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Assessment of Multiple Intelligences among the Secondary Students in Kohima Town

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***Abstract* – This work presents the assessment of multiple intelligences among the secondary students in and around Kohima town which is the capital of Nagaland. The samples were collected from five different schools both private and public school. There is equal representation of the samples drawn from both the sectors. The total sample was 125 with 62 male and 63 female students from secondary students. The data were analyzed with percentage analysis, mean percent, standard deviation, Pearson Coefficient of Correlation and T-test for hypotheses testing. It is found out from the hypothesis testing that there is no significance difference of multiple intelligence between boys and girls and between private and government schools. However, there is a positive correlation between the academic achievement and the multiple intelligence score. The dominant score of multiple intelligences for boys is interpersonal relation and for girls it is intra-personal relation. Therefore, the study highlights, the dominant multiple intelligences of boys and girls. It is interesting to note that mathematical intelligence score is least for both boys and girls.**

***Keywords* – Intelligence, Multiple Intelligences, Assessment, Aptitude, Gender, School, Dominant, Achievement, Academic.**

I. INTRODUCTION

The present formal education gives primacy on the cognitive development, and the other dimensions of personality development are sidelined. Every student has innate talents, which must be discovered, nurtured, fostered, and developed. These talents may express themselves in the form of varying interests, dispositions, and capacities. Those that show particularly strong interests and capacities in a given realm must be encouraged to pursue that line of interest beyond the general school curriculum. The current pattern of "One-size-fits-all" approach to education with little variation or modification has not empowered students to bring out their best (Menezes, 2007). All students in a given course receive the same type of instruction, same assignments, same learning assessments and pre-fixed assessment schedules. Therefore, there is a need to strongly support students who exhibit 'singular interests' or 'talents' beyond the school curriculum (Draft NEP, 2019).

In this pursuit the approach of multiple intelligences is deemed fit to map out, and asses the different abilities of the students particularly the secondary students. Through the assessment of multiple intelligences, a student can discover his or her abilities and gifts. It will also enable students to understand, and to develop their unique way of learning as this knowledge will empower them with self esteem and enthusiasm. It is also a process in which students are guided and helped to discover their true vocation. This true vocation entails a student to become the person he or she dreams, and fulfil the original self hood given by God. The realisation of this vocation is where our deep gladness meets the world's deep need (Palmer, 2000). The realisation of one's' vocation is in the process of realization and actualization of one's gift and abilities. Therefore, the process of helping students to become aware of their talents and abilities is the foundation and paramount goal of true education.

Etymologically the word education comes from the Latin root word, *educere* which means to bring out or to d

-raw out. It is in this essence that education brings out the best in a person and nurtures that part of a person. No two individual can be mathematically equal, but gifted in different ways and forms. Therefore, the approach of multiple intelligences becomes necessary in helping students to discover their own aptitudes, skills, and intelligences.

Howard Gardner, a psychologist and a professor at Harvard University's Graduate School of Education in 1983 in his *Frames of the Mind: The Theory of Multiple Intelligences,* challenged the whole concept and understanding of defining and measuring a person's intelligences. In response to the traditional method of defining intelligence, Gardner gives different types of intelligences that an individual can have. Through his theory, he points out the limits of traditional IQ testing, and its application.

Our education system focuses most of its attention on linguistic and logical mathematical intelligence. We do not give equal attention to students who display other intelligences such as artist, architects, musicians, designers, dancers, speakers and others, who enrich the world we live. Students who have these gifts do not receive much reinforcement and encouragement in their schools. Many of them end up being labelled as dull or incapable. Due to this emphasis on linguistic and logical- mathematical intelligence, most of our students suffer from our present education system and are made them to feel inferior and less intelligent, nay incapable.

According to the traditional definition, intelligence is a uniform cognitive capacity people are born with. This capacity can be easily measured by short answer tests. However, Gardner argues otherwise. According to him, intelligence is the ability to create an effective product, or offer a service that is valued in a culture; a set of skills that makes it possible, for a person to solve problems in life; the potential for finding or creating solutions for problems, which involves gathering of new knowledge. The traditional test requires children to answer questions orally, fill in blanks, or do other paper and pencil tasks tend to favour students who are strong in linguistic and logical-mathematical abilities while discriminating against others who are weak in these areas but are exceptionally strong in one or more of the other areas (Armstrong, 2000).

It's time for the schools, and parents' community as well, to start focussing the attention on the inner capabilities of each and every child. We have known for many years that human beings use only a small fraction of their potential. To quote Armstrong (2000), "assigning the label of gifted to only few select individuals, we're shutting the door to millions more who posses untold inner riches." Therefore, mapping out of multiple intelligences among the students can help out the teaching community to bring out the best in the students and thereby, allow the students to unfold their creative potential for the career building and be what they can become. This study is aimed for that. However, before, presenting the result of the study, the methodology of the research is in order.

II. METHODOLOGY

Research Questions

In the study on multiple intelligences of the secondary students, the following questions were answered.

1. How far the students are aware of their own intrinsic talents?
2. Will they choose a career according to their skills and talents that they have?
3. How far the teaching community can use the knowledge of multiple intelligences in guiding and motivating

students to choose career appropriately in relation to their talents and gifts?

4. What is the relationship between multiple intelligences and the academic excellence?

Objective of the Study

The study aims to investigate the levels of multiple intelligences among secondary students from Kohima town in the light of Gardner's theory. In particular, the study attempts to answer the following questions:

1. To find out the dominant types of multiple intelligences among secondary students in and around Kohima town.
2. To investigate the differences in multiple intelligences among boys and girls of secondary students of Kohima town.
3. To evaluate the degree of correlation between the academic achievement and the dominant multiple intelligences.
4. To examine degree of relationship between the dominant intelligence and the hobby of the student.

Hypotheses

The null hypotheses stated were formulated and tested in the study are stated as under:

There is no significant difference of multiple intelligences:

$H_{01:}$ Between urban and rural school students.

$H_{02:}$ Between boys and girls of secondary schools.

$H_{03:}$ Between private and government secondary school students.

Limitations of the Study

The results of this study are interpreted and generalized in the light of the following limitations:

1. The sample of the study is restricted to secondary level students from selected five Secondary Schools registered and recognized by the Nagaland Board of School Education of the academic year 2020 in and around Kohima town.
2. The results of the study are attributed to school types only.

Population and Sample

The universe of the study is in and around Kohima town both private and public higher secondary schools. The ratio of the gender is 50:50 and the school for both private and public is 70:30. Five schools are selected for the study in which 2 are government and 3 are private. In every school 25 samples are selected on the basis of stratified random sampling.

III. METHODOLOGY AND PROCEDURE

For the present study the data were collected from girls and boys studying in Grade 10, with English as a medium of instruction from 5 schools situated in and around Kohima Town with a radius of 20 km. Prior appointment and permission were taken from the principals of different schools. The researcher explained the

purpose and procedure to the respondents to obtain their responses on the rating scale. Students were also permitted to ask any clarification and their difficulties. For data collection no fixed time limit was given for completing the task. This research is a quantitative research. This research was conducted at public and private owned schools registered and recognized by Nagaland board of school education (NBSE).

Data Analysis

To analyze the collected data, Microsoft Excel 2007 is used. All the hypotheses are tested at 0.05 level degree of difference. The Statistical technique used for analysis of the data consists of Percentage Analysis, t-test and Pearson Product Moment Correlation.

Sampling Frame

Table 1. Sampling Frame.

Grade		**10**				
Gender		**Male**		**Female**		**Total**
		Rural	**Urban**	**Rural**	**Urban**	
	Government	10	13	15	12	50
School	Private	12	25	13	25	75
		22	38	28	37	
	Total		60		65	125

IV. MAJOR FINDINGS OF THE STUDY

The Dominant Intelligence

It is found out that interpersonal intelligence is the dominant intelligence among the secondary students. The score of the dominant intelligence is 58.2%; whereas the subdominant intelligence is intra-personal intelligence with 52.8%.

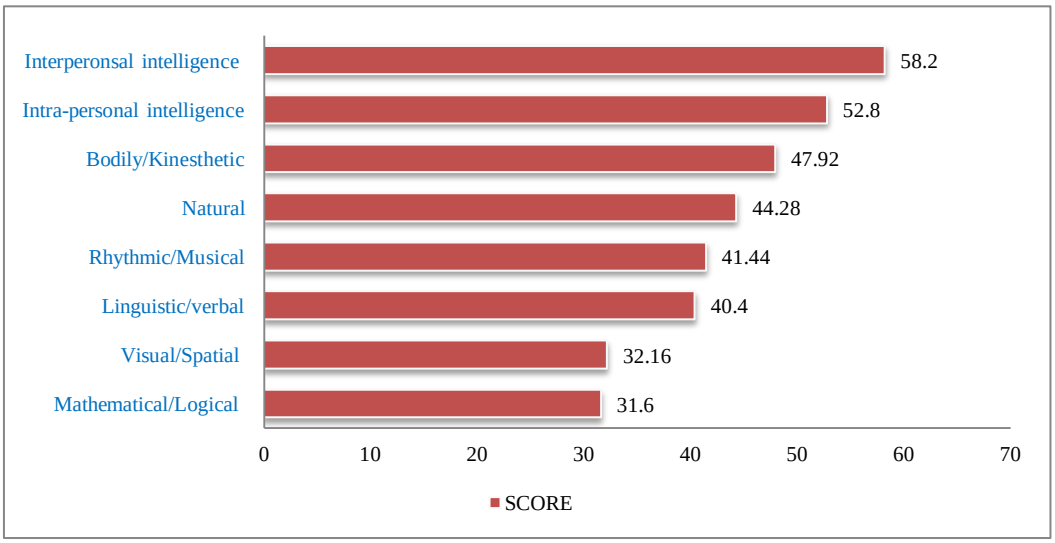

Fig. 1. Score of multiple intelligences of the students.

Minimum Score in MI

Of all the scores, logical/mathematical intelligence has the minimum score with 31.6% while the visual/spatial intelligence score is 32.16%.

Female MI Dominant Intelligence

It is found out that interpersonal intelligence has the maximum score with 58.3% followed by intra-personal intelligence with 57.3%. The minimum score is logical/mathematical intelligence with 28.84%.

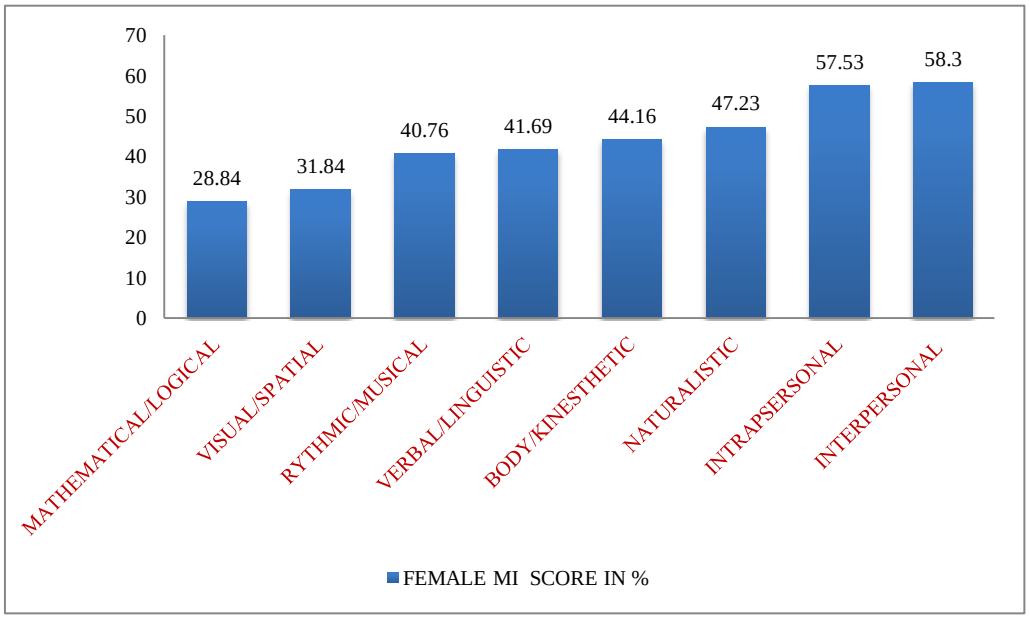

Fig. 2. Female MI Score.

Male MI Dominant Intelligence

The interpersonal intelligence is the dominant intelligence score with 58.08% which is followed by body/ kinesthetic intelligence with 51.5%. The visual/spatial intelligence gets the minimum score with 32.5%.

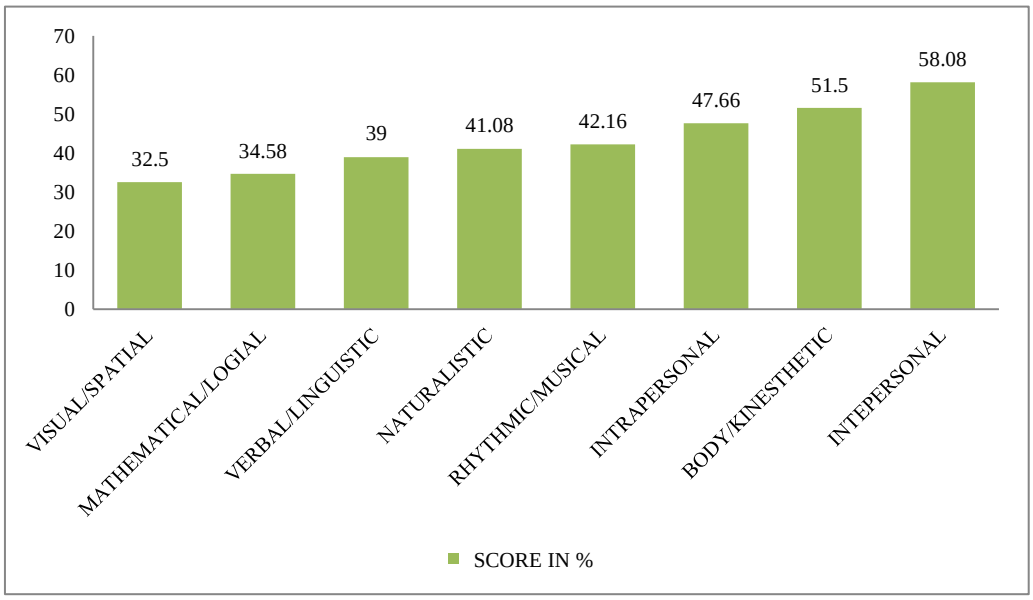

Fig. 3. Male MI score.

Minimum Score for both Genders

For girls, mathematical/logical intelligence gets minimum score of 28.84% where as for boys; it is visual/ spatial intelligence with 32.5%. Thus we can see that on the subdominant score they differ. This difference is also manifested in their minimum score. For boys it is visual/ spatial intelligence whereas for girls it is mathematical/ logical intelligence.

Academic Achievement and MI Score

There is a positive correlation between the academic achievement and MI score. It has been deduced through the Pearson product moment test that the positive relationship has been confirmed in the following cases:

a. Relationship between the academic achievement of urban boys and MI score.

b. Relationship between the academic achievement of urban girls and MI Score.

c. Relationship between the academic achievement of rural boys and MI Score.

d. Relationship between the academic achievement of rural girls and MI Score.

It means that higher the academic achievement, higher is the MI score of the students.

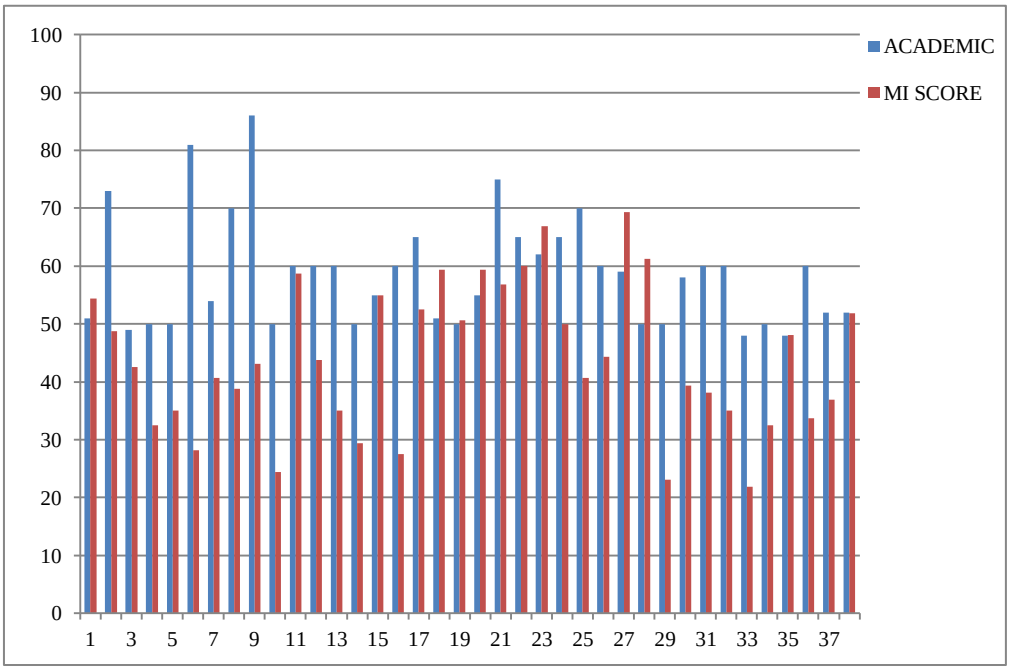

Fig. 4. MI Score of Rural Males with Respect to Academic Achievement.

Table 2. Pearson's Correlation Test of Academic Achievement and MI Score.

Correlation	Academic	MI Score
ACADEMIC Score	1	0.11
MI SCORE	0.11	1

Source: Field data.

The test result indicates that there is a positive relationship between the academic achievement and MI scores. Here the value of r = 0.11 indicates a weak positive linear relationship of MI score of urban males with respect to academic achievement.

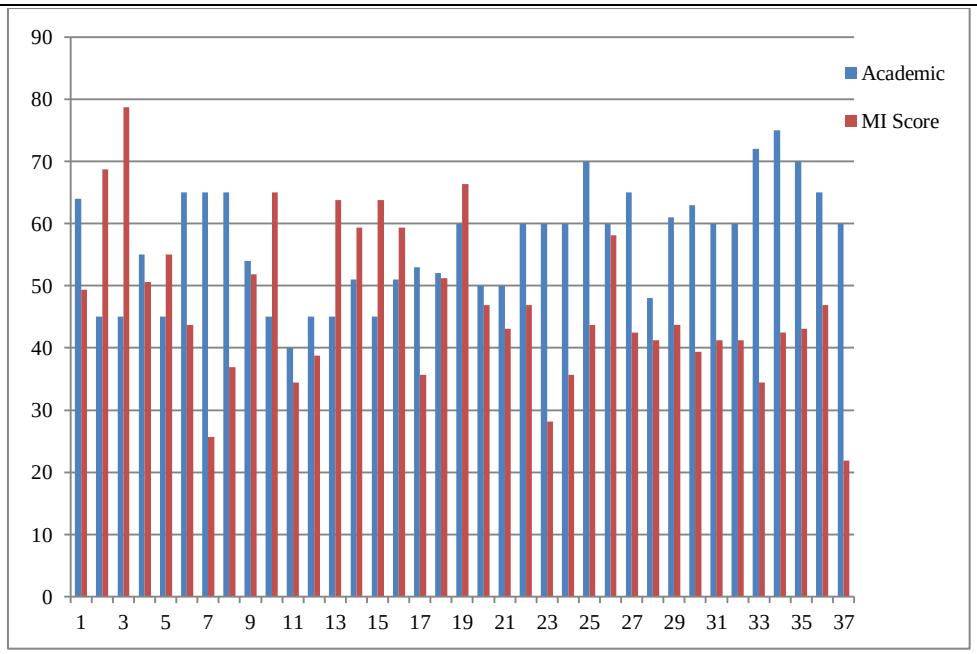

Fig. 5. MI score of rural females with respect to academic achievement.

Table 3. Pearson's Correlation Test of Academic Achievement and MI Score .

Correlation	Academic Score	MI Score
Academic Score	1	0.30
MI Score	0.30	1

Source: Field data.

The test result indicates that there is positive correlation between the academic achievement and MI score of urban females.

Here the value of r = 0.30 indicates a weak positive linear relationship of MI score of urban females with respect to academic achievement.

Dominant MI Score and Hobby

There is a reciprocal relationship between the dominant MI score and the hobby of a student. This hobby is one of the dimensions of multiple intelligences. The students with music as their main hobby, the score of rhythmic/ musical intelligence also comes up as one of the dominant scores. The first dominant score is always the inter- personal intelligence, but the sub dominant will be musical intelligence if their hobby is somewhere connected with music or rhythm.

Table 4. MI Score with respect to hobby-games.

MI	Mathematic	Inter- P	Linguistic	Intra-P	Rhythmic	Bodily	Visual	Natural
SCORE	31.28	55.11	36.38	48.30	39.15	48.72	30.53	40.64

Source: Field Data

The above MI scores of those students having games as their hobby have interpersonal intelligences as their dominant intelligence. The bodily/ kinesthetic intelligences follows suit. This score has the second highest in the MI score.

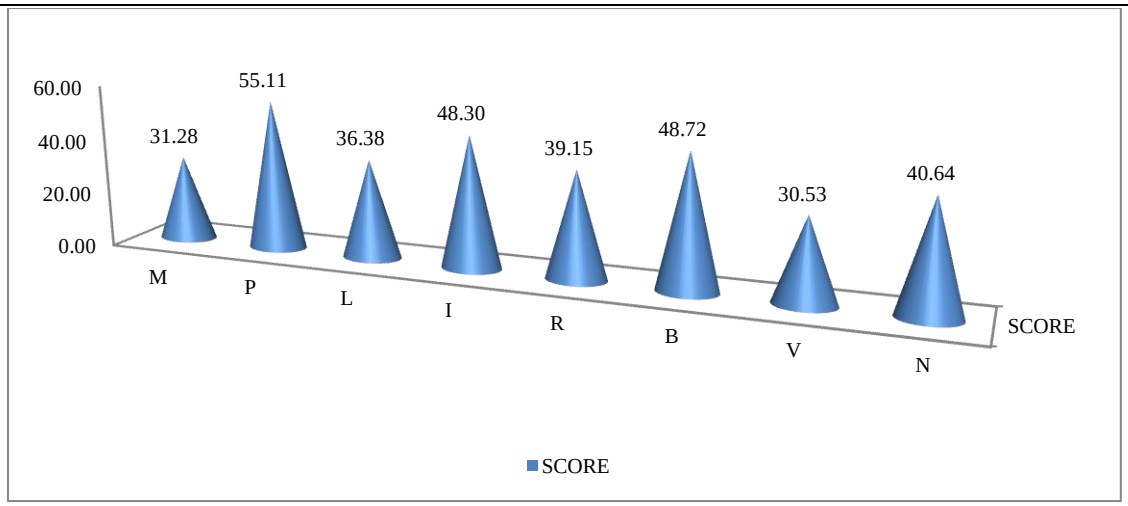

Fig. 6. MI score of the students with games as their hobby.

Table 5. MI Score With Respect To Hobby-Music.

MI	Mathematic	Interpersonal	Linguistic	Intrapersonal	Rhythmic	Bodily	Visual	Natural
SCORE	30.33	66.33	46.50	53.67	52.83	50.67	30.33	47.00

Source: Field Data.

The table presents the scores of the students having music as their dominant hobby. It is clear that rhythmic or musical intelligence is not their dominant intelligent score. Here too the inter personal intelligence dominates the score. Let us now graphically represent it on the polygon chart.

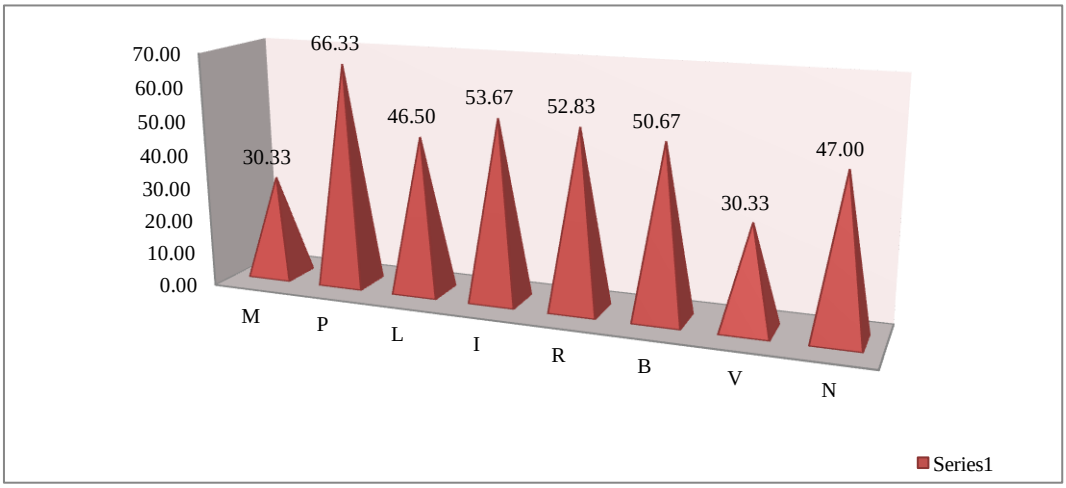

Fig. 7. MI Score of the Students with Music as their Hobby.

Result of Hypotheses

It is proved that there is no significance difference of multiple intelligences:

$H_{01:}$ between urban and rural school students.

$H_{02:}$ between boys and girls of secondary schools.

$H_{03:}$ between private and government secondary school students.

Recommendations

1. The present study could be extended to students' responsiveness in applying multiple intelligences in teaching learning.
2. A comparative study could be done between Residential schools and others.
3. Few intervention studies can be taken up to improve multiple intelligence, of the teachers.
4. Along with psychological variables, teacher effectiveness of using multiple intelligences in the classroom could be studied.

Educational Implications

This study on the assessment of multiple intelligence among the secondary students, unveils that the interpersonal intelligence is the dominant score among the students. It is therefore, important to see the nature, and implications of students with high interpersonal intelligence score. The interpersonal intelligence operates primarily through person to person relationship and communication. It is the ability to relate to and understand others. These types of students try to see things from other people's point of view. They also try to maintain peace in group settings and encourage cooperation. They use both verbal and non verbal language to open and communicate with each other. They negotiate and relate well, have many friends, enjoy group activities and are loyal to each other. Values arising from the peer group is very important and sentiments for them.

Pedagogy and Curriculum Instruction

A teacher needs to be creative and very communicative in teaching learning process and in the delivery of curriculum. Here the communication is not only verbal, but need to pay very close attention to non verbal languages such as eye contact, body language and facial expression. In the teaching learning process, care should be taken to create the following:

1. Provide cooperative learning activities and project works.
2. Organize field trips in relationship with the lessons.
3. Create a space where there is person to person communication.
4. Break into small groups to socialize for deeper learning and sharing.
5. Use pair-share activities in the classroom instruction.

Classroom and Beyond

Students with high degree of interpersonal intelligence look education beyond three Rs of reading, writing and arithmetic, but rather, on bright head, skilled hands and kind heart. It is not content for the head alone, but skills of the personality development and kindness of the heart that they personalize and assimilate it for the rest of their life. They will not only treasure what a teacher is, but how a teacher is in terms of radiating human values.

Adolescents devote more time and energy to worrying about whether they are safe and accepted than to caring about whether they are learning. This is the reason why teacher-student relationships have such a powerful effect on student achievement and why community-centered classroom are such an important contributor to academic growth and holistic development of the students. The interpersonal intelligence of the

students displays their affective needs (Doubet & Hocket, 2015). Therefore, if a teacher wants to create successful and fruitful classroom, he or she needs to cultivate healthy teacher-student, and student-teacher relationships. This is not a matter of convenience, but indispensable as the present study has revealed its dominance among the students.

The high score of interpersonal intelligence among the students implies that students' desire for good relationship as process of their affective needs. Therefore, a teacher ignores these affective needs of students; they will be less able to meet the cognitive needs. When these needs are met with diligence and prudence, students gain in both socio-emotional and intellectual growth.

Tips for Reinforcing Interpersonal Relationships among the Students

1. Know the names of the students with correct spelling.
2. Compliment them for their timely presentation of class assignment.
3. Know their hobbies as well and speak the values of developing such hobbies.
4. Remember their birthdays.
5. Know their favourite colours, songs, movies, food, dress and idols.
6. Point their mistakes but in private-one to one.
7. In their classroom presentation, don't delve on their mistakes, but on their strengths.
8. Know their family background; however, prudence is required as it may develop undesired relationship.
9. Be on time if not ahead of time for class.
10. Never label students in the class even though they may be at fault.
11. Never point out 1% mistake and forget 99% achievement of the students.

V. CONCLUSION

It is confirmed that mathematical/logical and verbal/linguistic intelligences are not at the top score of the students' MI score. They are in a way at the least. This gives us a tremendous insight to the way students are gifted with skills and intelligence they are endowed with. This therefore, demands from the part of teaching community and parents as well to alter the way we see success and initiate career plans for our students.

The empirical world gives us enough of proofs and evidences that mathematical and verbal intelligences are not the sole point of intelligences required to build our career and live a meaningful living. We are not denying the fact that mathematics and linguistics have their role and share in society. What we are arguing and affirming is that they cannot be the sum total to determine students' capacity to learn and grow.

This further leads us to another level of reflection. Often students are not interested in a particular subject-mathematics. They are not interested not because of the topic, but students fail to draw the connection of what they are studying. It is here that a teacher of the subject must try to draw the attention of the students. For instance, *pi* is the study of a mathematical constant. It is a number that mathematician can rely on and use to calculate, analyze, compare, and predict. To engage students in a study of *pi*, a teacher might begin by

displaying the word constant and asking students to talk to one another briefly about what it means for something to stay constant and who or what the constant are in their lives. This analogy becomes clear for the students and they can draw a connection to what they are going to study and thus become interested in the study of *pi* (Boubet & Hockett, 2015). This is the challenge for a teacher to be down to earth in teaching an abstract subject to the students concretely.

When the students' interests are raised, and their skills and proficiency levels enhanced, motivation to study is no more an issue. It only becomes incidental. The application of MI thus becomes really relevant in this endeavor. In order to make the teaching effective and motivating one needs to assess the interest of the students.

This assessment could be very well done with the knowledge and application of MI. A fruitful and effective teacher is someone who understands, and values the students' interest and intelligences and brings out the best in them. The knowledge of MI thus becomes a tool in the hands of a teacher for effective teaching tools. For the parents, it becomes a handy tool in affirming their children and injecting a self confidence in them. These are the elements that students require as they grow in battling with their self image and gearing for their career.

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Vemedo Kezo is currently a PhD scholar in Nagaland University, under the department of Teacher Education. Completed his graduation at St. Joseph's college, Bangalore University in 2000, post graduate in Philosophy at Loyola College, Madrass University, in 2002. Completed his M.Ed in State College of Teacher Education, Kohima Nagaland in 2020 in Nagaland University. For five years served as an assistant professor in Education Department at St. Joseph's Autonomous College Jakhama, Kohima, Nagaland, India.