Assessment of multiple intelligences in student teachers (B.Ed.):

An exploratory study

[1.] Dr. Sushmita Patro,   [2.] Dr.Rupali Wadkar

Designation : [1.] I/C Principal, OCER, Andheri (W) ,   [2.] Assistant Professor, OCER, Andheri (W)
Email – [1.] sushmitapatro3@gmail.com   [2.] rupali18rr@yahoo.co.in

Abstract: *Multiple Intelligence (MI) is a tool for assessing people's mental processes. Identifying the many types of multiple intelligence can aid teachers in better understanding their students. Although some studies have shown MI in B.Ed. students, there have been few in Mumbai University. As a result, the goal of this study was to look into the differences in MI between arts, science and commerce graduates enrolled for B.Ed. course affiliated to University of Mumbai. We gave 160 B.Ed. students a questionnaire to evaluate the disparities in MI. Overall, our findings revealed that both genders had identical mean averages in the nine categories of MI; in fact, the only significant variations in gender were observed in intrapersonal intelligence (males reporting higher intrapersonal differences than females). There were no other significant differences in MI, and there were no interactions between gender and school grade. In conclusion, these findings show that various types of MI may not be properly applied in elementary school students.*

Key Words: Multiple intelligences, *Bodily/Kinaesthetic Intelligence, Existential Intelligence, Inter-personal intelligence, Intra intelligence, Logical-Mathematical intelligence, Musical intelligence, Existential intelligence, Naturalistic intelligence, Verbal intelligence and Spatial intelligence.*

1. INTRODUCTION:

Human intelligence is often defined narrowly as IQ (intelligences Quotient). Even, IQ is considered as a critical indicator of one's success, whereas the intelligence measured in IQ tests only includes language intelligence and mathematical logic. Intelligence is actually more than just language and logic intelligences. Gardner (1993) defines intelligence as the human ability to create problems and solve them. Hence, the kind of human intelligence will appear when a person faces a problem and solves it. Gardner (1993) and Armstrong (2004) stated that every human being has eight types of intelligences at different capacity. Identifying students' dominant types of intelligences before they start studying is important to assist teachers design appropriate strategies (Griggs, Barney, Brown-Sederberg, Collins, Keith & Iannacci, 2009: page 55).

Identifying the learner's Multiple Intelligences is one technique to address individual variations among adult students. Multiple Intelligences is a term coined by Howard Gardner to describe a concept that challenges standard notions of intelligence and explains the existence of nine distinct Multiple Intelligences.

The Multiple Intelligence Theory (MI) investigates and evaluates two types of brain activities: mental capabilities and learning and knowledge acquisition processes (Gardner, 1983). Gardner (1983) defined six intelligence categories that every normal person should acquire to some extent, albeit some people will develop them significantly more than others. Object-related intelligence, logical-mathematical intelligence, spatial intelligence, and bodily-kinesthetic intelligence are the four types of intelligence. Linguistic and musical intelligence are examples of object-free intelligence. Finally, interpersonal and intrapersonal intelligence are two types of personal intelligence. Gardner later added new categories of intelligence, such as naturalistic intelligence.

Since Gardner's publication of the Multiple Intelligences (MI) theory, several studies have investigated the implications of the theory to be applied in teaching and learning activities in various subjects, including language, psychology and science.

Based on the nine Multiple Intelligences, the following are the personal learning styles.

- Bodily/Kinaesthetic Intelligence is the ability to articulate ideas and feelings using one's complete body, as well as the ability to make or modify things using one's full body (Gardner, 1983, pp. 205-236).

- Existential Intelligence is defined as the ability to appreciate spirituality and to comprehend life's questions. This intelligence is concerned with the study of human existence in space (Gardner, 1999, p. 115).

- Interpersonal intelligence is an individual's ability to perceive others' moods, goals, motives, and emotions (Gardner, 1983, pp. 237-276).

- Intrapersonal Intelligence is having an integrally grounded positive self-concept and life direction. The ability to understand oneself and act to change oneself based on that understanding (pp. 237-276).

- Logical-Mathematical Intelligence entails a higher level of numerical manipulation and comprehension, as well as the capacity to reason effectively (pp. 128-169).

- Musical intelligence is defined as the capacity to recognise, appreciate, write, and perform in a variety of musical forms (pp. 99-127).

- Naturalistic Intelligence is the ability to recognise, identify, classify, explain, and link to natural phenomena (Gardner, 1999, p. 115).

- Verbal/Linguistic Intelligence refers to the capacity to effectively comprehend, use, and manipulate written or spoken language (Gardner, 1983, pp. 73-98).

- Visual/Spatial Intelligence is defined as the ability to swiftly analyse aspects that could be modified to transform or improve the appearance of an image or situation (pp. 170-204).

Multiple intelligence is needed to reason, plan, problem solving, think abstractly, comprehend complex ideas, learn quickly and learn from experience. Intelligence is not merely book learning, a narrow academic skill. But it reflects a broader and deeper capability for comprehending our surroundings. Intelligence is perhaps, still single most effective predicator of school achievement. Intelligence plays an important role in life and contributes to the personal, social.

1.1. STATEMENT OF THE PROBLEM
Assessment of multiple intelligences in student teachers (B.Ed.): An exploratory study.

1.2. NEED AND SIGNIFICANCE OF THE STUDY
Intelligence is the most significant single variable in today's education that influences performance in school, college, and life. In general, intelligence refers to an individual's ability to deal with facts and situations. The aggregate or global capacity of an individual to behave purposefully, think rationally, and cope successfully with the environment is known as intelligence.

There is no doubt that the traditional approach of assessing and measuring one's intelligence is effective for some (Gardner, 1993). The goal, however, should be to understand and address the requirements of all. For measuring intelligence, a better approach is required. According to Gardner, the goal of educational institution should be to develop intelligences and assist students in achieving occupational and vocational goals that are suited to their individual spectrum of intelligences (p. 9). It is critical for society to acknowledge and nurture all of the different types of human intelligence. If recognized early, the chance of dealing with educational problems could be addressed appropriately and effectively (p. 9).

2. REVIEW OF RELATED LITERATURE:
Some studies conducted by Pociask and Settles (2007), Owolabi and Okebukola (2009), Chuang, Tsu and Tsao (2010), Abdi, Laei and Ahmadyan (2013), and Nurulwahida, Yaacob and Shaik-Abdullah (2014), suggest that multiple intelligence theory need to be applied in classrooms through various ways such as implementing brain-based learning strategy, study group method, video games, and modules. Furthermore, Yurt and Polat (2015), Madkour and Mohammed (2016) and Sánchez-Martín, Álvarez-Gragera, Dávila-Acedo and Mellado (2017) found that adjusting learning strategies

with students' intelligence has improved learning motivation and emotional intelligence to positively impact student achievement.

3. OBJECTIVES:
- To study the multiple intelligence levels of B.Ed. students according to their stream.
- To find out the type of intelligence dominates a particular stream.

3.1. HYPOTHESES OF THE STUDY
H0 1: There is no significant difference between mean multiple intelligence scores of students of B.Sc. and B.com.
H0 2: There is no significant difference between mean multiple intelligence scores of B.Com and B.A.
H0 3: There is no significant difference between mean multiple intelligence scores of B.Sc. and B.A.

3.2. DELIMITATIONS
a. The sample is limited to 160
b. Study is conducted in urban area only
c. The researcher has taken up only two colleges for the study.
d. The study is limited to B.Ed class only.

4. METHODS USED
The present study is a Descriptive survey which involves collecting the data in order to test the Hypotheses.

4.1. TOOLS USED
Multiple intelligence profiling Questionnaire was developed by Tirri & Nokelainen to identify the students multiple intelligence. It consisted of 40 assertions, each of which referred to some form of intelligence finding and required that all things be answered. Multiple intelligence levels are regarded to be nine different types of intelligences in this survey. Questionnaire is a self-rating questionnaire with a five-point likert scale. There were five responses to each statement. The subjects were asked to indicate their position simply by ticking (√) in any one of the cells □ with response such as Totally disagree (1), Disagree (2), Undecided (3), Agree (4), Totally agree (5).

4.2. Sample of the Study
B.Ed. college students

4.3. SAMPLING UNITS:
Sample 1: B.Sc. Graduated Student teachers.
Sample 2: B.Com. Graduated Student teachers.
Sample 3: B.A. Graduated Student teachers.

4.4. SAMPLING TECHNIQUE ADOPTED
The research was conducted using purposive sampling method and research was survey.
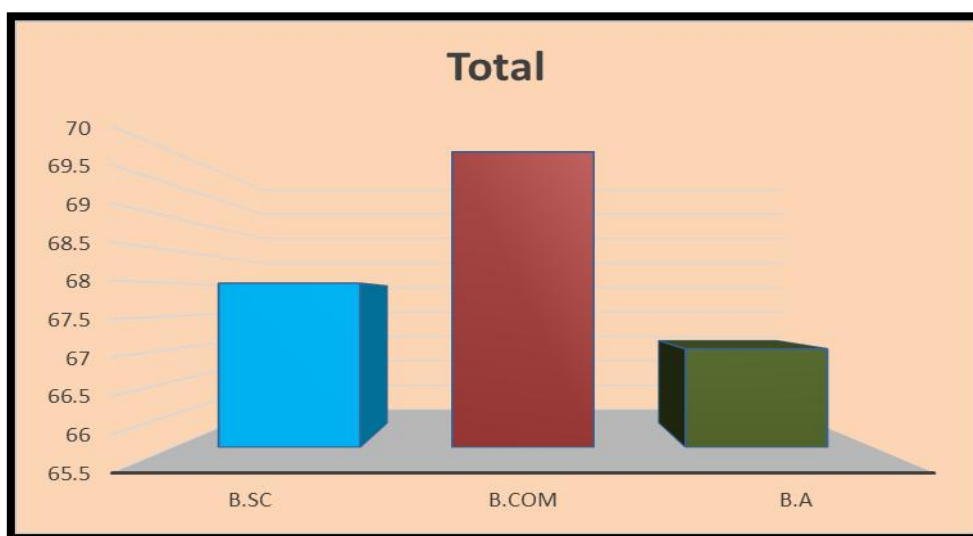
4.5. STATISTICAL TECHNIQUES
- Mean
- Standard Deviation
- T-test

5. ANALYSIS OF DATA:

TABLE-1
Total number of student-teachers

	B.Sc.	B.Com.	B.A.
College 1	32	40	35
College 2	36	30	32
Total	**68**	**70**	**67**

GRAPH -1 Total number of students

H0 1: There is no significant difference between mean multiple intelligence scores of students of B.Sc. and B.com.
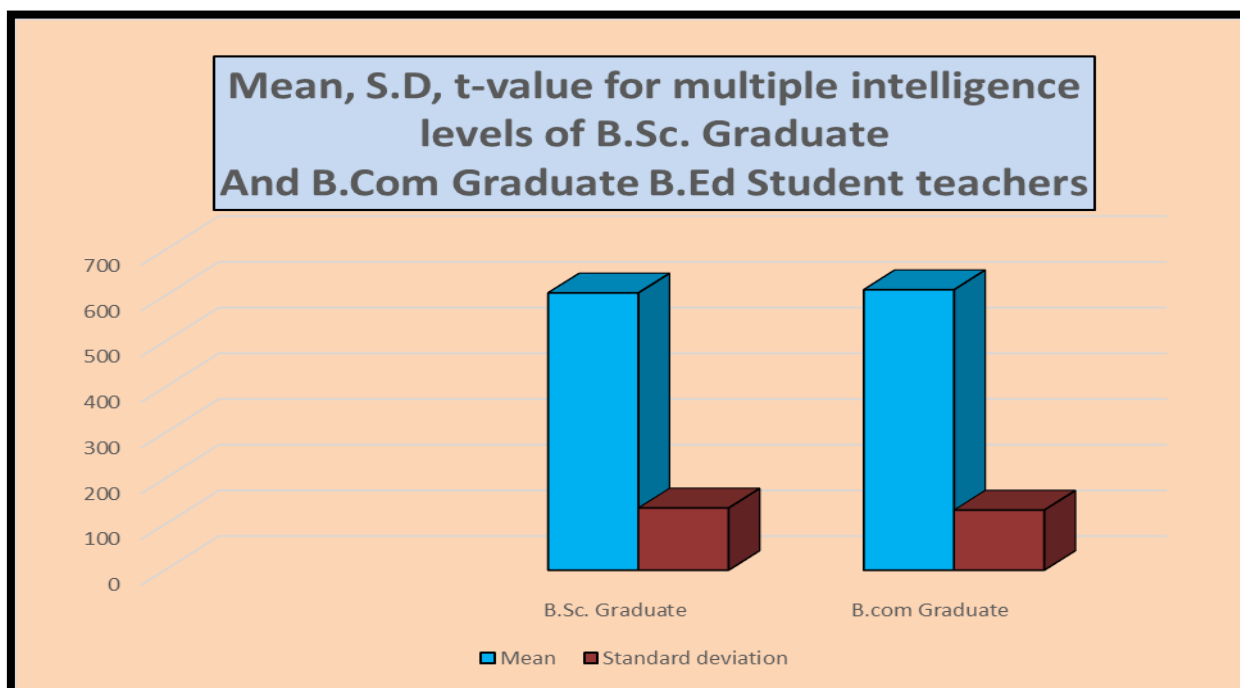
TABLE-2
TABLE-2 shows Mean, S.D, t-value for multiple intelligence levels of B.Sc. Graduated and B.Com Graduated B.Ed. Student teachers

	Mean	Standard deviation	t-value	Degree of freedom
B.Sc. Graduate	606.5	136.0	1.66	136
B.com. Graduate	613.6	131.4		

The permissible value from t table at 0.05 level of significance is 2.00. As t=1.66<2.00. i.e. the calculated t value 1.66 is less than tabulated value, null hypothesis is accepted. Hence the study reveals that there is no significant difference between mean multiple intelligence scores of B.Sc. Graduate and B.Com. Graduate B.Ed Student teachers.

GRAPH -2

H0 2: There is no significant difference between mean multiple intelligence scores of B.Com and B.A.
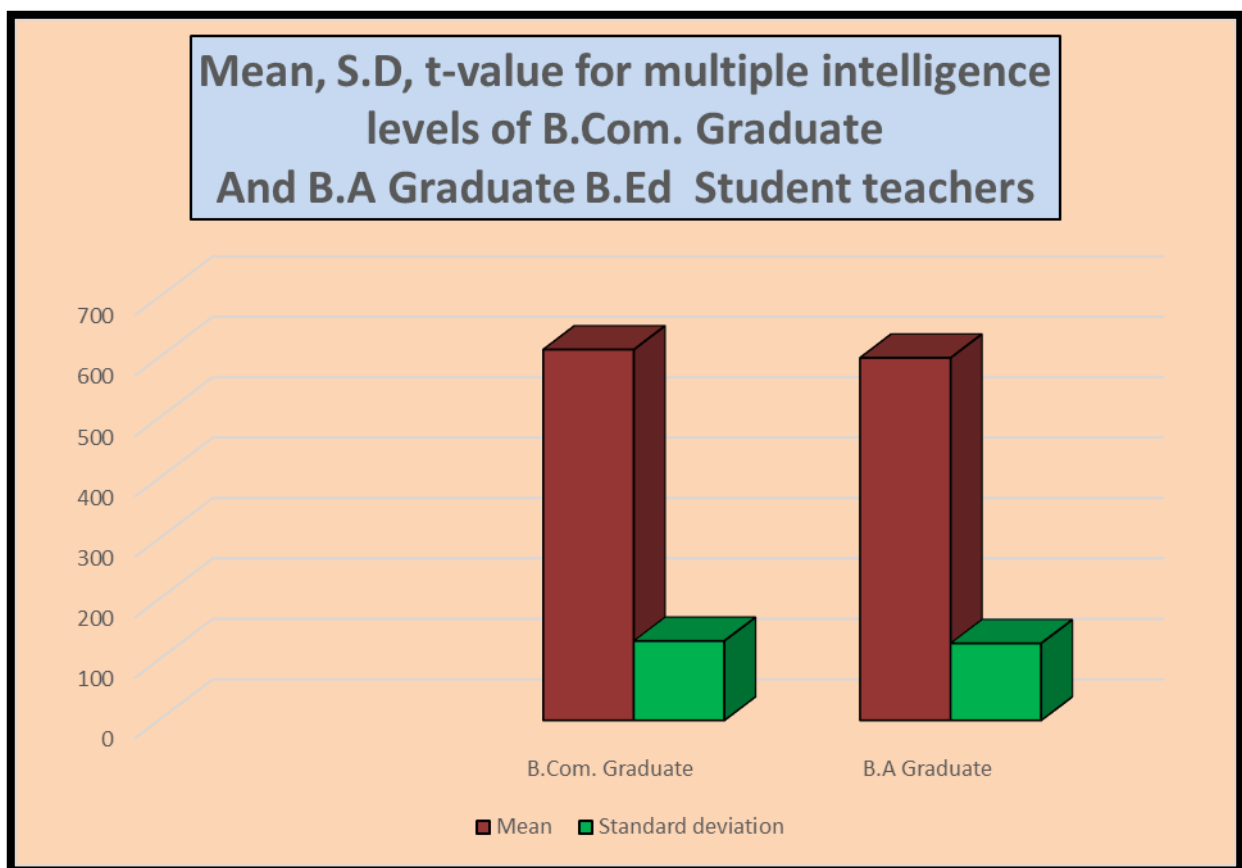
TABLE-3

TABLE-3 shows Mean, S.D, t-value for multiple intelligence levels of B.Com. Graduated and B.A Graduated B.Ed. Student teachers

	Mean	Standard deviation	t-value	Degree of freedom
B.Com. Graduate	**613.6**	131.4	1.66	135
B.A Graduate	600	127.4		

The permissible value from t table at 0.05 level of significance is 2.00. As t=1.66<2.00. i.e. the calculated t value 1.66 is less than tabulated value, null hypothesis is accepted. Hence the study reveals that there is no significant difference between mean multiple intelligence scores of B.Com. Graduate and B.A. Graduate B.Ed Student teachers.

GRAPH -3

H0 3: There is no significant difference between mean multiple intelligence scores of B.Sc. and B.A

TABLE-4

TABLE-4 shows Mean, S.D, t-value for multiple intelligence levels of B.Sc. Graduate and B.A Graduate B.Ed Student teachers

	Mean	Standard deviation	t-value	Degree of freedom
B.Sc. Graduate	606.5	136.0	1.66	133
B.A. Graduate	600	127.4		

The permissible value from t table at 0.05 level of significance is 2.00. Then, t=1.66<2.00. Hence null hypothesis is accepted. Hence the study reveals that there is no significant difference between mean multiple intelligence scores of B.Sc. Graduate and B.A. Graduate B.Ed Student teachers.
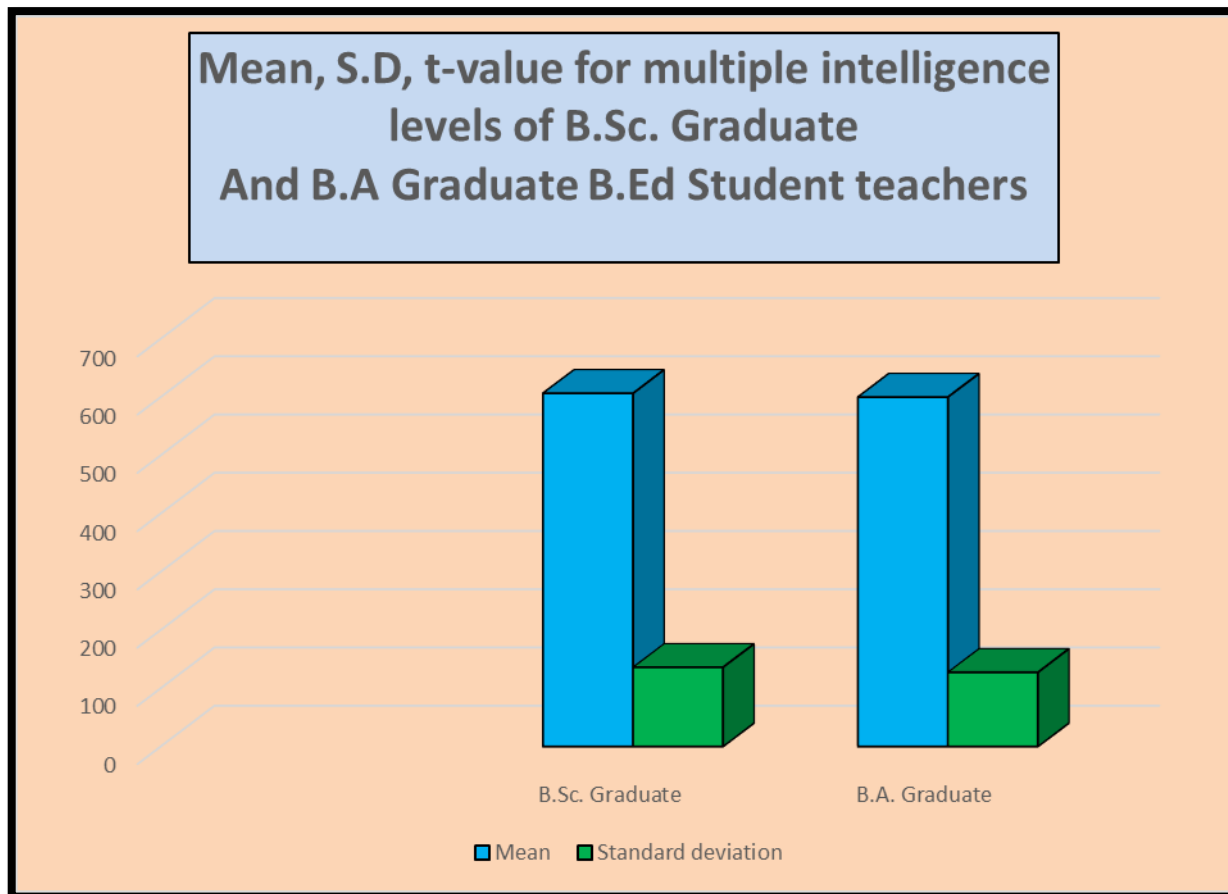
GRAPH -4

TABLE -5
Percentages of different areas of multiple intelligence levels
of B.Sc., B.Com and B.A Students

Areas	Kinaesthetic	Existential	Interpersonal	Intrapersonal	Logical
B.Sc.	75.3%	64.6%	70%	68.4%	75%
B.Com	64.4%	80.8%	68.4%	72.3%	66%
B.A	62.2%	78.5%	71%	63.1%	62%

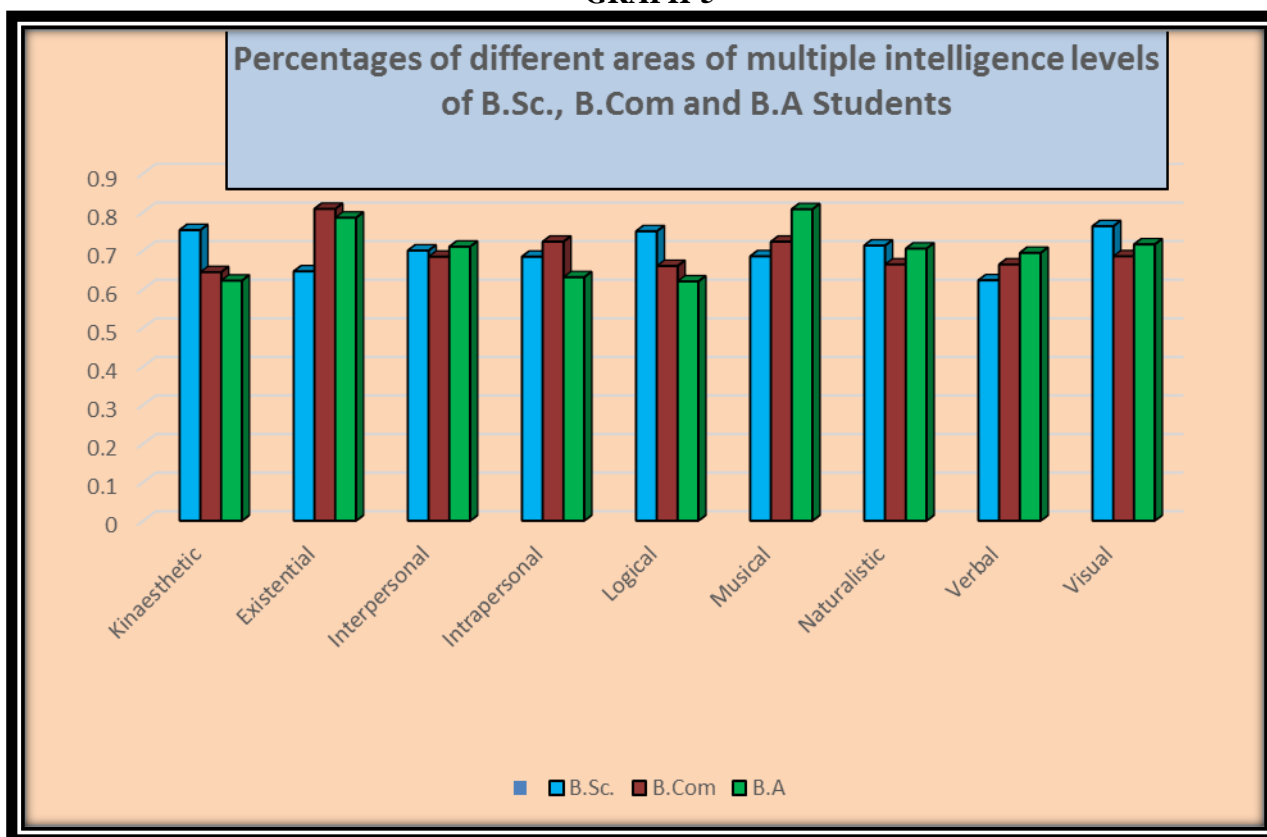| Areas	Musical	Naturalistic	Verbal	Visual
B.Sc.	68.5%	71.3%	62.3%	76.3%
B.Com	72.3%	66.4%	66.4%	68.5%
B.A	80.7%	70.5%	69.4%	71.6%

GRAPH-5

Table 5 Reveals that there exists difference in multiple intelligence levels of B.Sc., B.Com and B.A students in all areas. B.Sc. Students have more multiple intelligence levels in different areas (Kinaesthetic, Logical, Naturalistic, Visual intelligence) B.Com. Students have more multiple intelligence levels in different areas (Existential, Intrapersonal intelligence) and B.A. Students have more multiple intelligence levels in different areas (Interpersonal, Musical,Verbal intelligence).

6. FINDINGS OF THE STUDY:
Though there exist no significant difference in multiple intelligences of B.Ed. student teachers as per their graduation subjects, still it appeared that
- ❖ B.Sc. students have shown more multiple intelligence levels than B.Com and B.A students
- ❖ B.Sc. students excelled in four areas of multiple intelligence, i.e Kinaesthetic, Logical, Naturalistic, Visual intelligence
- ❖ B.Com. students excelled in four areas of multiple intelligence, i.e Existential, Intrapersonal intelligence
- ❖ B.A. students excelled in four areas of multiple intelligence, i.e Interpersonal, Musical,Verbal intelligence

7. CONCLUSION:
The purpose of this study was to determine the differences in MI between student teachers with various graduation subjects. Our results reported that there is no difference in multiple intelligences found according to the graduation subjects of student teachers. The lack of socio-emotional learning in teacher education programmes may cause future students' comprehensive educational development to be delayed. As a result, it is recommended that MI theory be implemented in teacher education. The data was collected using the survey research method, which yielded the results. To the best of the researcher's knowledge, there were very few researchers in the subject of Multiple Intelligence, and in light of this, the researcher attempted to find knowledge that would be valuable to all in the field of education. If any of the study's findings were used to enhance the current state of the educational system, the researcher's effort would be regarded fruitful.

REFERENCES:

1. Irma M G, Georgina M. et. all (2020): Assessment of multiple intelligences in elementary school students in Mexico: An exploratory study, Heliyon 6 (2020) e03777.
2. NAVAL G. (2017): A Study of Multiple Intelligences of Secondary School Students of Jodhpur City of Rajasthan State, International Journal of Research in all subjects, 5/8.
3. McClellan J. and Gary J. C.(2008): Identifying the Multiple Intelligences of Your Students, *Journal of Adult Education,* Volume 37, Number 1.
4. Christison, M. A., & Kennedy, D. (1999). Multiple Intelligences: Theory and Practice in Adult ESL. Eric Digest ED441350.
5. Mangal, S. K. (1984). *Psychological Foundations of Education.* Ludhiana: Prakash Publishers.