

## ADDRESSING DIVERSITY AND DIFFERENT LEARNING NEEDS OF STUDENTS THROUGH DIFFERENTIATED TECHNOLOGY-AIDED INSTRUCTIONS

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### Abstract

*Diversity and technology paint a beautiful picture of a contemporary classroom, at the same time poses a serious educational dilemma among learners and teachers. Diverse students mean diverse needs and learning styles. The integration of differentiated instruction and the use of technology in the classroom are two most celebrated methods that were time - tested and proven to be effective in solving diversity and multiple intelligence issues. Research shows that the proper use of technology with diverse learning needs enhance the quality of teaching-learning process. Teachers however are the best audio-visual aid which technology can never replace. With teachers inside the classroom, coupled with effective and responsible use of technology, classroom instruction will surely be fast, flexible and fun; and the aim of education will certainly be achieved. This paper encourages future researchers to delve deeper on the effectivity of differentiated instruction in addressing varying learning needs of students coupled with other factors; the use of technology in differentiated instruction; and the effect of technology to the quality of teaching-learning process and the professional and moral life of both students and teachers.*

*Keywords: Diversity, differentiated instruction, multiple intelligences, technology-aided instruction*

### INTRODUCTION

The world is becoming smaller and smaller; schools come to be more technologically advanced; and educational institutions are more diverse in terms of color, religious beliefs, nationalities, language, political views, culture and tradition among others. Diversity and technology paints a beautiful picture of a dynamic educational institution, but at the same time poses serious problems, struggles and delusions (Diversity in the Classroom, 1970).

One of the concerns posed by diversity of learners in school, which this concise literature review is going to focus on, is the different learning needs of student. This paper also tackles how differentiated instruction and the use of technology help solve the issues of diverse learning needs of students.

### DIVERSITY OF LEARNERS AND DIFFERENTIATED INSTRUCTION

Diversity that is based on cooperation of different races, cultures, religions, ethnic groups, and ethical behaviors is a manifestation of vibrant institution. However, diversity also brings problems not only on economic, political, social, ethical and cultural, but also in classroom instruction where students and teachers may have differing views of the teaching and learning process and the classroom in general (Diversity in the Classroom, 1970).

One of the problems students faced while in school that may lead to indifference in education is tediousness or boredom (Tucker, 2017). Many students perceive education irrelevant because they thought of education as a burden. A lot of them not connect with their classmates and teachers, or with the subjects that they are taking; while others fail because the teacher used the same yardstick to measure the monkey and the elephant in climbing the tree (Hussein, 2008).

Multiple intelligences exist inside the classroom. One student may not learn like the other, thus, the teachers ought to employ differentiated instruction to address this problem. Differentiated instruction is a method of teaching that “takes into account the significant differences among students in terms of their ability (or disability), rate of learning, language proficiency, literacy and numeracy skills – and then using this knowledge to adapt the way the curriculum and learning activities are presented. These differences also determine the amount of additional support individual students may need” (Westwood, 2016). Differentiated instruction came into being because of the advent of inclusive education and the diversity of learners. Differentiated instruction is an effective approach that encourages teachers to respond to relevant differences among individuals while maintaining high expectations for all (Westwood, 2016).

However according to Hallowell (2017), differentiated instruction is not effective if the class size is big; the teachers are few; resources and logistics are scarce; lack of support from administration and parents do not support; and the teachers do not have enough trainings.

One doable solution that is effective to lessen differentiated instruction issues and diversity problem inside the classroom is to put students with the same interest together and whose learning styles are similar. Differentiated instruction is still applied but not to individual students but to group of students who have similar academic performance and field of interests. This process is termed as homogeneous grouping or ability grouping. According to the research made by Johnsons as cited by Hallowell (2017), the objective for implementing homogeneous placement is to increase students’ achievement by providing instruction at their present academic level and to meet the needs of students and increase academic growth.

### **TECHNOLOGY-AIDED INSTRUCTION**

Gone were the good old days where teachers use colored papers and scotch tape to enhance their classroom instructions. Nowadays, electronic devices like smart TV, smartboard, notebook computers, tablets, mobile phones and the like are the most celebrated audio-visual tools to attain the objectives for the day. On this age of technology, it is believed that computer aided instruction is one of the most effective methods teachers have to employ for students to learn in a fast, fun, laidback and relaxed atmosphere, and for teachers to teach effectively and easily (Murati, 2017).

According to Borysiuk (2013), the appropriate use of information technology offered numerous advantages to make teaching effective, to name a few:

1. Teaching and learning becomes more interesting and motivating;
2. Faster assessment;
3. Teaching becomes fast, stimulating and informative;
4. Fast and longer retention;
5. Learner determine pacing in the completion of tasks in terms of location and time;

6. Accidental learning's and development of skills in the use of different IT (information technology) devices;
7. Fast and easy access to related information about the subject;
8. Increase decision-making capability with the use of retrieved information;
9. Increase students' cognitive activities;
10. Increased productivity and creativity; etc.

Nonetheless, potential problems and disadvantages in using IT in the classroom and in education in general were also seen as threat that may contribute to a deteriorating quality of instruction, or worse the quality of life of students and teachers, to wit:

1. Teachers observed that not all subjects can be taught with IT, thus the perceived difficulty in the integration of IT in the lessons, especially subjects that deal with morals and values and those that need judgment or opinion in a particular context (Masuka, 2013; Borysiuk 2013).
2. Developing lesson plans using IT take much time and effort, bearing in mind the number of preparations that sometimes reach up to 8. In planning the lessons, teachers have to input contents into the template, put pictures and videos, provide pre- and post-tests and activities (Dina and Ciornei, 2013). Teachers who do not have enough knowledge about computer find it more difficult to prepare their lessons.
3. Lack of interaction and feed backing between teachers and students is one of the disadvantages found (Masuka, 2013; Borysiuk, 2013). While the teacher is presenting the lesson using videos, prezis and PowerPoint, students are also busy scanning their gadget which the teacher did not know if they were on the same page or not. After the presentation, the teachers would leave the students to themselves to complete the activities.
4. Social division and isolation are one of the problems found among students with the use of IT (Borysiuk, 2013). Some students are really rich, they can bring to school their iPhone, ipad, and high tech gadgets, while some on the average are capable of providing good devices, while others are just supported by relatives to study in our school have to borrow gadgets just to complete the task. Although division is unintentional, students have grouped themselves according to what they have on their hands (Borysiuk, 2013).
5. The proliferation of sexually explicit materials, which are detrimental to the moral life of students. Although schools filter sites that can be accessed by students through the Wi-Fi, students have their own way of securing one (Borysiuk, 2013; Collins, Martino, and Shaw, 2010; Asekun-Olarinmoye, et.al., 2014).

#### **DIFFERENTIATED TECHNOLOGY-AIDED INSTRUCTION.**

The integration of technology in the teaching learning process is one of the latest and the biggest innovation in education (Khan, 2018). Differentiated instruction using technology is a pedagogy that offers students with different learning needs more choices for taking in and processing information, making sense of ideas, and expressing learning (Smith and Throne, 2007). Differentiated instruction needs bulk of materials like videos, animations and visual illustrations that meet individual's learning needs (Douglas-Faraci, 2013). With the use of technology and internet, teachers can easily devise strategies and create materials that may apply to different learning activities like research, programming, scientific experiments, composing music, fabricating merchandises, and a lot more which can be accessed from their devices like laptops, tablets and mobile phones. Moreover, technology is a highly motivating and a very efficient tool for that helps students learn based on their learning styles, pacing and interest (Smith and Throne, 2007). Students can interact with other learner across the globe to

network, share and partner in the endeavors they are working on through social media and the internet. Should students want to enhance his/her capability on a particular subject, s/he may take supplementary classes by attending webinar or online classes through video conferencing (Smith and Throne, 2007).

In this age of technology and the Internet, differentiated instruction and the proper and effective use of technology are operational tools that may confront the issues on diverse learning needs (Smith and Throne, 2007; Dina and Ciornei, 2013).

## CONCLUSION

Diversity inside the classroom paints a beautiful picture, but if not understood and managed properly, it may pose serious problems in classroom instruction where students and teachers may have differing views of the teaching and learning process. Differentiated instruction is an effective approach that encourages teachers to respond to relevant differences among individuals while maintaining high expectations for all. However, differentiated instruction as a pedagogy needs bulk of materials like videos, animations and visual illustrations that meet individual's learning needs. But with the integration of technology in the teaching learning process, teachers can easily devise strategies and create materials that may apply to different learning styles and needs of students. The use of technology however has to be given careful consideration as it also poses threats that may contribute to a deteriorating quality of instruction, or worse the quality of life of students and teachers.

The proper use of technology in a classroom with diverse learning needs certainly enhance the quality of teaching learning process, but there is no replacement for a human being as the best teacher and audio-visual aid to students (Dina and Ciornei, 2013; Smith and Throne, 2007). The presence of teachers inside the classroom are indispensable, but when it is coupled with effective and responsible use of technology, classroom instruction will surely be fast, flexible and fun; and the aim of education will certainly be achieved.

Future researchers are encouraged to delve deeper into the recommendations offered by this paper re effectively of differentiated instruction to address varying learning needs of students; the use of technology in differentiated instruction; and the effect of technology to the quality of teaching-learning process and the professional and moral life of both students and teachers.

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