

# Enhancing Academic Performance of Disabled Students through Multiple Intelligences Based Programmes

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## Abstract

This study investigated the effectiveness of multiple intelligences based programme in enhancing academic performance of disabled learners 5<sup>th</sup> and 6<sup>th</sup> year elementary of Omoyeni special school, Orita Aperin, Ibadan Oyo State, Nigeria. The study utilized pre-post quasi experimental design. A total of 120 disabled learners, 60 experimental 60 control group were the participants of the study. The experimental group consists of 15 visually impaired, 20 hearing impaired and 25 intellectually and developmentally disabled participants the age range of the participants was between 12 and 22 with average age of 17years. Multiple regression scale (MIS) was the instrument used for data collection. Three research hypotheses and a research question guided the study. Multiple regression analysis and ANCOVA were the statistical tools used to process the data collected. The results of the findings indicate that multiple intelligences based programme was effective with disabled learners in improving their academic performance. Findings from this study also indicated that treatment was most effective with the learners with visual impairment followed by learners with visual impairment and it was least effective with the intellectually and developmentally disabled. On the basis of these findings, it was observed that multiple intelligence based programme could assist in enhancing academic performance of the disabled learners.

**Keywords:** Multiple intelligences, academic performance, disabled students.

## Introduction

The best way of knowing that students are successful in any curriculum is to look at what they accomplish. Schools that have results with all their students use a variety of teaching approaches to support life-long learning, and keep students motivated to learn.

To actually achieve a lot in teaching learning situation especially when dealing with the learners with disability, teacher's school psychologists and other school personnel need some specialized tools. Multiple intelligences (MI) theory and strategies provide a framework and tools that can help teacher in designing classroom instruction and curricula that meet the individual needs of many kinds of students.

As all other teachers must do, those who chose to use multiple intelligences need to consider student achievements as the test of whether their teaching techniques and curriculum chooses are sound.

Helping teachers students and parents realize that there are multiple ways to learn and that they themselves posses multiple types of intellectual strengths and life skills is but one reason to consider the theory of MI for teaching students with special needs. MI will not only increase students' confidence and enthusiasm for learning, it will also improve their students' learning abilities. MI unveils academic strengths and honours alternative ways of learning which can be highly helpful when educating students identified for special education services (Cushner, McClellanbd & Safford, 2003).

Gardner (2004) described intelligence as the combination of psychological and biological characteristics that enable individuals to solve problems or create products that are valued in one or more cultures. This suggests that thinking, problem solving, and creating are valued in one or more cultures. This suggests that thinking, problem solving, and creating are valued differently depending on the family and community in which individuals live, learn and work. So, in one context, persistence, sustained effort, and deferred gratification may be more valuable than other attributes. On the other hand, bursts of creativity and story telling might be particularly appreciated in a family where conversation and novelty are valued.

Based on the criteria that he developed Howard Gardner identified the following eight intelligences:

1. Linguistic intelligence: People use language for convincing others to an action. Individuals communicate and make sense of the world, through language. Those who have a keen sensitivity to language in its spoken and or written forms might demonstrate this strength as poets, writers, is highly valued and rewarded in schools. This activities could be incorporated into lesson plan

- through jokes, story telling, reciting of poetry etc (Fadlon, 2006).
2. Logical-mathematical intelligence: This type of intelligence is a skill about thinking with numbers, figures, relationship, problem solving, critical thinking, abstract thinking etc. this type of intelligence enables individuals to use, appreciate, and analyze abstract relationships./ this kind of capacity is often harnessed in mathematical reasoning and scientific investigations. Mathematicians, scientists, and engineers deploy this intelligence at high levels. Like linguistic intelligence, logical mathematical intelligence can be adopted in teaching learners with disabilities (Onay 2006, Fathi, 2008).
  3. Spatial intelligence: It is a skill about thinking with paintings, images, figures and lines, perceiving etc. this intelligence covers sensibility towards colours, lines, figures, visualization of ideas, thoughts, transforming into graphics (Gardner 2004) it enables people to perceive visual or spatial information, to transform this information and to create visual images from memory. Blind people skillfully employ this intelligence, using it to create mental maps of their environments. It is commonly seen operating at high levels in architects, artists, surgeons, and pilots. In order to incorporate this type of intelligence to the classroom situation, the teacher uses a lot of drawing, puzzles role play etc (Fadlon 2008).
  4. Musical – rhythmic intelligence: it is an intelligence type that allows individual to create, communicate, and understand meanings made out of sound. It is manifested to high degree among composers, musicians and acoustic engineers (Fathi 2008).
  5. Bodily-kinesthetic intelligence: This intelligence is about the usage of body in different forms to express and arrange picturing objects with hands and fingers. It entails using all or part of the body to solve problems or create product. The intelligence seems to stand in stark contrast to the reasoning that is prized in traditional tests of intelligence. Advanced forms of problem solving and creativity through use of the body evident in the activities of choreographers, rock climbers, and skilled artisans (Fathi 2008).
  6. Interpersonal intelligence: It is a skill about cooperative learning, communication with and without word, thought and behaviours and convincing (Onay, 2006). It is the capacity to recognize and make distinctions among others, feelings and intentions and to draw on these in solving problem. Successful teachers, actors, therapists, political leaders and sales people rely on highly developed interpersonal intelligence.
  7. Intrapersonal intelligence: This type of intelligence enables individuals to recognize and distinguish among their own feelings, to build accurate mental models of themselves, and to draw on these models to make decisions about their lives. Intrapersonal intelligence is sometimes seen in skillful autobiographic and more generally, among those individuals who make sound choices about their life and work
  8. Naturalistic intelligence: This is a skill about recognition of all living things, searching and thinking. Environment and living things intelligence covers both artificial and natural environment. It allows individual to solve problems distinguishing among classifying and using features of the natural world. This intelligence is commonly seen in people's ability to categorize different kinds of plants and animals and has been harnessed to the task of distinguishing among human made objects. It is essential to the work of landscape architects, hunters, archeologists, environmental scientists and farmers etc (Uzogbu, 2006, Kuloglu 2005, Bumen 2004).

Armstrong (2000) has argued that the theory of MI has broad implications for special education. MI focuses on a wide spectrum of abilities, it therefore help place “special needs” on a broader contexts. Armstrong maintained that a growth paradigm would be more appropriate for students with special needs rather than accepting what he calls the “deficit paradigm” which depends on labels and which can be viewed as medical model. Educators who view special needs in the context of the eight intelligence, view all those students differently. Using MI as a backdrop, educators can begin to perceive children with special needs as whole persons possessing strengths in many areas (Armstrong 2000).

Numerous educators Cushmer, McClelland & Safford 2003, Gardner 2004, Karnhaber, Fierros & Veenema 2004) have argued that the best learning opportunities are those that are most successful for all students. There is the need for emphasis in the way in which lessons are specifically tailored to the needs of individual students or small groups of students. An MI curriculum not only provides teachers with ways to personalize education for students, it can also help to cultivate a passion for life and career goals (Safak 2007).

Educators and researchers have also found that the theory of MI has broad implications for special education, primarily because MI focuses on learning that happens in areas outside the traditional verbal/linguistic or logical

mathematical spheres. Instead MI fosters the inclusion of numerous different ways of knowing that allow teachers to perceive students' learning strengths in multiple ways. An MI framework reminds teachers that their classrooms work best for students when many ways of knowing and doing are valued and accepted (Kornhaber, Fierros & Veenma, 2004)

The successful use of MI must be recognized as one of the many tools that can be used in teaching students with special needs. The key to using MI, however, is that it changes the way educators think about students and their abilities to learn. In multiple intelligences best ideas from research practice Kornhaber, Fierros, & Veema (2004) provide a set of practices called "compass points" that have been used by schools that have engaged students' MI in ways associated with students learning.

There are six compass point practices (Kornhaber, Fierros, & Veenema 2004). They include:

1. Culture: acting on a values system that maintains that diverse students can learn and succeed, that learning is exciting and that hard work by teacher is necessary..
2. Readiness: This has to do with preparing individual to work with MI and other new ideas. Building staff awareness of MI and of the different ways that students learn.
3. Tool: This is a means of seeing MI as a means of fostering high quality work. Using MI as a tool to promote high quality student work rather than using the theory as an end in and of itself.
4. collaboration: This helps to promote informal and formal exchanges among the staff, in which they share ideas and make constructive suggestions
5. Choice: Provides meaningful curriculum and assessment options. Embedding curriculum and assessment in activities that are valued by both the students and the wider culture.
6. Arts: Giving the arts a significant role in the school. Employing the arts to develop children's skills and understanding within and across disciplines

There are numerous ways that teacher can use MI in their teaching, but perhaps the key is that MI allows teachers to think differently about how students learn (Tuncer & Kahveci 2009). Teachers who integrate MI into their teaching instantly expand their curricular offerings to address students different intelligences and to provide students with situated learning experiences that can lead to better learning opportunities for students to learn is more likely to have a positive impact on student achievement and, by extension test scores (Akkus 2006, Aydogan 2006, Demir 2009).

From the foregoing, MI can be used to improve the learning opportunities for diverse learners, and it has a positive impact on both students with special needs and their teachers (Haley 2004). As Haley (2004) points out "Teachers who plan and organize their instruction around the MI learning preferences of individual learners, emphasizing special strengths and sharing up under utilized gifts and talents, may unlock the full learning potential of all their students. The use of MI in daily instruction impacts academic achievement and student motivation (Demir, 2009). By referencing the compass point practices described teachers and families have a guide for thinking about curriculum and instruction in their schools.

The use of MI in schools helps educators move instruction beyond linguistic and logical mathematical intelligences that leave many students out of the learning process. MI helps educators understand cognitive abilities and frame decisions about curriculum. to use for developing the curriculum that engages learners who have different intelligences. Without an MI framework for designing learning opportunities students' strengths could be ignored, and their opportunities to learn could be lost as well.

The challenge for teachers is to create learning environments that foster the development of all eight intelligences. Balanced instructional presentations that address MI benefit all learners and strengthen their underutilized intelligences. Teachers of diverse students and students with special needs recognize that not all learners excel in the linguistic and logical mathematical intelligences MI provides a framework for teachers so that they can understand how their students learn.

By approaching students with a model that targets their successful learning in a particular intelligence instead of a standard approach that limits learning, students get an opportunity to experience success in school; when students can associate school with a positive experience, for instance, because they pointed a notable piece of art, they are likely to work and improve in areas where they haven't had as much success (writing and mathematics).

The greatest impact of MI theory lies in the ability of teachers to identify students' areas of intelligence and to organize their instruction accordingly. As a result, teachers can meet the needs of students from multicultural

backgrounds and abilities. The use of MI promotes diversity and inclusiveness, rather than the “one size fits all” approach to teaching. It is on this premise that the researcher intends to use multiple intelligences programme to train the disabled learners so that they can use same for effective teaching learning process in the classroom to enhance their academic performances.

### Objectives of the study

The general objective of this study is to use multiple intelligences programmes to enhance academic performance of the disabled learners. The following are the specific objectives:

- i. to investigate if there is significant difference in the level of academic performance of learners exposed to multiple intelligences programme and the control group.
- ii. to investigate if there is significant difference in the level of academic performance of male and female participants after exposure to therapeutic treatment
- iii. to identify which of the disability type (i.e. visually impaired, hearing impaired, intellectually and developmentally disabled) yielded to treatment most.
- iv. to investigate if there is significant difference in the level of academic performance of disabled learners from literate and illiterate background after exposure to treatment.

### Research question

1. Which of the disability type, visually impaired hearing impaired, or intellectually and developmentally disabled is treatment most effective?

### Research hypotheses

The following hypotheses were formulated and tested at 0.05 level of significant

1. There is no statistical significant difference in the level of academic performance of participants in the experimental and those in the control group
2. There is no statistical significant difference in the level of academic performance of male and female participants after exposure to therapeutic treatment
3. There is no statistical significant difference in the level of participants from literate and those from illiterate background treated with multiple intelligences programme.

### Method

**Design:** The research design adopted in this study is pre-post quasi experimental type. This is a type of design that shows cause and effect after manipulation of dependent variable.

**Sample and sampling techniques:** The sample of this study was 120 pupils of 5<sup>th</sup> and 6<sup>th</sup> Elementary of Omoyeni special school, Orita Aperin Ibadan. Out of 120, 60 were exposed to treatment which consists of 15 visually impaired, 20 hearing impaired and 25 intellectually and developmentally disabled. The other 60 were in the control group. The age range of the participants was between 12 and 22 years with average age of 17years. Out of the participants 69(58%) were males while 50(42%) were females. 41(34%) were from literate homes while 79(66%) were from illiterate background. Purposive sampling technique was adopted for this study 5<sup>th</sup> and 6<sup>th</sup> elementary classes were chosen because of their ability to read print media.

**Instruments:** Multiple intelligences scale (MLS) was the instrument adopted for this study. The instrument was developed by the researcher and it consists of two sections A and B. section A consists of demographic data such as age, sex, parents' educational background, number of siblings, class, while section B consists of 32 items which taps the eight dimensions of multiple intelligences. It has 5 point rating scale ranging from 5 = very much like me, 4 = like me, 3 = not sure, 4 unlike me and 1 = very much unlike me. To establish the psychometric properties of the instrument, it was subjected to test retest reliability after two weeks interval of administering it to the disabled elementary school learners different from the participants of this study. 81 cronbach alpha resulted from its calculation.

Two research assistants were engaged in this study. One was the brailist who brailled the research instruments and other materials used in this study. In fact, she was always around throughout the eight weeks of the treatment programme to offer one assistance or the other. The second research assistant was the interpreter, who was always around to interpret to the hearing impaired participants.

### Measures of academic performance

Teacher's achievement test on English language, mathematics and basic science was administered on the participants before and after the treatment programme.

- (a) English Language: This test was developed to assess reading disabled children's skills in word recognition and understanding of certain vocabularies. It consists of (20) items assessing word recognition and understanding of vocabularies with score of 1 mark each for an item and a total of 20.

- the test demonstrated high internal consistency with cronbach's ranging from .67 to .71
- (b) Mathematics achievement test: The test was developed to assess mathematical problem solving abilities such as addition, subtraction, division and multiplication of the disabled learners. The test consists fo 20 items assessing mathematical intelligences and skills in calculation with a score of 1 mark each and a total of 20. the test demonstrated high internal consistency with cronbach's ranging from .69 to .73
- (c) Basic science: This test was developed to assess rudimentary basic disabled scientific skills. It consists of 20 items assessing basic science in living and non-living things with score of 1 mark each for an item and a total of 20. the test demonstrated high internal consistency with cronbach's ranging form .74 to .76

### Procedure

Permission was sought from the headmaster of Omoyemi special school Orita Aperin, Ibadan in Oyo State. The headmaster in turn introduced the researcher to the various head of units. Thus the official consent and approval for the programme was granted.

The training session commenced with introduction of the participants to each other and also to the researcher. Pre-treatment measure was them administered to the participants. The researcher then sought for the co-operation of the participants and informed them that eight week programme will cover eight sessions of 35 minutes per week. The treatment programme thus covered the following. Preamble and orientation/familiarization, definition of multiple intelligences,, training in the eight different types of multiple intelligences such as bodily kinesthetic, interpersonal, intrapersonal, linguistic, logical/mathematics, musical/rhythmic, visual/spatial and naturalist intelligences.

In the first session the participants were taught the meaning of multiple intelligences as not limited to the ability to think mathematically and logically. That learners who are superior in visual thinking, interpersonal and intrapersonal relations, music and natural expressions, may be classified as intelligence individuals.

The second session witnessed the training of the skills and tasks which belong to the bodily/linguistics intelligence. The participants were trained on how to explore tactile models, sequencing movement, dramatizing and use of concrete materials, clapping, tapping, hopping etc to enhance effective classroom learning.

During the third session the participants were exposed to behaviours in the classroom that are examples of the skills and tasks which belong to the interpersonal intelligence. The participants were thus trained in the use of role play, sharing strategies, assessing peer's work, interviewing others, participating in simulations, working co-operatively, peer tutoring, chatting discussion issues, interacting with audience etc. This session also witnessed the learning of behaviour which are examples of the skills and tasks which belong to intrapersonal intelligence such as reflecting on self-progress and achievement, addressing values and attitudes, conducting self-assessment, enjoying private spaces, creating cartoons, thematic play, cooperative learning etc.

In the fourth session the participants and the therapist discussed behaviours which are example of the skills and tasks which belong to the linguistics intelligence. Some of the discussion covers skills in reading or writing stories, enjoying, listening to lectures poems, joke, storytelling, attending book corners etc in enhancing effective learning of students with disabilities.

The fifth session witnessed training in the classroom behaviours which are examples of the skills and tasks which belong to the logical/mathematical intelligence. The skills and tasks discussed with the participants in this session include: solving or creating problems, logic puzzles, equations, brain teasers, justifying thinking, explaining natural phenomena, manipulating numbers etc effective, use of these skills and tasks in the classroom situation was discussed with the participants.

During the sixth session, skills and tasks example of behaviours which belong to the musical/rhythmic intelligence was discussed with the participants. Skills such as use of musical notation, creating rhythmic patterns, associating past events mentally with certain rhythm of a preferred old song, repeating rhythms by mouth while working were discussed by both the participants and the therapists. How the various skills and tasks can be used to enhance effective learning by students with disabilities was discussed.

This session also witnessed training in skills and tasks example of behaviours which belongs to visual/spatial intelligence. Skills such as drawing of diagrams, painting, creating computerized pictures, using illustrations, creating mental models, imaging, participating in guided imagery activities, creating and using graphic

organizers, concept maps, and mind maps were discussed with the participants.

In the seventh session, both the therapists and the participants discussed behaviours which are samples of skills and tasks which belong to the naturalist intelligence. Skills such as classifying natural objects, observing, enjoying nature etc were discussed in details with the participants.

During the eight session, both the participants and the therapist reviewed the activities from the beginning to the end. Some of the activities were rehearsed and role played. Clarifications were made and discussed on difficult areas. Post treatment measure was administered on both the treatment and the control groups.

### Data analysis

Analysis of covariance (ANCOVA) was used to analyze the data obtained from the tested hypotheses. This statistical tool was used to control for confounding variables by removing initial differences between the participants in the experimental group i.e. multiple intelligence and the control group. Multiple regression analysis was used to analyze data obtained from the research question.

### Results

**Table 1: Pre-post treatment of experimental and the control groups using ANCOVA**

Source of variation	DF	SS	MS	F-ratio Obs	F-Ratio Crit	Test Decision
Between group	5	130731.31	26146.26			
Within group	114	48987.41	429.71	67.21	2.05	Reject Ho
Total	119	179718.72	26575.97			

Critical value  $F, (5, 114) = 67.21, P > 0.05$

The findings as shown in table 1, indicates that the compared pre-post treatment outcome following ANCOVA has the critical value  $F, (5, 114) = 67.21, P > 0.05$  which suggests the existence of statistical significant difference in the level of academic performance of participants in the experimental and those in the control group. The outcome of the findings was in contrast with the hypothesis tested at 0.05 level of significant.

**Table 2: Post-test treatment comparison of male and female participants exposed to multiple intelligences programme using ANCOVA**

Source of variation	DF	SS	MS	F-ratio Obs	F-Ratio Crit	Test Decision
Between group	7	178676.8	25525.3			Reject Ho
Within group	112	345331.93	3083.3	62.17	2.05	
Total	119	524008.73	28608.6			

Critical value  $F, (7, 112) = 62.17, P > 0.05$

The findings as depicted in table 2, shows that the compared pre-post test outcome following ANCOVA has critical value  $F, (7, 112) = 62.17, P > 0.05$  which indicated the existence of statistical significant difference in the level of academic performance of the participants. The conclusion is that the tested hypothesis is not upheld.

**Table 3: Pre-post treatment comparison of participants from literate and those from illiterate background exposed to multiple intelligences using ANCOVA**

Source of variation	DF	SS	MS	F-ratio Obs.	F-Ratio Crit.	Test Decision
Between group	7	61583.57	8797.7			Reject Ho
Within group	112	26317.79	234.98	43.75	2.73	
Total	119	87901.36	9032.68			

Critical value  $F, (7, 112) = 43.75, P > 0.05$

As shown in table 3, the outcome of the pre and post treatment comparison of the participants level of academic performance indicated that the null hypothesis was not sustained. The computed details indicated that the critical

$F(7, 112) = 43.75, P > 0.05$ , it follows therefore that the alternative hypothesis was the one sustained.

### Research question

Which of the disability type, visually impaired, hearing impaired or intellectually and developmentally disabled is treatment most effective?

Table 4: Relative contribution of independent variable (MI) to the dependent variable (academic performance) (test of significant of regression coefficients)

Variables	Unstandardized coefficients	Standardized coefficient				
	B	Std. error	beta	t	p	Remark
Constant	47.53	3.21		15.33	0.000	Sig.
Visually impaired	1.47	0.26	0.40	6.13	0.000	Sig.
Hearing impaired	0.93	0.23	0.21	4.09	0.00	Sig.
Intellectually & developmentally disabled	0.35	0.15	0.14	2.33	0.05	Sig.

Table 4 reveals the relative contribution of independent variable (MI) to the dependent variable expressed as regression weights. The positive value of the effect of multiple intelligences on academic performance of the visually impaired, hearing impaired and the intellectually and developmentally disabled is actually determined by positive reinforcement of these three categories of disabilities. Using the unstandardized regression coefficients to determine the relative contributions of the independent variables to the explanation of the dependent variables visually impaired ( $B=1.47, t=6.13, P<0.05$ ) yielded most to treatment followed by hearing impaired ( $B=0.93, t=4.09, P<0.05$ ) and intellectually and developmentally disabled ( $B=0.35, t=2.33, P<0.05$ ) in that order. In essence, the level of academic performance of the elementary disabled pupils are determined by the type of disability of the participants as arranged above in the order in which multiple intelligence contribute their academic performance.

Table 5: Multiple intelligence dimensions based on effectiveness of treatment (independent samples t-test results about visually impaired, hearing impaired and intellectually and developmentally disabled multiple intelligence scores)

Intelligence dimension	Type of disability	Number of students	Mean	Standard deviation	Independent samples of test		
					t	Df.	P
Musical – rhythmic intelligence	Visually	15	2.03	0.49	2.63	58	0.01
	Hearing	20	1.41	0.41			
	I. & DD	25	1.13	0.36			
Interpersonal intelligence	V.I	15	1.52	0.30	-0.81	58	0.42
	H.I	20	1.43	0.27			
	IDD	25	1.31	0.25			
Visual – spatial intelligence	V.I	15	1.83	0.49	-5.04	58	0.00
	H.I	20	1.33	0.43			
	IDD	25	1.115	0.37			
Verbal – linguistic intelligence	V.I	15	1.41	0.47	-0.71	58	0.43
	H.I	20	1.30	0.44			
	IDD	25	1.17	0.38			
Logical – mathematical intelligence	V.I	15	2.03	0.46	-0.29	58	0.67
	H.I	20	1.61	0.35			
	IDD	25	1.47	0.43			
Intrapersonal intelligence	V.I	15	1.62	0.51	0.15	58	0.93
	H.I	20	1.31	0.33			
	IDD	25	1.23	0.29			
Bodily kinesthetic intelligence	V.I	15	1.73	0.35	-0.69	58	0.87
	H.I	20	1.44	0.33			
	IDD	25	1.35	0.28			

VI= Visually impaired

HI= Hearing impaired

IDD =Intellectually & Developmentally Disabled

Using the unstandardized regression coefficients to determine the type of disabilities that treatment is most effective, table 5 above indicates that across almost all the dimensions of multiple intelligences treatment seems to be most effective with visually impaired participants followed by the hearing impaired and the intellectually and developmentally disabled in that order.

### **Discussion**

The findings that resulted from hypothesis one revealed a statistical significant difference in the level of academic performance of participants in the experimental and the control group. The findings indicated that therapeutic treatment was effective in the experimental group but not with the control group since there was no treatment carried out on them. This result confirmed the fact that those exposed to multiple intelligences (MI) benefited more than those in the control group. This finding supports the assertion of Cushner, McClelland & Safford (2003) that MI unveils academic strengths and honours alternative ways of learning which can be highly helpful when educating students identified for special education services. The outcome of the findings of hypothesis two reveals statistical significant difference in the level of academic performance of male and female participants exposed to MI. Again, the findings of current study is in contrast with that of Kuloglu (2005) when he found that male students stated that they perceived themselves strong in logical mathematical intelligence dimension and female students perceived themselves strong in interpersonal intelligence dimensions.

The findings of this study corroborate the findings of Uzoglu (2006) when he determined the effect of gender on visual – spatial intelligence, musical intelligence and verbal linguistic dimensions. He further revealed that there is a meaningful relationship between mathematical achievement of male and female participants.

The finding of the third hypothesis indicates that statistical significant difference exist between participants from literate and those from illiterate background. This finding is not surprising taking into account the fact that literate parents are likely to contribute positively to academic improvement of their wards or children through the type of support given to them. On the other hand illiterate parents may not understand the fact that there is ability in disabilities, and this in a nutshell will inform their behaviors, and attitudes to academic activities of their wards or children. Gardner (2004) even demonstrated in one of his research that multiple intelligence is inclusive of parents' involvement in the usage to improve academic performance of their children. The findings of Satak (2007) also buttress this study when he asserted that there was a significant difference between learning styles and gender, mother's education status and father's education status.

The result of the only research question shows that treatment was more effective with the visually impaired, followed by the hearing impaired and that treatment was least effective with the intellectually and developmentally disabled learners. Tuncer and Kahevci (2009) study indicated that skill for usage of concept map through peers for summarizing was effective in understanding and remembering what visually impaired students read during instruction supported the findings of this study.

### **Implication for development**

Multiple intelligences theory has some very important implications for both teachers and students especially the disabled students.

They are:

- Through MI when teachers create learning environments that fosters the development of all eight intelligences. It benefits all learners and strengthen their underutilized intelligences.
- When students learn with a model that targets their successful learning in a particular intelligence instead of a standard approach that limits learning, students get an opportunity to experience success in school
- The use of MI in schools helps educators move instruction beyond linguistics and logical – mathematical intelligences that leave many students out of the learning process
- Students with learning disabilities may have special abilities that do not emerge in the traditional educational system. By using Gardner's intelligence in the classroom, students will be able to display their strengths and interests.

### **Conclusion**

It is certain and sure that the adopted perspective which indicates that traditional methods used in our schools do not direct students as individual toward tasks and materials, and do not challenge their abilities. Continuous use of traditional method may lead students to hate all subjects and the school in general. On the contrary, when teachers adopt a theory (such as multiple intelligences theory) that suits students' interests and challenge their abilities with its various modalities, the underutilized intelligences of the learners will be highly utilized. The

scope and complexity of individual differences and how they affect academic progress become increasingly convinced that many individuals who do not read well do not because the instructional methods used to teach them does not complement preferred styles to learn, thus one should seek strategies that help these students and match their strengths especially the disabled learners.

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