

An Exploration of Students' Learning Motivation and Level of Participation through the Use of Mobile Tech in Classrooms

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Abstract

This paper aims to combine Mobile Tech (Modible Technology) and the SAMR (Substitution, Augmentation, Modification, Redefinition) model to create suitable teaching materials to enhance students' learning motivation and classroom participation. This course, "Classroom Management", is a compulsory junior-year course. The department's policy is to teach all compulsory courses in English only. However, students' English ability may not be high enough to absorb teaching content successfully. In addition, with the availability of cellphones, students tend to become distracted easily if they have no access to their phones during class. It is apparent that the traditional teaching methods of using PPT and paper-based worksheets are not receiving enough attention from students. To enhance learning effectiveness and learning motivation, this study aims to design a course and relevant teaching materials with Mobile Tech following the SAMR model. The SAMR model by Dr. Roben Puentedura (2006, 2016) refers to using technology to perform substitution, augmentation, modification, and redefinition of the original teaching materials or activities. Following this model, this study hopes to design teaching materials combined with Mobile Tech that could better enhance students' learning motivation.

Keywords: Mobile Tech in the classrooms, SAMR model, language learning motivation

1. Introduction

Teachers are certainly aware of smartphones entering their classrooms. They are hidden in backpacks, stuffed into pockets, and held in the hands of students whose eyes are glued to the screen as the bell rings and they move to their seats. However, what is far less certain is exactly how these ubiquitous devices are used while instruction is taking place. Over the last decade, we have witnessed a sharp increase in research studies on the use of technology, particularly mobile assisted language learning (MALL), in the classroom. For instance, Churchill & Churchill (2018) and Rao (2019) discussed how the use of technology in EFL/ESL classrooms makes the teaching-learning process more effective and flexible. Studies focusing on the positive advantages of classroom cellphone use urge language teachers to embrace the latest innovative technologies and to welcome them into their classrooms. One advantage comes in the form of the ARS - Audience Response System (e.g., *Polleverywhere*, *Zurio*) capability of inviting shy EFL speakers in language classrooms to participate more actively in class discussions, which helps they become more motivated to attend EFL classes (Meguid & Collins, 2017). Yudhiantara & Nasir's study (2017) discussed how students benefited from using different kinds of mobile phone dictionary applications, such as translation or English only apps, during class time; combined with video and audio functions, they enhanced these learners' phonological awareness.

My recent teaching experiences have shown that students are increasingly relying on digital stimulation during learning. PPT slides with textbook or printout worksheets no longer have the learning effectiveness they used to have. Students are currently used to having their mobile phones nearby and checking them every couple of minutes. If mobile phones are allowed, students may feel anxious, not knowing whether they have missed important messages or not. In addition, students are accustomed to using Google to obtain more information on what they would like to know. Instead of raising their hand to ask the teacher, they are more inclined to get their mobile phones out and google the information. Under this social trend, it seems to be a losing battle to ban students from mobile phone use. Instead, it may be a smarter move to go with the flow and think about how to better incorporate the use of mobile phones with classroom activities to maximize their use.

To summarize, this research paper hopes to explore ways to integrate Mobile Tech into classroom activities and how this affects students' learning participation and motivation. This paper has the following aims:

- To investigate whether using interactive classroom activities through Mobile Tech apps enhances students' learning participation.
- To explore students' viewpoints on the use of interactive classroom activities through Mobile Tech apps.
- To encourage students to maximize the use of Mobile Tech to aid learning in their own time to cultivate their skills of autonomous learning.

2. Literature Review

The use of technology in language classrooms is not an innovative concept. In the early 1980s, the term CALL, Computer Assisted Language Learning, was established and heavily researched (Chapelle, 2001). However, with the availability and widespread use of other more portable devices (e.g., mobile phones, tablets), the term CALL has graduated, leading to the acronym mobile-assisted language learning (MALL). According to Begum (2011, p. 105), mobile assisted language learning (MALL) "describes an approach to language learning that is enhanced through use of a mobile device". Indeed, mobile devices possess the advantages of portability and immediate social connection that can spark either spontaneous or continuous learning. Kukulska-Hulme & Shields (2008) further clarify how MALL differs from CALL with "its personal, portable devices that enable new ways of learning, emphasizing continuity or spontaneity of access across different contexts of use" (p. 273). Over the last decades, numerous studies have been devoted to exploring the use of MALL, either inside or outside of the classroom. This section will summarize these studies with the following highlights: the application of MALL in the classroom and the challenges it poses.

2.1 Application of MALL in Language Learning

Use of mobile phones to aid language learning has offered various possibilities for L2 learners. In the earlier stage of relevant research studies, the focus was mostly on how using mobile phone learning resources aids in language learning outside of regular classrooms. For instance, Lu (2008) explored how high school students using SMS text messages effectively enhance their L2 vocabulary learning. Mindong (2016) followed 4 Japanese university students' use of apps for their English learning, and the participants believed that using apps helped them with their overall language skills (listening, speaking, grammar, vocabulary, etc.)

However, over the last decade, the ubiquitous use of mobile phones in day-to-day life has become evident; hence, "clearly, the use of cell phones in college classrooms is an issue that academic institutions cannot ignore" (Tindell and Bohlander, 2012, p.7). As a result, numerous studies have shifted the focus from *outside* of the classroom to the use of mobile phones *in* the classroom. This could mean that the use of mobile phones was integrated with the teachers' teaching, the mobile phone use was secretive and unknown to the teacher, or a combination of both (Stockwell & Hubbard, 2013). Whatever the context of mobile phone use is, the most common ways that learners use this device in classrooms are as follows (Barry and Westfall 2015; Begum, 2011; Tindell & Bohlander, 2012):

- Recording the teacher's lecture for review, especially for autonomous students who would like to review the contents of the lessons in their own time.
- Photographing the teacher's notes on the blackboard. Students may feel that their notetaking speed does not catch up with the teacher's pace. This is a convenient alternative to ensure that no information on the board is missed.
- Responding to the teacher or peers through an immediate audience response system. Some students may feel intimidated to respond in the classroom, and texting through an immediate audience response system may elicit more classroom interactions.
- Looking up supplementary information or fact checking. Since mobile phones can always stay connected online with Wi-Fi services, students can look up class materials or unknown L2 vocabulary words to aid their learning.

In summary, the abovementioned uses all helped L2 learners create an internal locus of control in their learning. The internal locus of control, as Chang and Ho (2009) indicated, could lead to "higher scores on a measure of self-efficacy, which suggests that they believed that they had the ability to master the task and had more confidence in their skills to perform that task which in turn could lead to a more effective learning outcome" (p. 203).

2.2 Challenges of MALL in Language Classrooms

While having the convenience of mobile phones could yield several learning benefits in class (e.g., access to the internet, clicker capabilities, use of educational apps, and use as a reader, O'Bannon and Thomas, 2015), for many teachers, the main concerns with mobile phone use boil down to the 3 Ds - distraction, disruption, and disrespect. Several studies have indicated that students who use their mobile phones during class perform poorly on comprehension quizzes because of their distraction through multitasking (Kraushaar and Novak, 2010). It is true that while the students are using their mobile phones, if it is for learning purposes, their multitasking behavior is bound to lead to a split focus and hence a lack of proper concentration. However, in Barry and Westfall's (2015) study, it is worth pointing out that while students suggest that mobile phone use could distract their attention in class from time to time, "they generally do not believe that such distractions affect their academic performance" (p. 70). In general, students believe that the advantages outweigh the distraction problems. However, is the students' belief true? In Kuznekoff and Titsworth's (2013) experimental study, it was clear that students who used mobile phones to text during a lecture performed worse on the quiz than those who did not use mobile phones. Similar results were found in Wood et al.'s study (2012), which indicated that participants who did not use any technologies during lectures in the classroom outperformed students who used some form of technology (e.g., texting with mobile phones). To conclude, even if students themselves do not believe that their learning is affected by using mobile phones during a class, their academic performance may indicate otherwise.

Another concern of students' mobile phone use is the disruption it causes to other students in class. Almost 90% of students revealed in Tindell and Bohlanders' study (2015) that they had seen another student texting with mobile phones during class daily, or almost daily. The fact that these students noticed others' texting behavior shows that their attention was disrupted during class.

The last main concern of mobile phones in the classroom is the potential for showing disrespect toward the teacher. This perspective is expressed by both teachers and learners in various studies (Begum, 2011; Mittal, 2014; Rosenfeld and O'Connor-Petruso, 2010). All these studies indicate that the students do have qualms about teachers' impression of them while using mobile phones in class. As Barry and Westfall (2015) expressed well, "the most frequently cited reason for why students think checking cellphones or texting in class is unacceptable is because it is rude" (p.67).

Likewise, the teachers also expressed that their doubts about students using mobile phones fit with the educational etiquette. Teachers also expressed uncertainty regarding appropriate mobile phone use policies. One of the common teacher policies regarding mobile phone use is verbal warning with no additional consequences (76%). Barry and Westfall's study (2015) discovered that even though teachers found it helpful, students did not. In fact, students themselves believe that grade reduction and removing students from class would be more effective (p. 68).

3. Research Methodology

3.1 Research Procedure

This study aims to explore whether students' learning motivation and engagement have improved through the application of Mobile Tech in classroom activity design. This research was conducted in the "Classroom Management" class at a private university in southern Taiwan. This course is compulsory for students in the Department of Foreign Language Instruction. This department aims to equip students with the skills they need to teach English to EFL students in Taiwan. This is a 2-credit hour course for one semester (18 weeks). The instructional language and materials are all in English; the main topics covered in the semester include using icebreaker activities, promoting group cohesiveness, managing individual students, arranging students' seats, and setting classroom rules. For each topic, the instructor (me, as the researcher in this project) will go over the basic theories and then conduct various activities to reinforce the concepts. For instance, I used "*Polleverywhere*" (www.polleverywhere.com) or "*Nearpod*" (www.nearpod.com) to elicit students' responses to questions I asked during the class. Through projected responses from all the students in the classroom, they could see how their answers compared to other students' responses, helping them reflect on their own answers and feel more engaged during class discussion time. The website also creates some visual effects, such as word clouds, to highlight the key words from the audience's response. Having these visual effects with key word analysis makes the class discussion more relevant and meaningful to the class participants.

In addition, 1-2 times per month, I also used "*Quizlet*" or "*Kahoot*" to create interactive review activities rather than having quizzes on paper, as before. Sometimes the review activities were conducted through group work or pair work and sometimes through individual practices. It was my hope that by using mobile phone apps to aid

learning, students can feel more at ease to express their opinions through written responses and can check their comprehension through interactive app activities. As a result, they are more motivated to pay attention and thus engage in classroom activities.

3.2 Research Instrument

At the end of the course, during the final week, a questionnaire (see Appendix) was given to the students to analyze their overall experiences and views on the use of mobile tech apps during their course. The questionnaire consists of 10 Likert scale questions and 1 open-ended question. The Likert scale questions aim to explore learners' views on the role of mobile tech apps in their class participation. Sample questions are "Using mobile tech apps makes me more willing to participate in class discussion" and "Using mobile tech apps helps me to absorb course materials better". The open-ended question allowed research participants to freely express their perspectives on the use of mobile tech in class. The Cronbach's alpha value of the 10 items from the questionnaire was checked and reached above the acceptable level (see Table 1 below).

Table 1. Questionnaire Cronbach's Alpha Value

Reliability	
Cronbach's Alpha	Items
0.936	10

3.3 Research Participants

A total of 82 students were asked to complete the questionnaire. Seventy-seven valid questionnaires were received. The participants were junior-year students at a private university in southern Taiwan. During the time of the research, they were taking a compulsory course, "Classroom Management", in their department. The course, conducted in English, meets 2 hours per week for one semester. The average English level of the students who take the course is upper intermediate.

4. Research Findings and Discussion

All the questionnaire data were entered into SPSS for data analysis. Table 2 below presents an overview of the descriptive statistics for the Likert scale questions.

Table 2. Questionnaire Descriptive Statistics

Descriptive Statistics					
	N	Min.	Max.	Average	St. Deviation
Q1	77	1	5	4.12	0.917
Q2	77	1	5	4.23	0.902
Q3	77	1	5	3.92	0.943
Q4	77	1	5	3.91	0.920
Q5	77	1	5	3.96	0.880
Q6	77	1	5	4.14	0.899
Q7	77	1	5	3.75	1.160
Q8	77	1	5	3.99	0.993
Q9	77	1	5	3.78	1.021
Q10	77	1	5	3.82	0.970
Valid N (listwise)	77				

The results from Table 2 show that all the items reach above the average of 3.75, with 3 items over 4.00. This indicated that students generally have positive experiences of using apps during class time to aid their learning. The highest 3 items are as follows:

No. 2 (It is helpful for my understanding of the course contents): Mean 4.23, Std. .902

No. 6 (It helped me to be more focused in class): Mean: 4.14, Std. 899

No. 1 (It's helpful to my learning in general): Mean: 3.14, Std. 917

The radar chart below (Figure 1) also presents students' favorable experiences with using apps during class time. The statistics presented here are sufficient to answer my research question 1 - whether using interactive classroom activities through Mobile Tech apps enhances students' learning participation. The students believe that the use of interactive apps is helpful to their participation and understanding of the course content in class. In addition, instead of creating distractions, being able to use their phones during class is supportive and motivates them to be more focused.

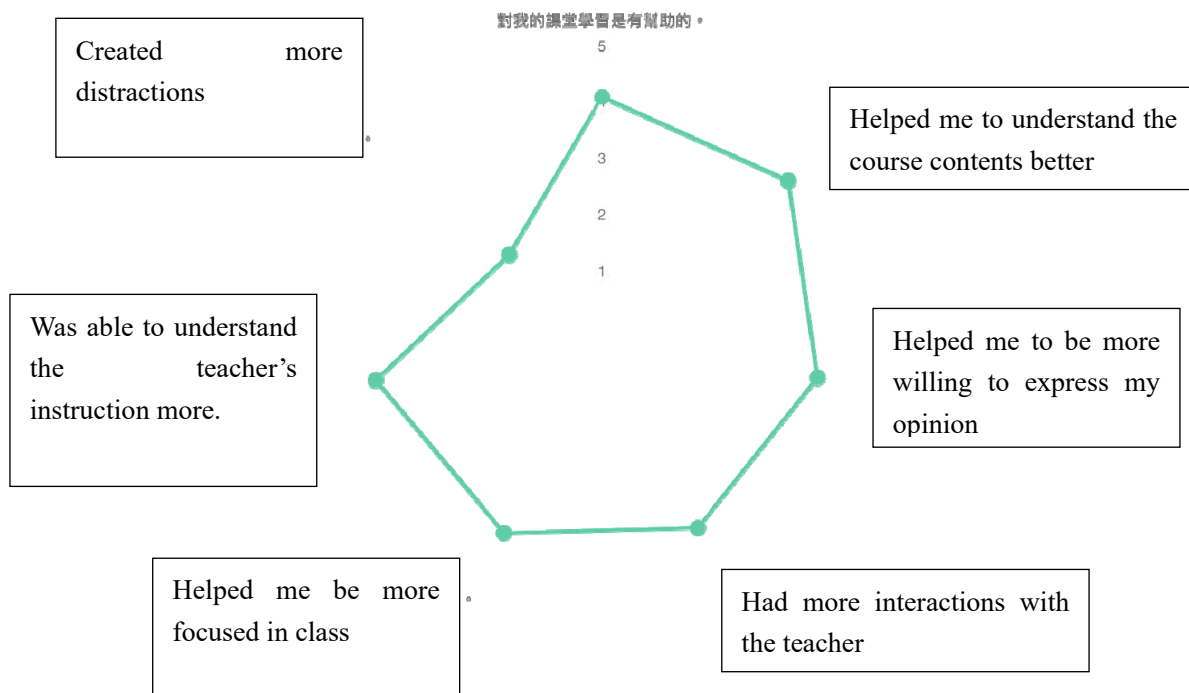


Figure 1. Radar Chart of the Key Questions from the Questionnaire

Even though the statistics show favorable experiences of the use of interactive apps during class, students' own perspectives of their own experiences are also explored to add diversity to the data. The participants are encouraged to record their own opinion in the open-ended questions. The participants' viewpoints are coded, summarized, and analyzed below.

Category/Counts/Percentage	Reasons/Counts
Helped me to understand the course contents better 56 participants/81%	Be able to obtain more information online (18 participants) Helps with comprehension in class (15 participants) Have more interactions with the teacher and the classmates (10 participants) Be more engaged with the class activities (8 participants) Lower anxiety from mobile phone separation (3 participants)
It depends 3 participants/5%	Most times it's helpful with the learning, though it could be distracting under some circumstances.
Too much distraction 10 participants/14%	Can't help checking personal messages or other websites (8 participants) Technical problems slow down the learning pace (2 participants)

5. Conclusion

This section will summarize the research findings in connection to the research purpose. The first aim of this study is to investigate whether using interactive classroom activities through Mobile Tech apps enhances students' learning participation. The quantitative data clearly demonstrate that most students feel that using apps for interactive activities in class enhances their learning participation; in addition, it also helps them with learning motivation due to the diversity of uses. Through increased class participation mobile phone use helps the students to better understand the course contents and eventually leads to better learning effectiveness.

The second aim of this study is to explore students' viewpoints on the use of interactive classroom activities through Mobile Tech apps. Over 80% of the participants concurred with the statistical findings that using apps for classroom activities is indeed helpful to them. From the specific examples they provide, it is apparent that the greatest benefit of using apps during class time is that they are able to search (via Google) relevant information online, which acts as a supportive role to their classroom learning experience. Moreover, using apps to interact with others motivates them to be more willing to share their ideas. The technical aspect of the apps allows them to know what other classmates' opinions are, which aids in their willingness to participate, leading to better learning results.

Finally, the participants' responses to the open-ended question also helps us understand whether the use of Mobile Tech to aid learning cultivates their skills of autonomous learning. Since the students are equipped with various learning tools with their mobile phones, they demonstrate autonomous learning through being able to use the dictionary when the need arises, google relevant class information to heighten their comprehension, or use relevant apps to review course contents. All of these actions are groundwork for their autonomous learning.

In short, this paper has investigated how the use of apps for classroom activities helps with students' learning participation and effectiveness. Most research participants agreed that mobile phone app use offers various advantages for their learning. However, mobile phone use is certainly not without its problems. Several students noted distraction in class as the main disadvantage. How teachers can maximize the advantages of the use of mobile technology and mitigate the distraction issue is a challenge that all teachers need to learn to face in their teaching careers.

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Appendix Questionnaire (English version)

Part A. Please read the statements below and circle your opinion.

1 -----2 -----3 -----4 -----5
 Totally Disagree Disagree Average Agree Totally Agree

Statement: In this course, the instructor used apps from mobile phones (e.g. Polleveywere, nearpod, Quizlet) as part of the instruction, I believe...		Your Opinion				
1	This is helpful to my learning.	1	2	3	4	5
2.	This helps my comprehension of the subject content.	1	2	3	4	5
3.	This helps to be more willing to express my opinion.	1	2	3	4	5
4.	This creates more distraction for me in class.	1	2	3	4	5
5.	This helps me understand the instruction faster.	1	2	3	4	5
6.	This helps me be more focused in my learning.	1	2	3	4	5
7.	The interaction with the teachers is better than not using the phones.	1	2	3	4	5
8.	My classmates are more willing to participate in class through. Apps.	1	2	3	4	5
9.	I feel less stress because I have access to my phones.	1	2	3	4	5
10.	My earning is more effective with the help from the Apps.	1	2	3	4	5

Part B. Open-ended Question

1. In your opinion, using mobile phones or tablet to participate in classroom activities, is it helpful or distracting to your learning? Why?

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