

## **INVESTIGATING DIFFERENT LEARNING STYLES OF STUDENTS AT UNDERGRADUATE LEVEL**

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### **Abstract**

The present research was conducted to investigate the different learning styles of students at university level. Four learning styles were explored to see their effectiveness. A quantitative nature study with survey research design was used to carry out this study. This study was delimited to the students of Institute of Education and Research, University of the Punjab, Lahore. The population of this study consisted of 3200 male and female students from different programs. The sample selected for this study was 600 students by using simple random sampling technique. Instrument for this study was developed by the researchers and four learning styles i.e. activist learning styles, reflective learning styles, pragmatic learning style and theorists leaning style were focused while developing Learning Style Inventory (LSI). The instrument was validated by four education experts and piloted on 60 students to check the reliability of the instrument. Instrument was finalized while applying changes suggested after piloting. After finalization of the instrument, data was collected by the researchers and analyzed through application of descriptive statistics (mean, SD, and frequencies) and inferential statistics (Independent sample t-test for identifying gender based differences).

*Key Words:* Learning Style, Under Graduate Level

### **Introduction**

There are many factors related to students' background and experience, their cognitive ability and metacognitive skills, the effort they put in their learning, quality of curriculum and instruction, the effectiveness of student-support system in institutions and much more, which may influence students learning styles. Learning preferences (LP), is a multifaceted construct elaborated condition where learner perceives, process, store and recall their learning (James & Gardner, 2003). According to Keefe (2001), learners preferences indicates the process of students perceiving factors related to learning environment to promote interaction and response for complex cognitive, social, emotional and physical progress and learning.

Incorporation of experiential learning theory into practical perspective can be challenging task while we attempt to consider different learning styles along with our own learning style. Yet, active learning style provides a gateway to develop an instructional design which enables inclusion of all learning styles which leads to positive outcomes. As most of the educationists entrust improvement in learning if students play and active role in their learning process (Smart & Csapo, 2007).

Learning processes are different when it comes to university students pertaining to their personalized learning preferences. Miller (2001) asserts that educators and

teachers are responsible for understanding and acknowledging diversity in learning preferences. This study was focused on the Kolb theory (1995) of model of learning preferences. This theory stands the opinion that learning processes can be divided into 5 main stimuli strands. These strands are; environmental, emotional, sociological, physical and psychological factors which channelize learning.

First approach to personality consists of researches which describe personality traits and characteristics. Grounded in Jungian Psychology, Myers-Briggs Type Indicator (MBTI) is most extensively known and suggested analysis of personality traits. This involves the examination of process of individual perceiving the world and their decision making. Second approach is related to information processing of students as to how they absorb and assimilate new information. Therefore, David Kolb's experiential learning theory and its learning styles inventory are most prominent. This experiential learning model is based on 4 stages circular process where a student must complete the cycle for effective learning. Due to their learning preferences most, students prefer one stage over other however learning styles can be personalized.

Social interaction as a third approach focuses students' behavior in classroom. Fuhrman and Jacobs model defined learner as a dependent, cooperative yet independent entities. Fourth approach is related to instructional preferences pertaining to teaching methods and learning environment. The Canfield learning style inventory is one the best instrument for evaluating learning preferences (Francis, et al., 1995).

In this study learning preferences of undergraduate students was focused. Acknowledgement of what and how student want to be educated can be effective for educators as well as this in-depth knowledge may enable a better learning process because it's a two-way process in which educators as well as students must know learning preferences.

### **Significance of the Study**

The results from this study will enable teachers to design a comprehensive instructional design while considering all learning styles through active learning. As most of the educationists entrust improvement in learning if students play an active role in their learning process (Smart & Csapo, 2007). This study also aimed to identify gender-based differences in learning styles of university students. So, it will also assist student to identify and differentiate in their preferred learning styles while enabling teachers to adopt teaching styles accordingly. Teachers may benefit from this study to impart knowledge to prospective teacher in how to teach students with diverse learning styles and design classroom activities for them in accordance with their preferences. Heads and administrator may consider this study to design environment of their institution to maximize learning. Moreover, policymaker may also opt these findings for making future policies about teacher, designing teaching learning process, aids and improvement of classroom environment.

### **Objectives of the Study**

The main objectives for this study were to;

1. Identify different learning styles used by undergraduate students.
2. Investigate gender-based differences in learning styles of undergraduate students.

### **Research Methodology**

In this study descriptive research design was used to carry out data collection in a structured process. Kumar (2005) agrees that descriptive research aims to describe characteristics of a specific phenomenon under study without manipulation of variables. Self-administered questionnaire was used to collect quantitative data .

### **Population and Sample**

The population of this study consisted of 3200 male and female students from different programs of Institute of Education and Research, University of the Punjab, Lahore. The sample for the present study was selected by using random sampling technique from 9 programs of Institute of Education and Research, University of the Punjab, Lahore. In this way, 600 male and female students were selected from different departments.

### **Instrumentation**

In this study, The Learning Style Inventory (LSI) was used which is a simple self-description questionnaire based on 4 stages of experiential learning i.e. immediate concrete experience, observation and reflection, assimilation, and implication while including four learning styles i.e., activist, reflective, pragmatic and theorists learning styles.

### **Validity and Reliability of the Instrument**

Researcher consulted 4 educational experts to ascertain validity of the instrument. They provided their views related to content, structure and appropriateness of using this instrument for present study. Afterwards, instrument was finalized for pilot testing in accordance with expert opinions. Through pilot testing on 60 students, reliability of questionnaire was also assessed which was 0.862.

### **Data Collection**

Researcher personally visited students in their classroom to collect data through questionnaire which took 5-10 minutes in each class. Researcher provided detailed instruction to the students to ensure proper data collection. Moreover, students were also asked to fill in questionnaire with their free-will. It was also communicated that result from this data collection will only be used for research purposes.

### **Data Analysis**

Data analysis of this study was based on statistical analysis by computing mean, SD, percentage and frequencies to present different learning styles of students and their academic achievement level. Whereas, independent sample t-test was used to calculate gender-based differences in learning styles and ANOVA was used to identify achievement and department related differences in learning styles.

Tables as well as charts were used to display statistical analysis of this study.

Table 1

*Difference between male and female regarding activist learning styles*

<i>Variable</i>	<i>Gender</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t-value</i>	<i>df</i>	<i>Sig(2-tailed)</i>
ASL	Male	203	15.3981	5.40577	-4.266	598	.000
	Female	397	19.0558	7.77108			

Table no 1 shows t-test result which was calculated to find out the difference between activist learning styles of male and female students. Result shows significant difference between male ( $M = 15.3981$ ,  $SD = 5.40577$ ) and female ( $M = 19.0558$ ,  $SD = 7.77108$ ). Similarly, the significant value  $p < .001$  shows that the null hypothesis

is rejected and there is a statistical significant difference exist among male and female activist learning style.

Table 2

*Difference between male and female regarding theorists learning styles*

<i>Variable</i>	<i>Gender</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t- value</i>	<i>df</i>	<i>Sig(2-tailed)</i>
TSL	Male	203	18.5631	5.40577	.394	598	.694
	Female	397	18.2690				

Table no 2-show t- test result which was calculated to find out the difference between male female theorists learning styles students. Result shows no significant difference between male (M =18.5631, SD=5.40577 and female (M=18.2690, SD=7.77108). Similarly, the significant value  $p > .001$  shows that the null hypothesis is accepted and there is no statistically significant difference exist among male and female theorist learning style.

Table 3

*Difference between male and female regarding pragmatic learning styles*

<i>Variable</i>	<i>Gender</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t- value</i>	<i>df</i>	<i>Sig(2-tailed)</i>
PLS	Male	203	15.4466	5.06577	3.237	598	.001
	Female	397	13.4315	5.14798			

Table no 3 shows t- test result which was calculated to find out the difference between male female pragmatist learning styles students. result shows significant difference between male (M =15.4466, SD=5.40577 and female (M=13.4315, SD=5.14798). Similarly, the significant value  $p < .001$  shows that the null hypothesis is rejected and there is a statistically significant difference exist among male and female pragmatist learning style.

Table 4

*Difference between male and female regarding reflective learning styles*

<i>Variable</i>	<i>Gender</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t- value</i>	<i>df</i>	<i>Sig(2-tailed)</i>
RLS	Male	203	23.8835	9.56946	2.044	598	.042
	Female	397	21.7919	7.75007			

Table 4 shows t- test result which was calculated to find out the difference between male female reflective learning styles students. Result shows significant difference between male (M =23.8835, SD=9.56946 and female (M=21.7919, SD=7.75007). Similarly, the significant value  $p > .001$  shows that the null hypothesis is accepted and there is no statistically significant difference exist among male and female activist learning style.

## Discussion

The purpose of this study was to look into the various learning styles of university students. In general, the study findings show that multiple-type learners

(those with bimodal and trimodal learning styles) outnumber those who choose a single learning style, such as activists, theorists, pragmatists, and reflectors.

The Activist learning style was the model that received the least support. Amran, et al (2011) discovered that kinesthetic learners made up the smallest percentage of their study group. The findings, on the other hand, contradict Vaishnav and Chirayu's (2013) conclusions in their study on learning styles and academic achievement, which found that activist learners were the majority. Given that the trials were carried out on different continents and countries, the variations could be attributed to cultural factors. According to Felder (1995), a student's cultural background has a significant impact on how he or she receives and processes information in a learning environment. The study discovered that tri-modal learners (those who learn in a variety of ways) are more likely to succeed.

These students prefer to mix and match the four learning modes (Activist, Theorists, pragmatist, Reflector). This finding is in line with Laxman, Govil, and Rani's (2015) findings, which revealed that trimodal learners made up the majority of their classrooms. This is in line with Thambusamy (2002) and Syed Jamal Abdul Nasir (2006), who found no significant differences between male and female students' learning styles. However, contrary to previous study on university students, the majority of male and female university students have a multimodal learning style. Male university students preferred multimodal learning approaches, whereas female university students preferred unimodal learning styles, according to Kharb et al. (2013). Multimodal learners are likely to learn more effectively.

Although both males and females preferred multimodal learning to a similar level, further categorisation based on the possible combinations of sensory modalities revealed no significant gender differences. Female styles, in particular, may be more diverse, with a greater number of possible combinations in this population. Male styles were represented in three of the seven possible combinations; however, they were concentrated in a smaller subset. In the kinesthetic modality, however, the male was not represented. This backs up Philibin's findings from 2001, when he used the Kolb Learning Style Inventory to find that males were more evenly dispersed over the learning style spectrum, while females were more evenly dispersed.

The outcomes of the study imply that women's desire for more diversity extends to other educationally relevant elements other than learning style. Female teenagers reported a desire for variety in their learning environment, such as the chance to work alone, in pairs, with peers, in bigger groups, and with teachers, among other things (Hyland, 1993). Males did not exhibit this learning style.

Jorge (1990) also discovered that, while male students preferred interactive tools to learn new material, female students preferred more variety in their educational resources. These observations are particularly significant because the majority of IER's university students are male. A mostly male faculty may accidentally aim its course without paying regard to diverse presenting methods, the social environment of learning, and the tools available to students.

## **Conclusion**

Nowadays teachers, understand that children learn in a variety of methods. Individual pupils have unique skills and weaknesses that can be developed and improved with the right instruction. Students' abilities can be used to help them become better thinkers and more independent learners through project-based learning with technology. Project projects that allow students to apply their preferred learning styles,

on the other hand, are not a surefire way to encourage higher-order thinking. It is easy to make goods that represent superficial and shallow thinking. Nonetheless, when individual learning styles are addressed in projects, the motivating factors connected with choice suggest that teaching thinking abilities in the context of individual learning styles enhances the possibility that students will learn them.

### **Recommendations**

This study yielded some significant insights about learning styles of university students. And provided following recommendations; a teacher must take into consideration his/her students' learning styles' diversity and plan such instructional methods which acknowledge this diversity as well as be sensitive to change during instruction process. teachers must help their students to identify their learning style and make best use of it to improve their learning process. institutional adminitratrirs should provide required learning materials to cater diverse learning needs of students through activist, theorists, pragmatist and reflector approach in use of technology, student projects and presentation.

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