*PEOPLE: International Journal of Social Sciences*
*ISSN 2454-5899*

*Nurhidayah Binte Mohd Salleh, 2016*

*Volume 2 Issue 1, pp. 841-849*

*Year of Publication: 2016*

*DOI- http://dx.doi.org/10.20319/pijss.2016.s21.14011409*

*This paper can be cited as Salleh, N. B. M. (2016). Maximizing Students' Learning Experience through Differentiated Instructions in an ICT-Integrated Environment. PEOPLE: International Journal of Social Sciences, 2(1), 841-849.*



# MAXIMIZING STUDENTS' LEARNING EXPERIENCE THROUGH DIFFERENTIATED INSTRUCTIONS IN AN ICT-INTEGRATED ENVIRONMENT

**Nurhidayah Binte Mohd Salleh**
*Ministry of Education, Singapore*
*nurhidayahmohdsalleh@moe.gov.sg*

## Abstract

*Singapore's education landscape is weaved in a collage of diverse learning profiles due to her multi-faceted society. A multitude of teaching strategies is thus imperative to cater to a classroom of diverse learners who differ not only culturally and linguistically but also in their cognitive abilities, background knowledge and learning preferences. It thus becomes mandatory, to explore different strategies to ensure and maintain high level of engagement and motivation throughout the lesson. Tomlinson (2004c) points out that the teacher is the professional in the classroom, using appropriate techniques, assisting each learner to reach his or her potential within the learning context. Thus, in an effort to maximize all students' learning experience, there are significant efforts made by teachers to implement differentiated instructions. According to Tomlinson and Strickland (2005), teachers usually differentiate instruction by adjusting one or more of the following: the content; the process; or the product. This paper explicates how this possibility has been applied in an ICT-based teaching and learning programme known as 10 IS Aksara for Malay Language. This programme, which is done in collaboration with schools, is*

*initiated by the Educational Technology Division (ETD) of the Ministry of Education (MOE), Singapore. It adopts a learner-centered approach which is well-balanced between teacher facilitated activities and web-based individual assignments. The availability of an online personalized learning space, incorporating the thoughtful blend of face-to-face and 1:1 online learning allows for multitude of possibilities for the teacher to design differentiated lessons to cater to the different abilities. From the point of content selection to the final individual online assessment, differentiated Instruction is carefully weaved in seamlessly throughout the lesson. Through such lessons, it was evident that there was a significant impact on the students final output. Students with lower learning ability were able to relate better in a non-threatening environment when the assignments were pitched at their level and thus became more confident learners. Assignments given to higher learning ability students, on the other hand, were more challenging. These provided them the opportunity to further explore and expand their learning experience.*

**Keywords**

ICT Integration, Language**,** Differentiated Instructions, Student Centric Learning

## 1. Introduction

The classrooms in Singapore have become increasingly diversified, encompassing students who are multicultural and thus multilingual. It is therefore imperative to embrace an English-based bilingual education system to provide a common language platform for communication and lesson delivery. Students are taught subject-matter curriculum in English, while the official mother tongue of each student - Mandarin for Chinese, Malay for Malays and Tamil for ethnically Indians – is taught as a Mother Tongue Language (Dixon, 2005).

Acquisition of MTL is essential for effective communication, to understand one's own culture and to "connect with other Asian communities" (Ministry of Education (Singapore), 2011). Communication is not just about the exchange of information, but is also about understanding the emotion and intentions behind the information. For it to be effective, the message that is conveyed must be understood by the receiver in the exact context that is intended so that the actual intent is accurately received. However in today's context, it is becoming increasingly challenging to maintain MTL competencies as Singapore is becoming predominantly an English speaking country. The lack of ability to grasp their MTL has resulted

in a lack of interest to pursue the language in all of its potential. Therefore in the 2011 Mother Tongue Languages (MTL) review, it was explicitly communicated that the Ministry of Education (MOE) Singapore will enhance the teaching and testing of MTL to nurture students to be proficient users of the language.

## 2. Prevalent use of ICT in Education

As Singapore progresses into the 4th Masterplan for ICT in Education phase, with a vision of nurturing "Future-ready and Responsible Digital Learners", it seeks to advocate more vigorous integration of Information and Communication Technologies (ICT) in education. At the same time, it is also necessary to focus on quality learning and align lessons to MOE's overarching direction of Student-Centric and Values Driven education. In order to achieve the above, it becomes mandatory for schools to rethink the way lessons are conducted. This paper attempts to show that ICT, along with differentiated instruction, has the ability to transform the learning of MTL into an enriching and meaningful experience for the students.

## 3. 10'M Aksara Programme

The Educational Technology Division of MOE, in collaboration with schools, introduced an alternative pedagogical model that leverages the use of ICT for the learning of MTL. 10'CMT is a group of ICT-integrated programme; namely Chinese (10'C), Malay (10'M) and Tamil (10'T).

Introduced in 2008, this programme seeks to hone students' language interest, skills and competencies through an interactive web-based learning experience that can be customized within a heterogeneous cooperative group.

The programme adopts a learner centered approach to better cater to the different learning styles while encouraging self-paced independent learning. It also provides numerous opportunities for collaborative tasks within a lesson. For every 10'CMT lesson, dedicated time is set aside for teacher directed activities and scaffolding as well as self-exploratory independent learning with self-reflection. The teacher assigns differentiated activities to help students internalize and maximize their learning experience within a given time. These activities leverage the array of affordances on the dedicated language portals that supports self-paced learning as well as collaborative group activities.

In the 10'M portal, content is categorized according to the language skills as given in the national curriculum. These include comprehension, grammar, oracy and writing skills. An additional set of extensive, interactive reading materials to complement these skills acquisition is provided under the reading folder. Each student is provided with their own learning space for self-paced learning. Within this learning space, they can view their peer's work and engage in collaborative learning to further enhance their understanding of the selected topic. It also encourages students to appreciate the diverse competencies and experiences of their peers in the process of reflecting and internalizing their own learning.

The teachers in the 10'M programme go through Lesson Study process with their peers within the same school to enhance their lesson design and effectively reflect on their classroom strategies to provide a more conducive learning environment for the students.

Differentiated instructions was one of the strategies incorporated during 10'M lessons. It was apparent that students were motivated to learn, and it was the teacher's role to craft instruction that evokes each student's inherent desire to learn.

## 4. Differentiated Instructions

Differentiated instruction and assessment is a framework or philosophy for effective teaching. It involves providing different students with different avenues to learning in terms of: acquiring content; processing, constructing, or making sense of ideas; and developing teaching materials and assessment measures so that all students within a classroom can learn effectively, regardless of differences in ability (Tomlinson, 2001). Without the variations in the aspect of content, process and product during a lesson, there will be a loss of motivation and enthusiasm among learners who are unable to connect and internalize the content delivered.

"Classes should include students of diverse needs, achievement levels, interests, and learning styles, and instruction should be differentiated to take advantage of the diversity, not ignore it" (Jackson & Davis, 2000). This diversity served as a platform for richer and more in depth learning as the students learn more extensively through the exchange of ideas and knowledge through active and meaningful classroom discourse. It is thus imperative to always incorporate differentiated instructions in the content, process and product of a lesson; primarily during a 10'M lesson in this context to maximize and enrich the learning of Malay Language for

a group of mixed learning ability students with the pervasive use of ICT as well as teacher facilitated activities.

### 4.1 Content

As mentioned above, the differentiated instructions strategy was infused in 3 different aspects; namely the content, the process and the product. The objective of the lesson remained the same regardless of the differences in their ability. The core content which refers to the information, knowledge, concepts and skills that students are required to learn remains the same for the whole class, but the variation comes in the presentation of this content to the various groups. Podcast, mindmaps and extensive interactive reading passages were employed to cater to the different learning styles of the students.

Individual assignments and activities which were to be completed via the 10'M portal were planned; keeping in mind each students learning pace and ability. At the end of the lesson, the students were required to produce a 3 minute oral presentation related to the topic of discussion.

For this final product, three sets of assignments, differentiating each set according to the learning abilities of the students were prepared. The lower learning ability (LA) group received more guiding questions to help formulate their responses. They were also given helping words and phrases to encourage and assist them to produce a presentation of reasonable quality. The middle learning ability (MA) group received fewer guiding questions and helping words while the HA group received the least number of guiding questions and no helping words in their assignment. The main aim was to challenge the HA students and stretch them to achieve their maximum potential while ample guidance for the LA pupils further assisted them; though their end product was the same. The different activities which were pitched at the different level of ability created made it easy for students to understand the content and acquire the necessary skill. To ensure there is a benchmark to assess the quality of presentation, the rubrics for assessment as well as a checklist to guide the students were provided as they went about their tasks. The rubric descriptors however was a simplified version based on the standards put forth by the Singapore Examinations Assessment Branch (SEAB) for PSLE. This customized online rubric was attached as part of their final in-class assignment.

### 4.2 Process

The diversity of a mixed ability class means each student will require different amount of time to reflect and digest the learning activities before moving on to the next segment of a lesson (SEAB, 2015). But as the given class time is the same for all students, it becomes necessary to infuse differentiated activities during the learning process based on the students learning ability.

In reference to the lesson based on oral presentation, a mega mindmap was created to capture the collective understanding of the topic as a tuning in activity. This helped to trigger the students' interest in the given topic of discussion and also support the visual learners. All the information discussed by the different groups were consolidated and presented collaboratively on the mind map. Subsequently, the information gathered was discussed and the students were guided on how these could be incorporated into their final individual task. Through this activity, the students took ownership of their learning by having a collaborative discussion on the contents for the various strands of the mind map. This activity tapped on the students' different learning styles. Every group member was assigned a specific role to minimize the possibility of a passive member. In doing so, there was a healthy group discussion where each member shared and built upon the ideas related to the topic given.

The next discussion was of equal importance. The criteria of assessment were explicitly elaborated and explained to set a definitive standard for the final task. The students were then asked to listen to several podcast examples pre-recorded with the aid of an open source digital audio editor (Audacity). Avenues were provided for students to discuss the quality of each podcasts put in pairs or group as per their ability. This gave ample time for the teacher to closely guide the LA groups throughout this scaffolding process. This activity helped them bench mark the quality of each podcast more accurately. These samples were embedded onto the portal as supporting materials for their reference as they embarked on their own individual assignment.

To further enhance their analytical skills, students were given an online quiz via the 10'M portal. This self-marked quiz further strengthened the students' understanding on what constituted to an exemplary oral presentation. This final task was not differentiated as the teacher wanted to see how all the students fared given the various differentiated scaffolds prior to the completion of the final task.

### 4.3 Product

The students were on task and very focused when they set about to complete their online individual oral presentation with the help rendered through guiding questions based on their ability.

Upon completion of the assignment, several students' presentations were re-played to assess the quality based on the online rubric provided. Guidance and explanations were provided to clear their doubts as they collaboratively assess several oral presentations. Providing positive reinforcements were emphasized throughout evaluation for all the presentations that were chosen to be assessed. This was part of building the 21st century skills which advocated technological literacy through a flexible yet creative and critical mindset.

At the end of the lesson, students were tasked to reflect on their learning via online Post-it boards. Each HA, MA and LA group were provided with different questions to guide them in their reflection process. At the end of this activity, students' responses reaffirmed the achievement of the objectives for the lesson and the success of the Differentiated Instructions impact.

## 5. Impact

The successful design of differentiated activities and task, leveraging the array of ICT affordances available on the 10'M portal based on individual student's ability, not only transform their learning into a more meaningful and impactful experience but also creates an interest and awareness of the language. The flexibility of learning opportunities allowed the students to take greater ownership of their individual learning. The conducive and non-threatening atmosphere encouraged even the most passive student to participate actively in the various tasks and activities. The reflections during the lesson closure served as an internalization process for the students as well as a feedback tool to measure the success of the lesson for the teacher's personal reflection.

## 6. Conclusion

The differentiated tasks assigned within the lesson, enhance the students' understanding and help them challenge their own abilities in content and skills mastery. Apart from their self-paced learning process, their perspective towards the topic broadens through the opportunities

provided to engage in collaborative activities. Such lessons have proven to further enhance and maximize the impact of teaching and learning of Malay Language for students of diverse learning styles and needs through differentiated strategies. More importantly, their MTL learning process becomes purposeful, meaningful and enriching.

## References

Atan, S. (2013). Towards a Collaborative Learning Environment through ICT: a Case Study. *Sino-US English Teaching, 10(1),* 53-62.

Dixon, L. Q. (2005). The Bilingual Education Policy in Singapore: Implications for Second Language Acquisition . *ISB4: Proceedings of the 4th International Symposium on Bilingualism*, 625-635.

Jackson, A. W., & Davis, G. A. (2000). *Turning points 2000: Educating adolescents in the 21st Century*. New York City: Teachers College Press.

Jay, M., & John , B. L. (2005). Differentiated Instruction and Educational Standards: is D`etente Possible? *Theory into Practice, 44(3),* 234-244. http://dx.doi.org/10. 1207/s15 4304 21ti p4403_8

McCarthy, J. (n.d.). *3 Ways to Plan for Diverse Learners: What Teachers Do.* Retrieved from Edutopia.The George Lucas Educational Educational Foundation.: http://www.edutopia.org/blog/differentiated-instruction-ways-to-plan-john-mccarthy

Ministry of Education (Singapore). (2011). Retrieved from Enhancing the Teaching and Testing of Mother Tongue Languages (MTL) to Nurture Active Learners and Proficient Users-MTL Review Committee Releases Its Reccommendations.: http://www.moe.gov.sg/media/press/2011/01/enhancing-the-teaching-and-testing-of-mtl.php

SEAB. (2015). BAHASA MELAYU (0006). Singapore: SEAB (singapore).

Siva Kumar, S. (2011). 10'CMT - An ICT Based Pedagogy Design for Learning and Teaching of Mother Tongue Language. *International Conference "ICT for Language Learning" 4th edition.* Florence.

Tomlinson, C. (2001). *How to Differentiate Instruction in Mixed-Ability Classroom.* Alexandria: Library of Congress Cataloging-in-Publication Data.

Tommilson , C. (1999). *The differentiated classroom: Responding to the needs of all learners.* Alexendria: Library of Congress Cataloging-in-Publication Data.

Wang, D. (2002). Vocabulary acquisition: Implicit learning and explicit teaching. *REACT, 2*, 15-22.