The Power of Connection: Enhancing Modular Learning Experiences of Students through T.I.M.E. (Text and Instant Messaging for Educational Purposes)

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Abstract

Education is one of the sectors most affected by the coronavirus pandemic. While access to learning was maintained in some contexts due to a rapid shift to distance learning. The situation presents a significant challenge for teachers in creating and providing academic and safety net supports to students in modular distance learning. "The wellbeing of our learners remains our priority, and we will ensure that School Year 2020-2021 is bearable, and we give academic support for all while still supporting effective learning engagement," Secretary Leonor Magtolis Briones said (Department of Education, 2020). As a result, the purpose of this study was to investigate the influence of a technique called T.I.M.E. (Text and Instant Messaging for Educational Purposes) as a means of promoting education based communication through modular delivery. Exploratory Sequential Mixed-Design was utilized to assess the findings of this research from the quantitative and qualitative data collected from Science, Technology, Engineering and Mathematics (STEM) students enrolled in modular delivery. Empirical findings indicated that the t-value of 37.06 is statistically significant at an alpha level of 0.05 ($\alpha \leqslant 0.05$), implies that there is a difference between the students' pretest mean scores and their posttest mean scores after the T.I.M.E. intervention was employed. The qualitative analysis compliments the calculated findings that T.I.M.E. intervention enhanced the students' modular learning experiences in the midst of health crisis.

Keywords: Mixed Method; Modular Learning; T.I.M.E; Teacher's Connection

1. Main text

The Corona Virus commonly known as Covid-19 is a deadly and contagious disease which had a significant impact on the world and gave serious setbacks to the education sector. Schools have found themselves in a situation where they must respond to make sure that students' education must continue despite the global health crisis due to COVID-19. The Department of Education (DepEd) offices and schools strategized and developed their Learning Continuity Plan (LCP) to ensure that learning continues uninterrupted as the country battles the pandemic. Planning and preparation are essential because the new learning mode is offered outside of the usual face-to-face setup. DepEd and school officials are collaborating with teachers, parents, and other stakeholders to address the pressing concerns associated with the transition to

distance teaching-learning. Teachers, in particular, have been playing an important role as education transitions to blended or distance learning in the 2020-2021 school year. The Learning Enrollment and Survey Form (LESF) statistics, the majority of parents select Modular Distance Learning as their preferred learning system. According to Bernardo's (2020) news article, survey findings from the Department of Education (DepEd) revealed that 8.9 million parents chose modular distance learning, in which students would study at home using self-learning modules. The enrollment status in the location of this study project supports the results of LESF, as most average Filipino students and senior high school students favored the very convenient Modular Distance Learning. This leads to a persistent question of "quality". Mutual remark of students and parents is that modular distance learning is of low quality compared to residential and face-to-face learning and/or online learning means. The mere concept of studying at home provides students an unearthly sense of independence and the luxury of being less stressed and pressured. This poses a major challenge again for teacher to innovate, create and be creative in providing academic and safety net supports to students in online distance learning and more so, to students in modular distance learning. The researcher believes that no significant learning occurs without significant connection between the teacher and the students. Conversely, DepEd has made the same plea "the teachers should have occasional conversations with students throughout the school year, so they would know the student's learning progress," said Undersecretary San Antonio.

Imbued with the preceding premise, the researcher saw the need to create and establish an enabling education-based communication to maintain teacher-student connections even in modular distant learning.

Hence, the primary goal of this research was to evaluate the impact of a technique known as T.I.M.E. (Text and Instant Messaging for Educational Purposes), on maintaining the teacher-student connection in modular distance learning in remote education delivery of senior high school at Tanza National Trade School during the academic year 2020-2021. More specifically, the following questions were addressed:

1. What is the SHS students' academic performance in practical research under the modular modality, as measured by:
    a. pretest result
    b. posttest result?
2. Is there a significant difference between the student's pre-test and post-test results after T.I.M.E. intervention was offered?
3. How does the T.I.M.E. intervention assist STEM students in completing the activities in the learning module?
4. Does quantitative results triangulate with the lived experiences of subsample STEM students?

Students regularly utilize text messaging and instant chatting as ways of mobile communication. The exchange of short, written messages between mobile phones via short message service (SMS) is referred to as "text messaging" or "texting" (Kasesniemi and Rautiainen 2018, p. 170). Instant messaging comprises sending short, typed messages from one computer to another via the Internet in real time. According to Motiwalla (2017), mobile devices are so popular and well-liked among students that ignoring them in any learning environment would be "foolish" (p. 584). Similarly, Litchfield (2017) reported that students are enthused about using mobile phones in education, and they urge that researchers start looking at how mobile learning may be used most effectively in teaching and learning. In the research findings of Acode et al. (2019), 4 out of 5 pupils are using cellphones and 1 pupil used tablet and most of the respondents spent a large amount of their time with their gadgets.

Moreover, Farmer (2015), who initially recommended caution in using this communication medium, later stated that it was "excellent for educational and learning situations" (Farmer 2015).
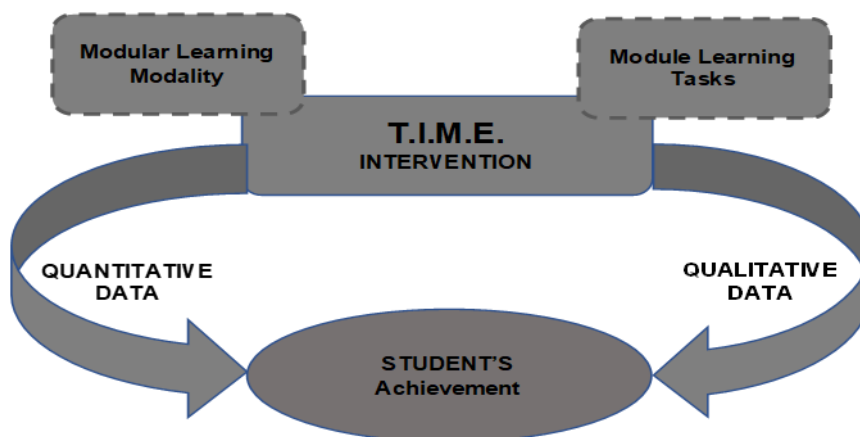
Students are heavily reliant on texting and instant messaging (Johnson 2017). Students are also open to using text messaging and instant messaging for educational purposes (Jeong 2017). The researcher saw this as an opportunity to incorporate such technologies or mediums of communication into the teaching and learning environment, particularly in modular distance learning, because of the popularity of texting and instant messaging, as well as students' willingness to use such technologies for academic purposes.

Methodology

The researcher used the Exploratory Sequential Design; this basic mixed methods approach gathered and analysed quantitative data before gathering and analysing qualitative data to help explain or supplement the quantitative findings (Creswell, 2012).

The figure below illustrates the integration of T.I.M.E. as an intervention in Practical Research subject. The researcher's goal was to create a supportive education-based communication system in order to maintain teacher-student connections even in modular distance learning. Both qualitative data and quantitative data were needed for this study. The researcher designed this technique to collect the necessary information, regulate the elements or variables that may influence this information, and finally execute the required analysis to evaluate the study hypothesis within the context of a comprehensive approach.

Conceptual Framework

The STEM students enrolled in modular learning delivery participated in this study project. The researcher

included all of the students who were under his supervision. It made use of two sets of instruments. The first instrument was the Pretest/Posttest produced by the practical research teachers. The second instrument was the semi-structured interview questions; the stated instrument provided qualitative data to help explain or expound on quantitative results. For research question number 1 (RQ1) the average mean and standard deviation were employed to measure the student's performance in practical research; The Paired Sample T-test was used to measure the significant difference between the students' pretest and posttest scores after the T.I.M.E. intervention was offered for research question number 2 (RQ2).

For research questions (RQ 3 and 4) the verbatim responses of the participants in the semi-structured interview (text/IM responses were included) were used to give more details how the T.I.M.E. intervention helped the STEM Students in completing the activities in the learning modules. This was done by simply looking out and sorting out similar responses or perceptions of students.

Results

The data were collected and then processed in response to the problems of this research. Below are the of findings of the study:

- Table 1 Mean Performance of Students

	N	Mean	Std. Deviation
Raw Score Pretest	104	15.91	6.26
Raw Score Posttest	104	43.55	3.44
Valid N (Participants)	104		
Number of test Item	50		

As gleaned from the Table 1, the standard deviation of 6.26 indicates that the practical research students demonstrated heterogeneity in their level of knowledge/achievement in practical research prior to the teacher's supervision provided via instant messaging and/or text.

The same table reveals the academic achievement of SHS in practical as indicated by the posttest result. The mean rating of 43.55 out of 50 items posttest indicates an outstanding achievement of students in practical research as revealed by the posttest. The standard deviation of 3.44 further suggests that the students are almost alike in terms of their exceptional academic achievement in practical research.

Is there a considerable difference between the student's pretest and posttest scores after the T.I.M.E intervention was offered?

- Table 2 Paired Sample T-test

	Paired Differences				T	DF	Sig. (2-tailed)
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
27.63462	7.60436	.74567	26.15576	29.11347	37.060	103	.000

Table 2 shows that the t-value was 37.060, which is highly significant at the 0.05 level of significance, indicating that there were statistically significant differences between the students' mean pretest and posttest scores. As further illustrated, the student's mean score in the pre-test exam is 15.91 with a standard deviation of 6.26, while the student's mean score in the post-test is 43.55 with a standard deviation of 3.44, indicating that the difference was in favor of the students' post-test score, indicating that there is a significant difference in the academic achievement of students in practical research subject after the T.I.M.E. intervention.

- Discussion

An interview with a sub-sample of participants was done to provide comprehensive descriptions and details about how the T.I.M.E. intervention aided STEM students in completing the activities in the learning modules. The first question asked was to describe the modular learning and the method(s) by which they communicate with your teacher(s) in modular distant learning. Based on the transcript of responses, modular learning in practical research is highly challenging, but using instant messaging allowed them to re-read the message at any moment, particularly the teacher's instructions, which was effective in supplementing their understanding (P2, #IE12-14). One participant explained since we are in lockdown (due to pandemic), it is appropriate for us to communicate to teacher in this way. It's instant, everyone is on messenger all the time, so that's important for distance learning (P3, #IE 8-9). According to Johnson (2017), students are heavily reliant on texting and instant messaging. Similarly, students are also open to using text messaging and instant messaging for educational purposes (Jeong 2017).

The selected student's participants were also asked if SMS/IM helps them in accomplishing the module learning tasks. One student participant explained SMS/IM allows me to ask questions with the teacher regarding the module activities (P5, #IE 3-4). Another student participant mentioned that SMS and instant messaging are useful for sharing short links to websites that are relevant to the subject (P1, #IE 2-3), and all participants answered that its easy and efficient to get in touch with teacher in an online chat and/or SMS. Motiwalla (2017) agreed with the earlier transcripts, claiming that the popularity and support of mobile devices among students is so high that "it would be foolish to ignore them in any learning environment" (p. 584). Similarly, Litchfield (2017) observed that students are enthusiastic about using mobile phones in education, and they want researchers to begin investigating how mobile learning may be used most

successfully in teaching and learning. According to the research findings of Acode et al. (2019), 4 out of 5 students use cellphones, 1 student uses a tablet, and the majority of the respondents spend a significant amount of time with their gadgets.

Furthermore, Farmer (2015), who first advised care while using this medium of communication, eventually remarked that it was "great for educational and learning scenarios" (Farmer 2015).

- Conclusion

The findings of this action research show that the T.I.M.E intervention is beneficial for both teacher and students in sustaining a strong student-teacher relationship. This intervention is beneficial to students, as evidenced by quantitative and qualitative findings; for example, they all agreed that usage of instant messaging and short messaging system (SMS) is maximized due to strict lockdown, as it is an easy and efficient way for them to communicate with the teacher; everyone is on messenger all the time, which is important for distance learning. In general, the T.I.M.E. intervention improves students' modular learning experiences in the midst of health crisis.

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