

Nature of Multiple Intelligences and Perceptual Learning Styles of Prospective Teachers in West Bengal, India

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ABSTRACT

In light of the students' various learning styles and levels of intelligence, different pupils learn in different ways. This study analyses the multiple intelligences and learning styles of 410 prospective teachers from teacher training institutes in West Bengal, India. During the data collection procedure, researchers used a random sampling technique. It indicates that there are differences between women and men in particular forms of intelligence (spatial, musical, interpersonal, and intrapersonal), which tend to be disregarded in our conventional teacher education programmes. The verbal-linguistic, logical-mathematical, and bodily-kinesthetic categories of intelligence - which are frequently acquired through curriculum - do not exhibit statistically significant gender differences. The sensation-intuition dimension is the only one where there are gender differences in learning style. The sole conclusion that can be drawn from these findings is that prospective teachers' preferred learning styles are merely disregarded during the teaching-learning process, which should include techniques for nurturing them. The findings of this study imply that incorporating teaching methods that take into account multiple intelligences and learning styles may have a positive impact on students' academic performance. Comparably, while deciding which students to accept for a given course, academic institutions must take multiple intelligences into consideration as well.

Key Words: Multiple Intelligences, Learning Styles, Prospective Teachers

INTRODUCTION

Effective learning varies based on the students' different learning styles and intelligence across the curriculum (Pocaa, 2022). The multiple intelligences and learning styles are supposed to be the important variables that contribute to shaping the frame of the students, their interests and priorities, as well as their choices (Xhomara and Shkemi, 2020). Differentiated instruction allows instructors to be more adaptable to students' demands, expectations, abilities, and language knowledge levels, as well as learning styles, by putting learners at the center of teaching and learning, promoting fairness and scholarly excellence, and recognizing students' individuality (Tomlinson, et al., 2003). Teaching has gotten significantly more sophisticated in today's world of fast change and educational institutions are increasingly using cutting-edge teaching techniques to manage students in a classroom (Ray and Sikdar, 2023). The process of teaching and learning should take each child's individual differences into account (Aysha and Yusoof, 2018). Teacher should be skilled and also self-motivated to motivating the learners (Ray and Sikdar, 2023). By implementing the right learning model in the teaching and learning process, it will provide latest innovations will motivate students to achieve learning goals (Mulisha, et al., 2023). The theory of

multiple intelligences, when integrated with the theory of learning styles, provides a way for a learner to develop a variety of intelligences (Mahmood et al., 2022).

Multiple Intelligences: Howard Gardner viewed intelligence as 'Verbal-linguistic, logical-mathematical, spatial, musical, intrapersonal, interpersonal, bodily-kinesthetic, naturalistic' accordingly eight intelligences have been considered here as a multiple intelligence (Gardner, 1999).

Learning Styles: It has been thought to be personality disposition matched with the four Jungian personality types like extravert-introvert, sensate-intuitive, feeler-thinker, and judger-perceiver.

Teacher education plays the pivotal role in developing what skills and in order to produce qualified teacher (Ray, et. al., 2023). So, the present study is intended to investigate the nature of multiple intelligences and learning styles among the prospective teachers attending teacher education programmes recognized by NCTE. Additionally, the male and female gender groups were to be compared in the study using the two variables. The study's primary goal was to investigate the connections between different learning styles and multiple intelligences.

OBJECTIVES OF THE STUDY

The present study was conducted to accomplish the following objectives-

- I. To investigate the gender effectiveness among the prospective teachers with respect to multiple intelligences.
- II. To investigate the gender effectiveness among prospective teachers with respect to learning styles.

Hypothesis of the study

The following hypotheses were framed to investigate the relationships between the variables.

Ho1: There is no significant difference between male and female prospective

teachers with respect to their multiple intelligences.

Ho2: There is no significance difference between male and female prospective teachers with respect to their learning styles.

MATERIALS AND METHODS

Method and design: The quantitative approach was the method used in the present study (Xhomara and Shkemi, 2020). Random sampling technique was used to drawing the samples in the study.

Participants: The total prospective teachers of West Bengal were the population for the study. Two hundred five (410) prospective teachers were selected randomly for the purpose of the study from various training institutes of West Bengal, India. Out of them 220 were males and 190 were females.

Instruments used: A self-developed Multiple Intelligence Inventory (MII) and a standardized tool of Paragon Learning Style Inventory (PLSI) having significant reliability were used to data collection from the prospective teachers of West Bengal in the present study.

Data collection procedure: A previous appointment was made with each college. All of the potential instructors from five teacher training institutions were in communication. However, information was gathered from individuals who were willing and present when the exam was given. Consequently, the sampling was unintentional. Each and every student participant was asked to complete the first page of the two inventories with the necessary information prior to the exam.

Statistical technique used: Data was analysed using descriptive and inferential statistics (Shahi and Bist, 2021). Descriptive statistics such as frequency, percentage, arithmetic mean and standard deviation were calculated (Senol and Akdag, 2018).

RESULT AND ANALYSIS

For the verification of the first hypotheses 't' values were calculated between the mean

scores of male and female participants with respect to each and every intelligence variable of MII, and to its total.

Table 1 presents significance of differences between males (N=220) and females (N=190) with respect to multiple intelligence.

Gender	Mean of scores	Difference between means	t	
Male	86.4954	6.8520	1.839	Not Significant
Female	93.3474			

The findings of the 't' test have revealed here statistically insignificant differences ($t=1.839$, not significant). It indicates that the participants' gender wise do not differ regarding their global intelligence.

Therefore, multiple intelligence bears no significant gender influence among prospective teachers enrolled in the teacher training programme.

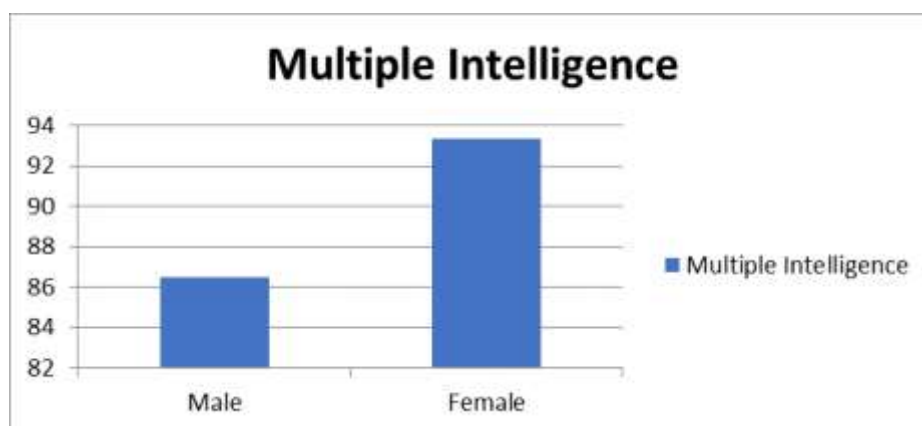


Fig. 1: Differences of mean scores between male and female with respect of Multiple Intelligence

Table 2 presents significance of differences between males (N=220) and females (N=190) with respect to Verbal-Linguistic Intelligence, Logical Mathematical Intelligence, Spatial Intelligence, Bodily Kinesthetic Intelligence, Musical Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence and Naturalistic Intelligence.

Types of Intelligence	Gender	Mean of scores	Difference between means	t
Verbal-Linguistic Intelligence	Males	9.8807	.6351	1.392
	Females	10.5158		
Logical Mathematical Intelligence	Males	9.8257	.2164	.385
	Females	10.0421		
Spatial Intelligence	Males	9.8165	1.4887	2.897**
	Females	11.3053		
Bodily Kinesthetic Intelligence	Males	10.1743	.7415	1.361
	Females	10.9158		
Musical Intelligence	Males	9.3303	1.5118	2.611**
	Females	10.8421		
Interpersonal Intelligence	Males	10.0183	1.2605	2.383**
	Females	8.7579		
Intrapersonal Intelligence	Males	10.8532	2.1573	3.611**
	Females	13.0105		
Naturalistic Intelligence	Males	11.0275	.6041	1.136
	Females	11.6316		

*0.01 level of significance, **0.05 level of significance

The study found that there were no significant differences in logical mathematical, verbal-linguistic, spatial, bodily kinesthetic, musical, interpersonal, intrapersonal, or naturalistic intelligence among the participants. The 't' test revealed no significant differences in these areas

between males and females. Similarly, there were no significant differences in logical mathematical intelligence, spatial intelligence, bodily kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, or naturalistic intelligence.

The results also showed no significant differences in musical intelligence between males and females. However, there were significant differences in musical intelligence between males and females. The 't' test also revealed significant differences in interpersonal intelligence between males and females. The 't' test also revealed significant differences in intrapersonal intelligence between males and females.

In conclusion, the study found no significant differences in logical mathematical, verbal-linguistic, spatial, bodily kinesthetic, musical, interpersonal, intrapersonal, or naturalistic intelligence among the participants. But there were some differences as well, including a significant difference in musical intelligence between

men and women, a significant difference in interpersonal intelligence between men and women, and a significant difference in naturalistic intelligence between men and women. On the basis of the above findings (Table 2), significant independence in four dimensions of multiple intelligences out of eight, the first hypothesis was partially retained. For the verification of the second hypotheses chi-square (χ^2) values were calculated between the response of two groups of participants namely male and female under the present study, with respect to each of the four dimensions (Extroversion/ Introversion, Sensing/ Intuition, Thinking/ Feeling and Judging/ Perceiving) of Paragon Learning Style Inventory (PLSI).

Table 3.1. Presents Chi-square value of EI dimension of PLSI between males and females.

Gender	E (Extroversion)	I (Introversion)	EI	Total	Chi-square
Male	98	74	48	220	2.43
Female	74	78	38	190	
Total	172	152	86	410	
Not Significant					

The findings revealed here statistically in significant chi-square which indicates the acceptance 'no difference, and establishes the relation of the two groups with regard to

the EI dimension of PLSI. The above finding indicates failure to reject the null hypotheses.

Table 3.2. Presents Chi-square value of SN dimension of PLSI between males and females.

Gender	S (Sensing)	N (Intuition)	SN	Total	Chi-square
Male	110	52	58	220	21.95
Female	138	26	26	190	
Total	248	78	84	410	
Significant at 0.01 level					

The findings revealed here statistically in significant chi-square which indicates the rejection of 'no difference, and establishes the independence of the groups under study

with respect to the SN dimension of PLSI. The finding also indicates the rejection of null hypotheses.

Table 3.3. Presents Chi-square value of FT dimension of PLSI between males and females.

Gender	F (Feeling)	T (Thinking)	FT	Total	Chi-square
Male	58	122	40	220	10.23
Female	52	80	58	190	
Total	110	202	98	410	
Significant at 0.05 level					

The findings revealed here statistically in significant chi-square which indicates the acceptance 'no difference, and establishes the relation of the two groups with regard to

the FT dimension of PLSI. The above finding indicates the rejection of null hypotheses at 0.05 level of significance and

failure to reject the null hypotheses at 0.01 level of significance.

Table 3.4 Presents Chi-square value of JP dimension of PLSI between males and females.

Gender	J (Judging)	P (Perceiving)	JP	Total	Chi-square
Male	154	40	26	220	2.63
Female	142	24	24	190	
Total	296	64	50	410	
Not Significant					

The findings revealed here statistically in significant chi-square which indicates the acceptance 'no difference, and establishes the relation of the two groups with regard to the JP dimension of PLSI. The above finding indicates failure to reject the null hypotheses.

On the basis of the above findings (Table 3.1-3.4), significant independence in one dimension of learning styles out of four, the second hypothesis was partially retained.

DISCUSSION

The aforementioned results (descriptive statistics and inferential statistics) indicate that there are gender differences in certain types of intelligences (spatial, musical, interpersonal, and intrapersonal), which usually aren't taken into account in our traditional teacher preparation programmes. The three categories of intelligence that are often developed through curriculum-verbal-linguistic, logical-mathematical, and bodily-kinesthetic-show no statistically significant gender differences. The finding Similar to Saricaoglu and Arikan's (2009) study, stated that there was not a relationship between learners' intelligence types and their genders (Saricaoglu and Arikan, 2009). A surprising finding from the data was that the present sample's naturalistic intelligence did not exhibit differences in gender.

Gender differences in learning style only occur in the sensation-intuition' dimension and not in any other dimensions. The findings show that learners need to be aware of their thinking and analyze what they think and feel about learning (Sener and Cokcaliskan, 2018). The only conclusion that can be drawn from these results is that learning styles of prospective teachers are merely disregarded during the teaching learning process, which ought to include

some methods for fostering these ones. Sener and Cokcaliskan (2018) suggested that the ambivalence between learning styles and multiple intelligence can observe across students due to individual differences (Sener and Cokcaliskan, 2018).

CONCLUSION

The current researcher is able to draw the conclusion that the spatial, musical, interpersonal, and intrapersonal intelligences of the two groups of prospective teachers-male and female-were considerably different. Extensive research and statistical analysis of the data are used to support the assertion above. The two groups showed no significant differences in any of the study's four domains-logical-mathematical, verbal-linguistic, bodily-kinesthetic, and naturalistic. Learning styles were frequently indifferent to gender. Between male and female study participants, there was a significant difference in the sensate-intuitive aspect of learning styles.

Overall, the study presents a realistic picture of the nature of the institutions' teacher training programmes' curricular exchanges. India also has around 250 specialists teaching and research institutions, established to provide training in such areas as medicine, engineering, agriculture and computer science, and to conduct high-level research (Jayaram, 2004; Ghosh and Ray, 2023). The development of more traditional types of intelligence, such as verbal-linguistic and logical-mathematical intelligence, is strongly emphasised in the transactional approach to teaching and learning. Similar to how the bodily-kinesthetic has also been exposed in some way. On the other hand, the different learning styles are not taken into account by

the instructional strategies utilised in the teacher training programme.

In light of this, the current study sincerely suggests that curricula be changed to incorporate new material in the interest of fostering the underdeveloped branches of multiple intelligences and that teacher educator are ready to employ a variety of teaching philosophies in order to accommodate different learning styles.

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