH ARTICLE

An Investigation of Perceptual Learning Style Preferences of Students on The Basis of Gender and Academic Achievements

Aisha Siddique*, Anam Abbas, Farah Riaz and Rizwan Nazir

Institute of Rural Home Economics, University of Agriculture, Faisalabad, Pakistan

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*Corresponding Author:

aisha_riz@yahoo.com

ABSTRACT

The aim of the present research was twofold. First aim was to identify the perceptual learning styles of the university students and secondly to identify the perceptual learning style preferences of the students on the basis of gender and academic achievements. Data were collected from 330 students of the University of Agriculture, Faisalabad by using stratified sampling technique. The study found that tactile (41.57) learning style is the most preferred learning style followed by the auditory (40.98) learning style. Both group (37.56) and individual (37.56) learning styles are identified as third most preferred learning styles. On the basis of gender, a significant difference was found in visual (0.043), group (0.027) and kinesthetic (0.019) learning style. With regard to CGPA of the students, a significant difference was found in visual (0.035), auditory (0.04), kinesthetic (0.029) and group (0.023) learning styles. Amalgamation of different perceptual learning styles such as tactile, visual and auditory may be more helpful for students to learn effectively and for teachers to teach efficiently instead of using only one perceptual learning style.

INTRODUCTION

Every person absorbs and understands information in diverse ways. This phenomenon of variability among individuals' learning styles dates back to Greek times (Wratcher et al., 1997). Learning styles are the emotional, physiological, developmental, social and cognitive features that influence a person's ability and choice to perceive and organize the process of learning (Montemayor et al., 2009). Moreover, strategies of information processes, based on personality which are employed for learning are called learning styles (Riaz and Riasati, 2007). Learning styles is the term that is used to narrate the variation among learners with regard to how they used one or more senses to understand, organize, and retain experience (Dunn et al., 1995). In order to respond to the learning environment, to interact with and how learners perceive, learning styles are relatively stable indicators and are cognitive, affective, and physiological traits in nature (Keefe, 1979). By these definitions, it is clearly observed that every researcher described learning styles in different perspective.

Learning style is a broad field and there are almost seventy one different models of learning styles (Hall and Moseley, 2005). These models are based on

different dimensions, for instance on the basis of personality characteristics, cognition, information processing and instructional priorities etc (Naqeeb and Awad, 2011). According to David Kolb's learning style model, there are four types of learners i.e., divergers, convergers, assimilators and accommodators (Kumar et al., 2012). The Gregorc Model provides two categories of learners known as concrete-abstract and sequential-random. However, learner can have different amalgamations such as concrete sequential, concrete-random, abstract-random and abstract-sequential (Taylor, 1997). Whereas, Dunn and Dunn learning style model is based on five areas i.e. environmental, sociological, emotional, physiological and psychological (Dunn et al., 1995). Reid (1995) based his learning style model on the perceptions which learners use to learn i.e., visual, auditory, kinesthetic, and tactile and also included two social aspects of learning (individual and group).

For the present study, the perceptual learning style is of particular interest to the researcher. It is defined as a preference for one of the following learning modalities auditory, visual or tactile. Theories of perceptual learning styles are mainly based on the visual, auditory or tactile senses which are primary senses that are involved in learning. Reid (1995) included auditory,

visual, tactile, kinesthetic and two social aspect of learning (group and individual learning styles) in her perceptual learning style questionnaire. Students who enjoyed the oral-aural learning channel are the auditory learners. They specifically require only oral directions and learn best through conversations, discussions and group work (Nilson, 2010). Visual learners prefer to learn via the visual channel. They organize and store information through visual representation and graphically (Nilson, 2010). Tactile learners are those who prefer learning through touch. They depend on physical interaction, with their own hands and through manipulation of resources, such as writing, drawing, building a model.

A learner who implies total physical involvement with learning environment called the kinesthetic learner for instance, taking a field trip, dramatizing, pantomiming, or interviewing. A learner which can learn more effectively through working with others called a group learner. A learner which can learn more effectively through working alone called an individual learner.

Some important factors such as age, gender, level of achievement, socioeconomic status, parent's education, culture, brain processing and abstract reasoning are also play an important role in learning style preferences (Al-Khayat et al., 2013; Moenikia et al., 2009; Slater et al., 2007; Verma and Tiku, 1990). Gender is one of the most important indicators of learning style preferences (Mulalic et al., 2009). Male and female students show different learning styles preferences (Slater et al., 2007).

Academic achievement is affected by many factors such as socio-economic status (Ray, 2010; Casanova et al., 2005), intelligence (Deary et al., 2007) and psychological factors, including, attitudes (Olatunde, 2009) self-esteem (Schmidt & Padilla, 2003) self-efficacy (Onyeizugbo, 2010). Apart from these factors students learning styles also affect their academic achievements (JilardiDamavandi et al., 2011). Student's awareness about their learning style enhances their motivation, which in turn increases their performance level in academics (Moenikia et al., 2009; Siddique et al., 2002). Studies reported a significant relationship between student's academic achievements and their preferred learning styles (O'Brien, 1991; Dunn et al., 1995; Hall & Moseley, 2005; JilardiDamavandi et al., 2011). The student learns best if his/her perceptual learning style is compatible with the teaching style of the teachers (Dunn et al., 1995). Therefore, the preferred learning styles of students must be given importance in order to have an effective education. This study seeks to determine the perceptual learning style preference of the University students and to identify the learning styles preferences of the University students on the basis of gender and academic achievement level.

MATERIALS AND METHODS

The present study is a descriptive study based on a survey research. The study aims to identify the perceptual learning styles and identify the perceptual learning style preferences of the students on the basis of gender and academic achievement level.

In this present study, data was collected from three faculties (Faculty of Agriculture, Faculty of Social Sciences and Faculty of Agricultural Engineering & Technology) of University of Agriculture, Faisalabad. From these faculties, students of BSc (Hons) were included in data collection. Sample size was determined by using stratified sampling technique. Four strata from Faculty of Agriculture, one from Faculty of Social Sciences and one from Faculty of Agricultural Engineering and Technology were included. A proportionate sample of students from each department was taken. A total of three hundred and thirty (330) students participated in the present study.

Data about students' gender and academic achievement (CGPA) was collected through a demographic survey sheet. The Perceptual Learning Style Preference Questionnaire (PLSPQ) by Reid (1987) has been used to identify the perceptual learning style preferences. It has been chosen because of its reliability (Mulalic et al., 2009). It is easy to administer, easy to interpret and easily reportable scale (Mulalic et al., 2009). In order to measure each of six learning styles, it comprises of five statements. The students responded to the five point Lickert scale which ranges from strongly agree to strongly disagree.

RESULTS

The data were analyzed using descriptive and percentage analysis. A one way analysis of variance (ANOVA) was performed to analyze the effect of learning styles, gender and academic performance.

Table 1 shows that 55.0 percent of the respondents were males and 44.2 percent of the respondents were female. Furthermore, 32.4 percent of students had 3.50-4.00 CGPA, 39.1 percent of students had 3.00-3.59 CGPA, 23.9 percent of students had 2.50-2.99 CGPA and only 4.5 percent of students had CGPA below 2.50.

Table 2 shows the mean and standard deviations of students' perceptual learning style preferences by five categories: visual, auditory, kinesthetic, group and individual learning style. Among the five learning style categories the overall mean value of tactile (41.57) learning style is the highest mean value. The overall mean values of other learning styles are; auditory 40.98, group 37.56, individual 37.56 and visual 32.34. The mean value of kinesthetic (31.98) learning style is the least mean value among the five categories.

Table 1: Distribution of sample on the basis of gender and Cumulative Grade Point Average (CGPA)

Variable	Frequency	Percent
Gender		
Male	184	55.8
Female	146	44.2
Total	330	100
CGPA		
3.50-4.00	107	32.4
3.00-3.49	129	39.1
2.50-2.99	79	23.9
Below 2.50	15	4.5
Total	330	100

Table 2: Descriptive analysis of perceptual learning styles of students

Perceptual Learning Styles	Mean	Standard Deviation
Visual	32.34	0.36
Tactile	41.57	1.08
Auditory	40.98	0.38
Kinesthetic	31.98	0.37
Individual	37.56	0.47
Group	37.56	0.53

Table 3: Perceptual learning styles of the students on the basis of gender

Perceptual Learning styles	Gender	No	Mean±SD	P-Value
Visual	Male	184	32.26±0.44	0.043*
	Female	146	38.44±0.28	
Tactile	Male	184	41.99±1.88	0.664
	Female	146	41.04±0.62	
Auditory	Male	184	39.15±0.48	0.540
	Female	146	38.68±0.61	
Kinesthetic	Male	184	30.76±0.46	0.019*
	Female	146	41.25±0.32	
Group	Male	184	38.60±0.46	0.027*
	Female	146	36.26±0.43	
Individual	Male	184	37.41±0.63	0.720
	Female	146	37.75±0.71	

* = Significant at P<0.05

Table 3 shows significant differences between perceptual learning-style groups [visual (0.043), group (0.027) and kinesthetic (0.019)] and gender. However, the tactile (0.664) auditory (0.540) and individual (0.720) learning styles was not found significantly different with regard to gender.

Table 4 shows significant difference between learning-style groups [visual (0.035), auditory (0.04), kinesthetic (0.029) and group (0.023)] and CGPA of students. However, the individual (0.306) and tactile (0.306) learning styles were not found significant.

DISCUSSION

The purpose of present study was twofold. First, it was carried out to identify the perceptual learning styles of the students. The second purpose was to identify the

perceptual learning style preferences on the basis of gender and academic achievement level. With regard to first purpose, the study successfully identified the perceptual learning styles of the students of the University of Agriculture Faisalabad. Among the five learning styles the primarily preferred perceptual learning style of students is tactile followed by the auditory learning style. Both group and individual learning style were regarded as third major learning styles. However, the visual and kinesthetic learning styles were classified under the category of minor learning style preferences. Therefore, it is concluded that students have multiple perceptual learning style preferences at university level. These findings are parallel with the findings of Ramburuth and McCormick, (2001), Bahadori et al., (2011) and Moenikia et al. (2009). Ramburuth and McCormick (2001) reported that Asian students were more tactile and auditory learners and they likely showed group study patterns. However, the present findings are in contrast to the findings of Naqeeb and Awad (2011) who observed the perceptual learning styles of Palestinian students and found that majority of the students were visual learners. A possible explanation for the said difference could be that in Pakistani educational system teachers do not use visual aids during teaching and mainly practice lecture methods. That's why students are habitual to these styles (auditory, tactile) and feel more comfortable to use these styles even in higher level of education.

The study found that male and female students show different perceptual learning styles. The visual, group and kinesthetic learning styles of the students with regard to gender were significantly different. These findings are parallel to the findings of Slater et al. (2007). It was found that group learning style has minor preference among female students. However, it was major learning style among male students. These findings are contrary to Reid's (1987) findings who reported that group learning style is less preferred by male students at university level. This may be ascribed to the cultural differences. In our culture boys are more social and more conscious about group conformity as compared to girls.

The present study also found significant difference in perceptual learning styles with regard to CGPA of the students. The students' auditory, kinesthetic and group learning styles were significantly different due to the difference in their CGPA. However, the individual and tactile learning styles were not significant as with regard to CGPA. This finding is in accordance with the finding of Abidin et al. (2011). They found a significant difference between the perceptual learning styles of the students on the basis of the achievement levels. However, these findings are in contrast with the findings of Verma and Tiku (1990) and Mohammad

Table 4: Perceptual Learning Styles of the Students on the Basis of CGPA

CGPA	No	Visual	Tactile	Auditory	Group	Kinesthetic	Individual
3.50-4.00	107	37.46±0.63	40.24±0.78	38.73±0.78	35.42±0.63	41.53±0.57	37.42±0.83
3.00-3.49	129	38.85±0.53	43.46±2.63	39.71±0.53	38.17±0.79	41.33±0.52	38.53±0.70
2.50-2.99	79	38.91±0.69	40.08±0.80	38.28±0.73	38.76±0.95	39.49±0.73	36.23±1.10
Below 2.50	15	37.20±0.18	42.67±1.29	37.47±0.68	41.33±0.56	41.73±0.45	37.33±1.39
Total	330	38.11±0.36	41.57±1.08	38.55±0.38	37.56±0.53	41.02±0.37	37.56±0.47
P value		0.035*	0.306	0.04*	0.023*	0.029*	0.306

* = Significant at P<0.05

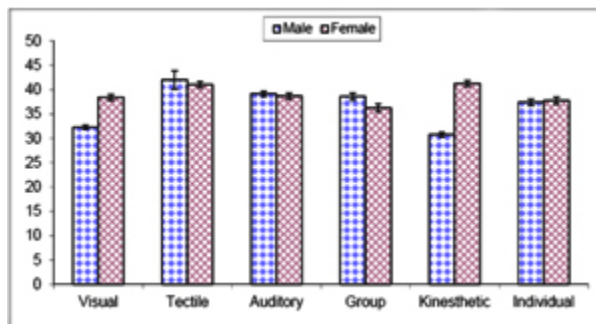


Fig. 1: Perceptual learning styles of the students on the basis of gender

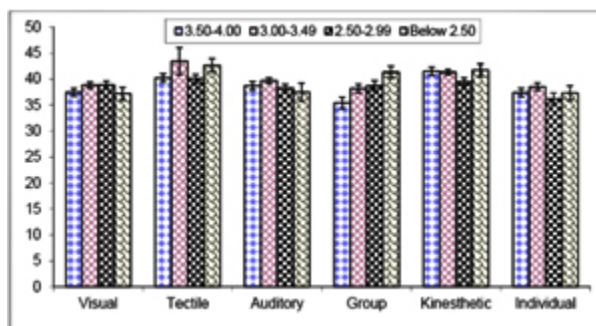


Fig. 2: Perceptual learning styles of the students on the basis of CGPA

and Mohammad (2005). This variation may be ascribed to the differences prevailing in the educational system. In Pakistani educational system high marks/grades are used as the main criteria for judging achievement (Siddique, 2013). Therefore, students are more concerned with solitary activities and do not prefer collaborative work in order to concentrate more on study material. In contrast, in developed countries cooperative and group learning is more preferred.

Conclusion

The present study, for the first time in the Pakistani context, identified the learning styles of university students. Furthermore, it identified the preferred learning styles on the basis of gender and achievement level. Majority of the students have multiple learning styles. A significant difference was found on the basis of gender with regard to visual, group, kinesthetic and individual learning style. Furthermore, significant

difference was found on the basis of achievement level of the students in visual, auditory, kinesthetic and group learning style.

Recommendations

Amalgamation of different perceptual learning styles such as tactile, visual and auditory will be helpful for students to learn effectively and for teachers to teach efficiently instead of using only one. Furthermore, accommodating teaching styles to the learning styles of the students will facilitate the learning process. Workshop/trainings should be organized for students and teachers in order to develop awareness about different learning styles.

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