CHANGING CONTOURS OF PREFERRED LEARNING STYLES AND ACADEMIC ACHIEVEMENT IN RELATION TO GENDER

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Abstract

The present study is an attempt to comprehend the effect of gender on preferred learning style and academic achievement of learners. The study also tried to uncover whether there exists any relationship between preferred learning styles and academic achievement of learners. To study the stated purpose, 105 students including male and female learners from undergraduate, postgraduate and doctorate programmes were taken as the sample. The results of the study revealed the existence of significant difference in preferred learning styles and the academic achievement of male and female learners. Moreover, co-relationship between preferred learning styles and academic achievement of male learners and female learners varied. Therefore, the present study can help the stakeholders of education such as educators and learners to seek for a suitable learning style to enhance the level of performance of learners in diverse aspects.

Keywords: *Preferred learning style, Academic achievement, Gender.*

Introduction

Individuals as learners differ in the ways they learn and experience things in life. One may utilize different sense organs for exploring the world and learning. For instance, some may like to learn and experience the world through listening, i.e., things such as audio-tapes, conversations with teachers, peers, discussions, debates, etc., may create curiosity among learners to seek information, discover about things and this is how they learn. However, on the other hand, some may prefer using visual-aids such as movies, documentaries, YouTube videos to enhance their learning. Thus, just like auditory and visual modes, there can be many different ways and modes to learn. Therefore, learning styles are the different ways through which individuals prefer to learn. They may differ according to the preferred mode of instruction that seems to be most effective. This reflects upon certain parameters of diagnosing different learning styles and then tailoring the instructions and teaching strategies adapted by teachers. Learning styles can be diagnosed by several ways. One of them is evaluating the preference of presentation of information by learners like words, speech or pictures. The other includes assessing the

mental activity that learners find engaging, i.e., analysis or listening (Pashler, McDaniel, Rohrer, & Bjork, 2008). This reflects that evaluating learning styles doesn't have anything to do with what learners learn, but rather, the concept focuses upon how learners learn, what strategies do they use to learn and what are the modes/ways that makes their learning effective. Also, as students gather different experiences, they may have different preferences and ways to process information, organize it, understand it and store it in their schemas differently. Thus, as learning styles are crucial for making students' learning effective, this may add an impact on their academic achievement as well. However, before going almost clueless to the field, the researchers had a thorough review of literature to understand the nuances of different researches that are being conducted in this field. Jilardi Damavandi, et.al, (2011)obtained the existence of significant difference between the academic achievement and learning style of grade 10 students that correspond to the four learning styles of Kolb inventory. However, Cimermanová (2018) had conducted a research to see whether learning styles of students and the form of teaching have any effects on their learning achievements. The research involved Grasha-Riechmannudent Learning Style Scales (GRSLSS) inventory and a quasi-experiment was conducted during the period of a semester. The findings revealed no significant findings or relation between learning styles and form of teaching on academic achievement. Abidin, et.al (2011) has employed LSS, i.e., Learning Styles Survey inventory to study the relationship between the learner's academic achievement and the learning styles adopted by them. The study involved statistical procedures like one-way ANOVA, and multiple regression analysis. Overall academic achievement and learning styles of the subjects were found to be related with each other. Thus, the findings of the studies made it imperative to explore the effect of learning styles on academic achievement on a different age-group sample, with a different inventory or scale, within Indian context. Furthermore, there were some studies that indicated gender as an important factor which may have a significant effect on learning styles and academic achievement. Severiens, et.al, (1994) used two instruments, i.e., KOLB inventory and Entwistle's Approaches to Studying Inventory to study the effect of genders on learning styles. The results revealed that men were more likely to prefer abstract conceptualisation mode of learning (which corresponds to an aspect of KOLB's inventory) than women. However, on Entwistle's ASI, there was a difference on the affective components of the ways and approaches to learn. However, in studies where academic achievement was considered, gender plays a significant role. For instance, in a study conducted by Helena &Krister (2008),the results revealed that girls perform increasingly better in literature than boys. Boys, on the other side, show a much better achievement in mathematics and science. These differences might be a result of their different preferences and ways to learn. Wehrwein, et.al (2007) have conducted a study on 48 undergraduate learners studying physiology at Michigan state university. They

were asked to jot down their preferences using the VARK questionnaire. The results revealed that students have different preferences for learning that include visuals, auditory notes, reading-writing and kinesthetic aspects. Thus, male and female students differ significantly for their learning styles. It is thus, the responsibility of the teachers to cater to this diversity and develop apt approaches to learn. Thus, through these studies in the field, it became imperative to explore whether gender has any effect on learning styles and academic achievement of learners.

Rationale of the study

Learning styles depend on many factors like age, socio-economic status, home environment, peer circle, etc. However, one such factor is gender. The study sought to deal with the differences between the learning styles of females and males and contributes to the discussion of whether gender has an effect on preferred learning style of individual and his/her academic achievement. Thus, the study proposes to determine the effect of gender on preferred learning style and academic achievement of learners. Academic achievement and learning style do have any sort of connection? To address this concern, there is a dire need to understand whether or not there is a co-relation between the learning styles and academic achievement. Hence an attempt has been made to determine the co-relation between these variables.

Objectives of the study

1. To determine the effect of gender on preferred learning styles of learners.
2. To determine the effect of gender on academic achievements of learners.
3. To determine the correlation between the learning styles and academic achievements of learners.

Operational definitions of the key terms

1. **Changing Contours:** The researcher utilises the term changing contours in contexts of understanding based upon the changing nature or boundary of academic performance of learners of age 20-40 years according to their diverse learning styles.
2. **Academic achievement:** Through the term "academic achievement", the researcher means predominantly dealing with the overall and holistic grades or marks of the learners of their previous examination in whatever course they have been enrolled in.
3. **Learning styles:** The researcher utilises the term learning style to see the kind of action or activities that are being undertaken by learners for their learning, i.e. what are the diverse styles through which the learners learn? Thus, the roles and actions to learn any concept by all the learners related to their curricular processes have been focused in the research.

4. **Gender Differences:** Through this, the researcher has tried to accommodate both the genders in this research and tried to see how learning styles have an impact on academic achievement differently in males and females.

Hypotheses of the study

1. There is no significant difference between preferred learning styles of male and female learners
2. There is no significant difference between academic achievement of male and female learners
3. There is no significant relationship between preferred learning style and academic achievement of female learners
4. There is no significant relationship between preferred learning style and academic achievement of male learners

Methodology

In this study, descriptive research design was adopted to study the effect of gender on preferred learning styles and academic achievement of learners. Correlational analysis was adopted to study the relationship between preferred learning style and academic achievement of learners

Sample and Sampling

Five different universities who were running undergraduate, post-graduate and doctorate programmes situated in Delhi NCR were selected based on the convenience sampling. The universities were mixed in nature i.e. public universities and private universities. In order to maintain anonymity, the universities were renamed as SU1, SU2, SU3, SU4 and SU5. From the sampled universities, 105 students were selected based on purposive sampling. Selected students belonged to the age group 20-40 years and enrolled in UG, PG and Doctorate Programmes. The sample of 105 students comprised 63 female and 42 male students.

Out of 105 respondents, 30 respondents were from SU1; 25 respondents from SU2, 15 respondents were from SU3; the same number, i.e.15 were from SU4 and 20 respondents from Su5.

Table 1: Composition of sample based on gender

Number of Female Respondents	Number of Male Respondents	Total Sample Size
63	42	105

Table 2: Contribution of respondents in sample size from different universities

University	Number of Respondents
SU1	30
SU2	25
SU3	15
SU4	15
SU5	20
Total	105

Tools and techniques

Honey and Mumford's Learning Style Questionnaire (LSQ) which was a standardised tool utilised for this study. The tool contains 80 questions and helps to find out preferred learning style(s) as an adult. Subjects ticked before on a preferred statement and crossed before the statement which was not preferred by them. Based on the responses obtained from students, they were segregated into four group viz. reflector, activist, pragmatist, and theorist.

Procedure of the study

After going through the literature related to the problem in question, investigators finalized the tool for learning styles and administered it on the sampled learners. Academic achievement scores of last term/semester examinations were gathered from participants. Scorings were done and subjected to statistical technique. Based on the obtained scores and values, hypotheses were tested and interpretations were made.

Statistical test used for the study

The data was analysed by computing T-scores of the learning styles and the academic achievement of males and female learners. Spearman correlation coefficient was calculated in order to find the relationship between preferred learning styles and academic achievement of male and female learners.

Data Analysis and Interpretation

Determining the preferred learning style of male and female learners: In the direction of determining learners' learning style, analyses were done by calculating their scores and compare it with provided reference criteria in the scoring key.

Table 3: Mean Scores of Learning styles of females and males

Respondents	Activist	Reflector	Theorist	Pragmatist
Females	11.47	14.98	13.58	14.26
Males	10.21	12.04	13.61	14.88

It was found that female learners have the highest mean scores of learning styles in the Reflector side, depicting majority of the population of female learners' preferred Reflector learning style. While in Males, it can be seen that the highest mean score of learning styles rely with the category of Pragmatist learning styles; thereby indicating that majority of the population of males preferred Pragmatist learning styles. Thus, we can easily see that *there is a difference between the preferred learning styles of males and females.*

Inferential analysis of effect of gender on learning styles of learners: Inferential analysis of learning style of male and female respondents was based on the t-test. The value of "t" is 8.46 and the value of "p" is 0.0001 which is less than 0.05.

Table 4: Inferential analysis of learning styles of both male and female learners

Respondents	Number of Respondents	Holistic Mean score of learning styles	Degree of Freedom	Value of "t"	Value of "p"
Females	63	54.317	103	8.46	0.0001
Males	42	65.119			

Since the value of p is less than 0.05. Therefore, the null hypothesis (Ho) framed by researchers which states that, "There is no significant difference between preferred learning styles of males and females" was rejected. Hence, it may be concluded that *there is a significant difference between preferred learning styles of males and female learners.* Based on the difference in gender, learning style preference can vary.

Determining the difference in academic achievement of male and female learners: Based on the total obtained scores of previously passed examinations by learners, mean scores of academic achievement of male and female learners was calculated.

Table 5: Mean Scores of Academic Achievement of females and males

Respondents	Mean Scores of Academic Achievement
Females	68.28
Males	50.76

It can be easily deduced that female learners have higher mean scores of academic achievement than the male learners, depicting that females have much higher academic achievement than males.

Inferential analysis of effect of gender on academic achievement of learners: Inferential analysis of effect of gender on academic achievement of male and female respondents was based on the t-test. The value of "t" is 11.53 and the value of "p" is less than 0.0001 and again which is less than 0.05.

Table 6: Inferential analysis of effect of gender on academic achievement of learners:

Respondents	Number of Respondents	Mean score of Academic Achievement	Degree of Freedom	Value of "t"	Value of "p"
Females	63	68.28	103	11.53	<0.0001
Males	42	50.76			

Since the value of p is less than 0.05. Therefore, the null hypothesis (Ho) framed by researchers which states that, "There is no significant difference between academic achievement of male and female learners" was rejected. Hence, it may be concluded that *there exists a significant difference in the academic achievement of male and female learners*. This also shows that gender has an effect on academic achievements.

Exploring the co-relation between learning styles and students" academic achievement of learners: In order to find the correlation between the preferred learning styles and academic achievement of male and female learners, spearman correlation coefficient was calculated. Inferential analysis was performed to find the significance of relationship between the stated variable of the study in the case of both male and female learners.

Table 7: Inferential analysis to determine the co-relation between learning styles and academic achievement of female learners through Spearman correlation coefficient

Respondents	Number of Respondents	Mean Score of Academic Achievement	Mean Score of Learning Styles	Degree of Freedom	Value of "t"	Value of "p"	Value of "r"
Females	63	68.28	54.31	61	0.79	0.432	0.1011

At the degree of freedom 61, the value of "p" is 0.432 which is greater than 0.05. This indicates that the null hypothesis made by the researchers in the beginning which states that, "There is no significant relationship between preferred learning style and academic achievement of female learners" got accepted. *There exists a weak correlation between the preferred learning style and academic achievement of female learners.* Thus it can be concluded that *there is no significant relationship between preferred learning style and academic achievement of female learners.*

Table 8: Inferential analysis to determine the co-relation between learning styles and academic achievement of male learners through Spearman correlation coefficient

Respondents	Number of Respondents	Mean Score of Academic Achievement	Mean Score of Learning Styles	Degree of Freedom	Value of "t"	Value of "p"	Value of "r"
Males	42	50.76	65.11	40	4.77	Less than 0.0001	0.6021

At the degree of freedom 40, the valueof"p"is less than 0.0001whichisless than0.05. This indicates that the null hypothesis made by the researchers in the beginning which states that, "There is no significant relationship between preferred learning style and academic achievement of male learners" got rejected. There exists a strong correlation between the preferred learning style and academic achievement of female learners. Thus it can be concluded that *there is a significant relationship between preferred learning style and academic achievement of male learners. Strong correlation exists between preferred learning style and academic achievement of male learners.*

Findings of the study

- Base on the analysis of obtained responses, it was discovered that female learners prefer to learn through reflective ways, i.e. females are better reflectors as compared to males. However, male learners prefer to learn through pragmatist ways; i.e. they are better pragmatists than females. Also, the result of t-test has shown that there is a significant difference between the learning styles of males and females.
- There is a significant difference between the academic achievement of male and female learner. Thereby showing a relationship between the academic achievement and gender and hence, rejecting the null hypothesis.
- It was also found that there lies a significant difference between the preferred learning style and academic achievement of male learners. There exists a strong correlation between the preferred learning style and academic achievement of male learners and it is significant.
- There exists no significant difference between the preferred learning style and academic achievement of female learners. So, there remains a weak correlation between the preferred learning style and academic achievement of female learners and thus it is insignificant. The correlation is too small to reject null hypothesis.

Discussion based on the findings:

This study indicates that there is a significant difference between the preferred learning styles of males and females. It also indicates that academic achievement of learners is greatly informed by the preferred learning styles of the learners. This can be substantiated with the findings in which the academic achievement of male learners is significantly related to their learning styles. Thus, the psychiatrists, psychologists, counselors and other stakeholders of education such as teachers, parents and the learners themselves should consider this aspect while dealing with learners, developing pedagogical strategies for them, or even if it is learning on their own, they should never be biased with respect to any preferred learning style. This will develop a healthy

learning habit among learners and these can be endorsed through the factors prevalent in teaching-learning environment. Moreover, curriculum planners at schools and at colleges should plan the curriculum after having an in-depth understanding of the preferred learning styles of the population of their area. Schools and colleges may arrange counselling sessions for the learners who are having difficulty in learning, which in turn has its repercussions on academic achievement as well. In this scenario, a roadmap may be devised through which they can improvise their learning styles. Schools and colleges may have programs for creating awareness on differentiated learning styles so that teachers can get an idea of different learning styles and the learners can choose from a pool of activities available.

Conclusion

Learning is not a product, rather it is a process. Learning differs from one person to another. People may have different ways to perceive things, seek information, organize it and thus, learn and experience things in different ways from that gathered information. Through the present study, it has been revealed that there lies a significant difference between the preferred learning styles of males and females, i.e., they differ in their preferred ways to learn and experience things. Difference in learning styles has a direct relationship with academic achievement of learners. Thus, it is obligatory on the part of the institution and all its stakeholders such as Principals, Teachers, Professors to consider making appropriate learning activities which should match the preferred learning styles of learners, which in turn, shall enhance their academic achievement. Also, there should be a supportive check on the entire process of the teaching-learning, the daily routine practices, and evaluation practices where there is a need to incorporate changes for making enriching learning activities. This will help the institutions to provide a more meaningful learning environment to their learners to foster their learning styles.

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