

Designing an Instructional Module for Classroom Teaching Based on the Multiple Intelligences Theory

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ABSTRACT. Lesson content needs active engagement to excite student interest. Teachers face challenges on student engagement in classroom teaching where learning has become procedural. This field study developed an instructional module integrating the 5Es method of instruction anchored on Howard Gardner's Theory of Multiple Intelligences. Chislett's multiple intelligence (MI) test was administered to Grade 7 students and the Science teacher for learning needs assessment determining their dominant multiple intelligences. The dominant MI of the students determined the enrichment activities incorporated in the 5E-MI instructional module and teaching method. During implementation, the teacher and the students were observed to assess the perceived usefulness of the module. The study established that the 5E-MI instruction module was a useful lesson planning method to increase students' engagement, who were observed to be attentive and participative during the implementation. Lesson

planning was easier for the teacher since enrichment activities incorporated were guided by the dominant MI of the students. Through this study, educators are provided direction in incorporating MI in lesson planning and curriculum integration.

1.0. Introduction

The Multiple Intelligences (MI) Theory developed by Gardner (1983) is an interesting addition for viewing students' intelligence and teaching in a classroom setting. Gardner challenged the traditional view of intelligence and broadly defined intelligence as a potential to process information in a cultural setting where through biophysical conditions, trigger creativity and problem-solving capabilities. Furthermore, intelligences are potentials neither seen nor counted but are activated depending upon the precursors, opportunities, and personal decisions made by the individual, their family, teachers, and others in a particular cultural setting (Gardner & Hatch, 1989).

Several factors contribute to the success of a learning environment. One, the classroom that is conducive to learning contributes massively to the education of students as a space that is motivating, organized, clean, and peaceful. It is a space where learners must feel safe, supported, and valued in order to thrive. Two, the teacher strives to create a positive learning environment by giving learners resources and choice, and assistance as necessary. Teachers also act as facilitators, connecting current concepts being studied to prior experience and understanding of students. They also correct the misconceptions of students. The teachers then execute a learning performance assessment through formal or informal scenarios (Elliot, 2019). Three, the curriculum must be based on engagement and exploration. Students extend their educational growth beyond the classroom and learn to evaluate what they have learned and convert it to something concrete in life skills or further understand how the world works.

The challenge of traditional classroom settings can be restrictive and teacher-centered. As there are so many concepts and subtopics deemed relevant to the curriculum, many educators are compelled to hurry over certain topics or areas, not because they don't care, but because they are apprehensive of not covering all of the required content. Students in this learning setting are typically seated for hours at their assigned desks, listening to a teacher in the front of the room. While a small percentage of students may find this acceptable, the bulk of students will not have a complete idea of many of the concepts being taught. This is due to various variables such as learning difficulties, a lack of interest, motivation, or the inability to digest information well with inadequate interaction between students and their teachers. Classes are routine, less engaging, and learning is dependent



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upon memorization and procedural learning, merely passing tests. This type of school setting was created by people who were still unfamiliar with the multiple intelligence potential of humans. Based on academic standardized test scores, the traditional teaching style has generated a view about who is "smart" or "intelligent," who has the potential or aptitude to be smart, and how we can or cannot become smart. This has had a significant impact on present educational procedures. The use of standardized intelligence test scores to qualify students for various special programs is still a prevalent, educational practice. It is expected that these exams reliably and meaningfully measure intelligence (Amitha & Ahm, 2017).

2.0. Framework of the Study

Multiple intelligences in classroom teaching

Gardner's theory raised questions on intelligence as not "how smart you are but how you are smart". Some students do not respond well to traditional teaching approaches, such as direct instruction, and cannot remember or assimilate the material presented in this setting. According to the MI theory, students might acquire a competitive advantage by allowing them to obtain information in various ways other than direct instruction. The teacher increases the probability of building relationships with more students by modifying the mode of instruction delivery. To reach out to more students, teachers should be more innovative with their teaching skills. While expecting teachers to teach to all intelligences is unreasonable, it is reasonable to advise that they attempt to do so. One intention of this study is to emphasize the relationship between a teacher's instructional style to facilitate the learning success of students (Elliot, 2019).

Teachers must be educated about MI theory in order to better recognize their students' learning profiles. Activities can be prepared in advance that are appropriate for each student profile. When a teacher recognizes a student's strength in problem-solving, for example, the teacher can provide exercises such as working with patterns and correlations, categorizing, and working with abstract. MI theory can boost students' confidence and excitement for studying while simultaneously changing teachers' impressions of their students' learning skills and, as a result, their behavior (Gardner, 1993). Teachers must have the proper training to know their role in the child's educational experiences. In the theory of Multiple Intelligences, teachers are considered guides or facilitators, able to engage students and encourage exploration, supporting their curiosity in productive ways.

Gardner's MI theory has attracted a lot of positive support from educators. MI theory adds substantially to education by encouraging teachers to improve on a greater spectrum of teaching approaches. The MI approach may be a specific answer to one-sidedness in teaching and facilitating and complementing teachers' current teaching techniques. Teachers can thus concentrate not only on their learners' strengths and limitations but also on areas where they need to progress to raise classroom achievement (Sulaiman, 2011). Gardner's MI theory should be explored by educators when implementing instructions for learners that require differentiation in instruction (Beam, 2009). The MI theory reinforces that students with learning difficulties will be intellectually reached when teachers include different learning styles and techniques into daily plans based on multiple intelligences.

Howard Gardner's theory on multiple intelligences (MI) proposes that all individuals can see the world through language, problem-solving, visual representation, musical, body movement, understanding others and oneself, but differ in strength in using these intelligences to solve problems advanced in their tasks.

The study emphasizes the necessity of evaluating each student's potential using multiple intelligences. The instructional module learning experience makes teaching and learning easier. It enables students and teachers to comprehend the outcomes that must be met through various active learning and problem-solving activities. Educators and teachers will get insight into how the MI perspective might assist them in unlocking student potential due to this study. The study's objective is to design an instructional module for classroom teaching based on the multiple intelligences learning profile of the students. It has the main intent of designing instruction anchored on and appropriate to the intelligences of the learners.

The instructional module developed for this study was designed to access the different multiple intelligences of students with learning needs (Meyer, 2014). Incorporating multiple intelligences into all activities engages students of all levels and abilities to the point where they can recap and elaborate on all of their lessons. Furthermore, class participation led to so much active learning that

they become agents of their project-based instruction, deciding to create something of value without teacher assistance (Gardner, 2011).

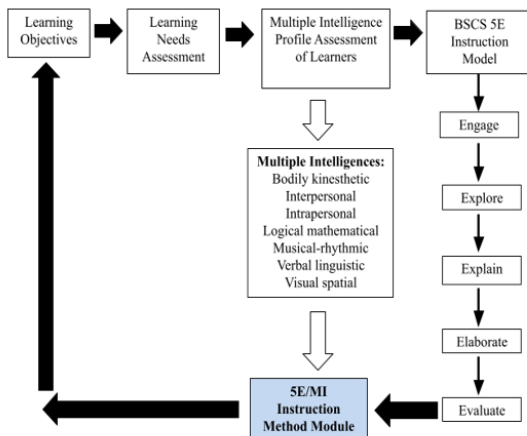


Figure 1. Instructional Design for Classroom Teaching Style Using Multiple Intelligence Theory and BSCS 5E Instruction Model

Figure 1 presents the descriptions of the processes as illustrated in the framework of the study.

- *Learning objectives* describe what students should know or be able to do at the end of the course. It must clearly state what they are learning and why they are doing it. All students should be able to see where they are and what they need to do to get to the next level since it should be differentiated for the outcome of each student.
- *Learning needs assessment* focuses on the target group to be trained in the interest of helping in curriculum planning, assess student learning, and offer individual feedback and educational intervention. Findings served as bases for the design and development of the instructional module.
- *MI profile assessment* involves administering a multiple intelligence test assessment to students using the online questionnaire (Chislett & Chapman, 2006).
 - *Engage*. This phase generates interest from the learner to frame the idea, access prior knowledge, and connect past knowledge.
 - *Explore*. This phase is where exploration activities are designed to create experiences that teachers and students can use to officially introduce and explore specific content area concepts, processes, or abilities later
 - *Explain*. This phase establishes a shared vocabulary for students and teachers in relation to the learning experience. The teacher directs the students' attention to specific engagement and exploration experiences during this phase.
 - *Elaborate*. Teachers challenge and extend students' conceptual understanding and skills under this phase. Through new experiences, the students develop deeper and broader understanding, more information, and adequate skills.
 - *Evaluate*. Teachers must evaluate educational achievements as a practical educational task. Teachers provide formative or summative assessments to determine each student's level of comprehension during this period.
- *Multiple intelligences* refer to each individual's varying levels of intelligence and unique cognitive profile for learning. Armstrong (2009) described the eight multiple intelligences in his book "Multiple Intelligences in the Classroom," which include *bodily-kinesthetic (body smart)*, *interpersonal (people smart)*, *intrapersonal (self-smart)*, *verbal-linguistic (word smart)*, *logical-mathematical (logic smart)*, *musical rhythmic (music smart)*, *visual-spatial (picture smart)*, and *naturalist (nature smart)*. Gardner added, *naturalist*, the eighth intelligence in 1987, and in 1999 he added *existential/spiritualist* intelligence. These two are described in

the literature review of the original paper and are deemed relevant but are not included in the research since both are not part of Chislett's multiple intelligences test assessment, which was used in this study. Furthermore, *existential* intelligence has not yet been fully qualified as a category in Gardner's MI theory. Though educators have recognized existential intelligence as the "new intelligence", there is still some exploration on its potential to be added to the education curriculum.

- *5E/MI Instruction Method* is the combination of Multiple Intelligence theory and the BSCS 5E instruction model.

3.0. Methods

The first step of the study was a needs assessment for the 5E/MI Instructional Method by conducting a key informant interview with the school principal and the Grade 7 teacher. With the school principal's approval, plans for the design and development of the instructional module were prepared in coordination with the Grade 7 Science teacher, who was in his first year of teaching, and his Grade 7 class composed of twenty (20) students. Both key informant interview guides used were drafted by the researcher, which her adviser checked for content validity. Subsequently, a focus group discussion participated by a total of twenty-seven (27) SLIS junior high school teachers divided into two separate groups was facilitated as part of the development phase of the instructional module. The focus group discussion was scheduled during their *training academy hour* at school in the interest of time management and minimal disruption to the schedule of the teachers. During the interview with the Grade 7 Science teacher and in the focus group discussion, the teachers agreed that their lesson plans are more teacher-centered. Integrating multiple intelligence-based activities into lesson planning would change the emphasis on teacher-directed teaching or lecturing to a more student-centered approach that involves the students' active participation in the learning process. The teacher assumes the role of a facilitator in the process (Kumalasari et al., 2017). The development of this instruction method is meant to align with the progressive nature of the school's curriculum.

Second, multiple intelligence assessment tests (Chislett & Chapman, 2006) were administered to pre-selected Grade 7 students and the Grade 7 Science teacher. Using descriptive statistics, the results of the students' MI assessments were analyzed on the highest percentage of dominant multiple intelligences as a class. The dominant MI determined the enrichment activities to be chosen for incorporating in the MI-BSCS 5E Instruction Method. The Science topics used for the module were *Motion*, prepared by the researcher, and *Waves*, prepared by the SLIS Grade 7 Science teacher.

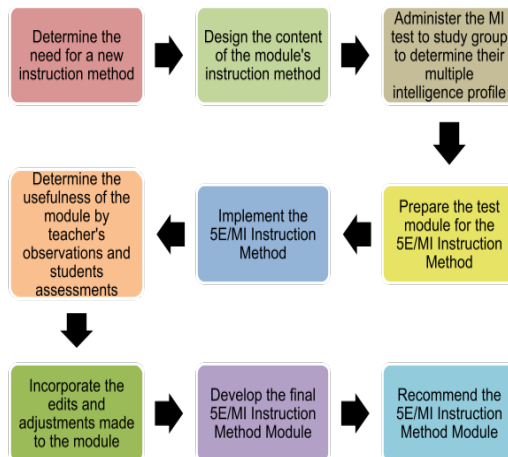


Figure 2. Research Process Flow of the Study

The instruments used in this study were (i) Multiple Intelligence Assessment Test (Chislett & Chapman, 2006), (ii) guide questions for Conversational Interviews with the school principal and the Science teacher, (iii) guide questions for Focus Group Discussion of junior high school teachers,

(iv) assessment guide during observation of Science teacher’s teaching style, (v) guide questions for determining the usefulness of the module for 5E/MI instruction method for the Science teacher, and (vi) module evaluation sheet for the Grade 7 students for the perceived usefulness of the module. The interviews with the Science teacher were audio-recorded and thematically analyzed to generate themes to reflect the teacher’s views and answers (Azid et al., 2016).

Third, the module was implemented in the Grade 7 class. During implementation, observations were noted on the teachers and the students to assess the *perceived usefulness* of the module. The teacher’s observations and comments were noted after implementation for the perceived usefulness of the module. The Science teacher provided data, so findings cannot be generalized to a larger population but may be transferred to another setting. All these were valuable in the design and development of the instructional module.

Lastly, the module was edited to accommodate changes made after implementation in preparation for its recommendation to the school administration (Figure 2).

4.0. Results and Discussion

Multiple intelligences testing

The teacher’s top results are musical rhythmic, logical-mathematical and interpersonal. His potential in musical-rhythmic MI is a “bottom-up” understanding (analytic-technical). This is connected with the logical-mathematical MI potential for understanding cause and effect, reasoning, logic, problem-solving, and recognizing patterns. The interpersonal MI enables him to perceive and distinguish his students’ moods, intentions, motivations, and feelings. This can mean being sensitive to interpersonal cues or social interactions by influencing one’s response toward a certain line of action. All three multiple intelligences will be used by the teacher in teaching Science (Armstrong, 2009).

The results present the students’ multiple intelligence profiles as a result of the multiple intelligence test given. Specifically, the student MI profile is presented using the mean, standard deviation, and the corresponding rank (Chislett & Chapman, 2006). The mean average score in each of the multiple intelligences confirmed the top three (3) dominant multiple intelligences of the Grade 7 SLIS students, namely bodily-kinesthetic (mean = 3.26), interpersonal (mean = 3.02), and tied are Musical-Rhythmic and Intrapersonal (mean = 2.95).

Table 1 presents these results as follows.

Table 1. Multiple Intelligence Test Result for Students’ Profile

Multiple Intelligence	Mean	SD	Rank
Bodily-Kinesthetic	3.26	0.43	1
Interpersonal	3.02	0.13	2
Musical-Rhythmic	2.95	0.46	3.5
Intrapersonal	2.95	0.30	3.5
Linguistic	2.73	0.21	5
Visual-Spatial	2.71	0.37	6
Logical-Mathematical	2.64	0.31	7

Lesson planning using the 5E-MI instruction method

South Lakes Integrated School follows the Challenge-Based Learning (2019) approach divided into three interconnected phases: engage, investigate and act and the K-12 curriculum of basic education set by the Department of Education. The teachers are given the freedom to execute their teaching style and lesson planning due to the progressive nature of the curriculum and its continuous improvement. The only requirement is they submit a weekly lesson outline with objectives and lesson outcome (Laguerta, 2019).

The SLIS teachers have a working knowledge of multiple intelligences but not in-depth knowledge of its application in instruction. It was taught as a form of differentiated learning. Including MI as an

instruction method in planning lessons can integrate varied teaching styles that can engage students (South Lakes Integrated School [SLIS], 2019). The module on 5E/MI instruction method can be instrumental in preparing lessons and provide learning engagement for students since it is aligned with the progressive nature of the school's curriculum. The multiple intelligence approach allowed the Grade 7 Science teacher to merge creativity with instructional planning and use student-centered activities, acting more of a facilitator on the side.

There are pieces of research evidence that indicate the effectiveness of using MI in designing a learning environment for differentiated instruction (Beam, 2009). It is, thus, important that teachers are provided with adequate training in designing MI-based instruction to enhance their pedagogical competencies to help students succeed (Yalmanci & Gozum, 2013). Adopting differentiated instruction based on MI will ultimately prepare teachers for a more inclusive learning environment by embracing students' learning differences (Gardner, 1983). Students who are strong in these multiple intelligences will learn best when they are taught or be given learning activities consistent with their learning styles. Such learning styles and a sample activity is described in Table 2.

Table 2. Dominant Multiple Intelligences and Learning Styles of Grade 7 Students

Multiple Intelligence	Learning Style	Sample Activity
Bodily-Kinesthetic	learn best through touching, moving, and processing knowledge through bodily sensation	Hands-on experiment
Interpersonal	learns-through sharing, comparing, and relating with others, interviewing, and cooperating	Group work
Musical-Rhythmic	learn best with rhythm and melody, singing, and listening to music and melodies	Composing a song

5E/MI instruction method implementation

The instructional design framework used in this module helped the teacher decide how to deliver the lesson and choose enrichment lessons for the students. The researcher prepared the first lesson on Motion for the initial implementation of the module. The Science teacher then proceeded to make his lesson plan, without intervention, for the topic of Waves guided by the previous 5E/MI instruction method. The final goal of multiple intelligence theory is to increase student understanding of the lessons, in this case, Motion and Waves, especially for the difficult areas as observed during problem-solving (De Castro, 2019a). The multiple intelligence approach to teaching allowed the teacher to merge creativity in their instructional planning and student-centered activities. This was the basis for choosing the enrichment activities on the different phases of the 5E instruction method (Bybee, 2006).

The engagement activities used throughout the lesson in Motion: outdoor running activity as an experiment; defining and differentiating key terms about the activity; knowing how to compute using the SDT triangle as reference for speed, velocity, and acceleration; using music as a reinforcement for the concept of speed; and the interactive notebook templates, were all concepts that encouraged creativity from the teacher. Though the lesson plan was provided, it was up to him to execute it. Within the classroom, all group activities revolved around group work (interpersonal MI). Since the lesson outcomes per day have to be finished within the hour of instruction, it kept the students on task, interested, and occupied (Table 3).

Teacher evaluation of 5E/MI instruction method

The teacher was given a free hand in preparing his 5E Lesson Plan on Waves using the instruction module. He was also able to execute the lesson to the students. The 5E lesson plan he created was comprehensive though it needed some polishing, especially the in-between transition days. He could not have a quiz for evaluation for this lesson due to time constraints (3rd quarter long test was on the following week). However, instead, he used several assessments to make the students understand

the lesson as each 5E phase has an assessment opportunity. Upon inquiry, if he would still use the instruction method in the module, he said he would be using the method to help him plan his lessons in the next quarter and school year.

Table 3. 5E/MI Method of Instruction Plan for Motion

Grade Level	Seven (7)																													
Multiple Intelligences	Bodily-Kinesthetic Interpersonal Musical-Rhythmic																													
Duration	4-5 hours																													
Topic	Motion of Objects																													
Subject Matter	Speed, Velocity, and Acceleration																													
Reference	Science 7, Science and Technology pp.175-182																													
Learning Objectives	At the end of the lesson, the students must be able to: <ul style="list-style-type: none"> ▪ Describe the motion of an object in terms of distance or displacement, speed or velocity, and acceleration ▪ Calculate speed, velocity, and acceleration using the SDT triangle. 																													
Phase	Engagement																													
Materials	Measuring tape or meter stick Four orange cones (assigned letters from A to D) Manila Paper Stopwatch																													
Learning Outcome Day	The student must be able to describe the motion of an object in terms of distance or displacement, speed, velocity, and acceleration. 1																													
Activity	"Finish Line" (Group Work) <ol style="list-style-type: none"> 1. Class divides into their assigned groups. 2. Each group assigns a <i>recorder</i> to fill in the table below and act as a timer. Each group must assign three different runners. 3. Each runner (at their own assigned pace) will run from a start line to the finish line at the signal of the timer/recorder. 4. Each cone must be positioned accordingly per runner. Runner 1- sprint from A to B. Runner 2- sprint from A to B, then slow down to C. Runner 3- sprint slalom from A to D. 5. The recorder takes note of the time the runner crosses past the finish line. Use one whole sheet of paper per group. 																													
Instructions	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Runner</th> <th>Distance (meter)</th> <th>Time (second)</th> <th>Velocity (m/s)</th> <th>Acceleration (m/s²)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>10</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>15</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>20</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <ol style="list-style-type: none"> 6. Upon finishing, return to the classroom. 7. Submit a data sheet to the teacher. Make sure it has the following header: <table style="width: 100%; margin-top: 5px;"> <tr> <td style="width: 60%;"><i>Group Members</i></td> <td style="width: 40%;"><i>Science 7</i></td> </tr> <tr> <td><i>Date</i></td> <td><i>3rd Quarter</i></td> </tr> <tr> <td colspan="2"><i>Activity: Speed, Velocity, and Acceleration</i></td> </tr> </table> <p>Show the definitions of these words written on a Manila paper posted on the board.</p>				Runner	Distance (meter)	Time (second)	Velocity (m/s)	Acceleration (m/s ²)	1	10				2	15				3	20				<i>Group Members</i>	<i>Science 7</i>	<i>Date</i>	<i>3rd Quarter</i>	<i>Activity: Speed, Velocity, and Acceleration</i>	
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Assessment: Class Participation Recitation	Ask the students, based on the activity, which definition match the key terms below: <table style="width: 100%; margin-top: 5px;"> <tr> <td style="width: 50%;">1. Speed</td> <td style="width: 50%;">3. Acceleration</td> </tr> <tr> <td>2. Velocity</td> <td>4. Distance</td> </tr> </table>				1. Speed	3. Acceleration	2. Velocity	4. Distance																						
1. Speed	3. Acceleration																													
2. Velocity	4. Distance																													
Assignment	<ol style="list-style-type: none"> 1. On your Science NB, cut and paste the interactive activity pocket templates for speed, velocity, and acceleration. 2. Show an example for reference. 																													

Student evaluation on the usefulness of 5E/MI instruction method

The opinion of students was considered on the usefulness of the module. An earlier study revealed that multiple intelligence-based teaching is more effective than traditional classroom teaching (Kale, 2008). The same study further disclosed that students are more inclined to participate in activities related to their predominant intelligence.

Four of the students answered an evaluation on the usefulness of the 5E/MI Instruction Method administered to them during their lessons by their Science teacher. They were asked to rate each item per category using the following scale: strongly agree=4, agree=3, disagree=2, and strongly disagree=1. The highest total score for each item is 16, while the highest percentage is 100. The items per category were averaged as well per category, as seen in Table 4.

Table 4. Students’ perceived usefulness of the 5E/MI Instruction Method

Items	Motions		Waves	
	Total Score	%	Total Score	%
A. The lesson				
1. was effectively designed	14	87.50	13	81.25
2. had clear goals	16	100	16	100
3. was well organized	15	93.75	16	100
4. visuals were helpful	16	100	16	100
<i>Average Score and Percentage</i>	<i>15.25</i>	<i>95.31</i>	<i>15.25</i>	<i>95.31</i>
B. The teaching session				
5. was well organized	16	100	13	81.25
6. gave sufficient information	14	87.50	16	100
7. was communicated effectively	12	75.00	14	87.50
8. stimulated my interest	14	87.50	13	81.25
9. created a stimulating learning environment	13	81.25	14	87.50
10. encouraged me to participate in the discussion	16	100	13	81.25
11. used a variety of methods	16	100	12	75.00
<i>Average Score and Percentage</i>	<i>14.43</i>	<i>90.18</i>	<i>13.57</i>	<i>84.82</i>
C. The assessments (quiz or exercise)				
12. were clearly explained	13	81.25	13	81.25
13. was relevant to the lesson	16	100	12	75.00
14. teaching sessions and readings helped me	13	81.25	13	81.25
15. were challenging	16	100	16	100
16. had sufficient time to complete	13	81.25	13	81.25
<i>Average Score and Percentage</i>	<i>14.20</i>	<i>88.75</i>	<i>13.40</i>	<i>83.75</i>
D. General				
17. I am satisfied with the standard of teaching.	14	87.50	16	100
18. I am satisfied with the module lesson.	13	81.25	13	81.25
19. I am satisfied with the module lesson. I would recommend the module lesson to other students.	16	100	16	100
20. Overall, I am satisfied with the module.	16	100	15	93.75
<i>Average Score and Percentage</i>	<i>14.75</i>	<i>92.19</i>	<i>15.00</i>	<i>93.75</i>

The module provided a useful guide for the teacher. There was clear instruction for each activity to guide the teacher. The overall objectives and learning outcomes were clear and achievable. The integration of different learning activities increased learner interests, making the lesson challenging and stimulating. Time management became the challenge in the application for both lessons in Motion and Waves. This was due to (i) the familiarity with the instruction method as this enables continuity on how the 5E/MI method of instruction is conducted; (ii) clarity in giving instructions to the students; and (iii) addressing questions related to the topic to clarify confusions (De Castro, 2019b).

In this study, the group work encouraged interpersonal interaction through collaboration, letting the students help each other, especially during the running simulation, and through board work of solving problems related to Motion. Another study supported this, which showed that the group work approach and collaborative activities encouraged reflection, understanding, and thinking among students (Mowat, 2011).

Teaching Session. The lesson on motion was more well organized, using various presentation methods, i.e., outdoor activity and recitation, and encouraged discussion among the students, i.e., group seat work and board work. On the other hand, the lesson on waves gave sufficient information using group activity, i.e., rope demonstration. On average, the teaching session on motion was better at 90.18% than in waves at 84.82%.

Assessments. The quiz and exercise given during the lesson on waves were challenging for the students in connection to its relevance in the lesson. On the other hand, the assessments on motion were challenging but relevant to the lesson. In both lessons, enough time was given to complete assessments. The 5E/MI instruction method also enabled the teacher to explain the lessons clearly and gave sufficient readings, i.e., interactive notebooks that reinforced the teaching sessions.

Lesson in General. In both lessons, the students were satisfied with the module and recommended the 5E/MI instruction method in teaching. The lessons were well organized, had clear lesson objectives, and provided sufficient visuals to use to understand the lessons better.

Integrating multiple intelligence-based activities into lesson planning would change the emphasis on teacher-directed teaching or lecturing to a more student-centered approach that involves the students' active participation in the learning process. The teacher assumes the role of a facilitator in the process (Kumalasari et al., 2017).

5.0. Conclusion

There are three top-ranked percentages of multiple intelligences profiles from grade 7 students. These are bodily-kinesthetic (81.47%), interpersonal (75.59%), and musical-rhythmic (73.82%) intelligences. The learning process with MI enrichment activities, planned using the multiple intelligences approach with the 5E/MI instruction method, was useful for instruction. It gave the students an opportunity for a more personalized learning experience, a better understanding of the lessons, and taking responsibility for their learning. As a result of the study, there were pieces of evidence of more effective learning since the students were able to exhibit satisfactory performance in all the activities. Indeed, multiple intelligences approaches can lead to increased student engagement and consequently achieve better academic performance.

The 5E/MI Instruction Method managed to inspire active participation from the students because it is creative and different. The module provided enriching activities that engaged the teacher's and students' interests. It stimulated the creativity, critical thinking, and social skills of students. The students can realize their inclinations when given the enrichment activities. It allowed them to self-assess, realizing their strengths alongside working on their weaknesses.

The MI-based module allows the teachers to design their instruction and the learning environment suitable to the styles and circumstances of the learner toward enhancing student engagement and improving academic performance. The Grade 7 Science teacher perceived it as easy to use. The learning outcomes are clarified and the activities, though focused on the dominant intelligences of the Grade 7 class, offer the opportunity for other intelligences to be enhanced.

6.0. Recommendations

The school's administration can adapt the 5E/MI instruction method since it converges different teaching styles of teachers. It gives a more effective use of lesson planning, especially adapting to the progressive nature of the SLIS curriculum. Students can further evaluate the module's use on its expanded implementation, including a student guide. Long-term effects can also be further evaluated if the SLIS faculty uses the 5E/MI instruction module for their lesson planning. The effectiveness of the instructional method can be further tested for a longer period using the control and experimental group.

Further replication can include a representation of a larger population, and one example is implementing it in different schools in different areas.

It would also be relevant to develop interactive applications or worksheets for the module's enrichment activities related to the different multiple intelligences.

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