Perceived Motivational Effects of Mobile Learning Technique to Higher Education Students: An Exploratory Study

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Abstract

This article aims to examine how adopting the M-Learning technique affects students' intrinsic motivation and ability to learn new material. All in all, 283 higher education students of the University of Education. Twice they were evaluated to see how they fared. Ten multiple-choice questions were utilized for the evaluation, all of which were administered using the Socrative mobile apps. An evaluation form was utilized to get students' feedback on the experiment. According to responses from respondents all of the University of Education, M-Learning creates a more positive classroom atmosphere (71 percent), boosts attendance rates (80 percent), and aids in the retention of material studied (72 percent). All groups' aggregate performance improved as they used the app more often (initial-final evaluation: 5.8 vs. 7.2 points). The results imply that the M-Learning approach is a valuable instrument for enhancing the teaching-learning process and is helpful in the academic setting as a facilitator of knowledge absorption.

Keywords: M-learning, higher education students, Smartphones, technology

1. Introduction

Both students and educators benefit from the intrinsic motivation of incorporating cutting-edge technology into the classroom (Criollo-C et al., 2021). Student Response Systems (SRS), also known as Learner Response Systems (LRS), Online Response Methodology (ORM), Social Learning Network (SLN), Mobile Learning (M-Learning) platforms, and Bring Your Own Device (BYOD), are just a few of the many names for this type of methodology that can be found in the scholarly literature. Lam & Aljohani (2020) and other researchers observed that despite the widespread usage of mobile technology in several business sectors, its learning application was relatively uncommon two decades ago. However, since 2005, M-learning has gained traction in China; the country may have a highly technological culture, which may explain its rise to prominence (Qashou, 2021). The "forced" momentum achieved by such approaches in confined settings during the Covid-19 outbreak speaks to their growing significance in the present day. Due to kids' familiarity with these mobile devices and some families' inability to afford computer equipment, M-Learning has become an indispensable resource in many circumstances.

The Mobile Learning (M-Learning) approach often includes a downloadable mobile app that is meant to aid in acquiring information, resolving problems, and independently acquiring a wide range of skills. Despite the widespread availability and adaptability of mobile devices, M-learning techniques have been underutilized in several areas of education, and innovations have focused mainly on the tools themselves rather than the learning they facilitate. Socrative, Kahoot, Quizlet, Quizizz, etc., are only a few examples of real-time response system apps for smartphones that make it possible to swiftly and accurately test students' knowledge. According to Tlili et al. (2022), it is our duty as educational researchers to explore new pedagogical alternatives that preserve the principles of genuine, collaborative, and personally personalized education based on a complete grasp of sociocultural norms as mobile technology evolve.

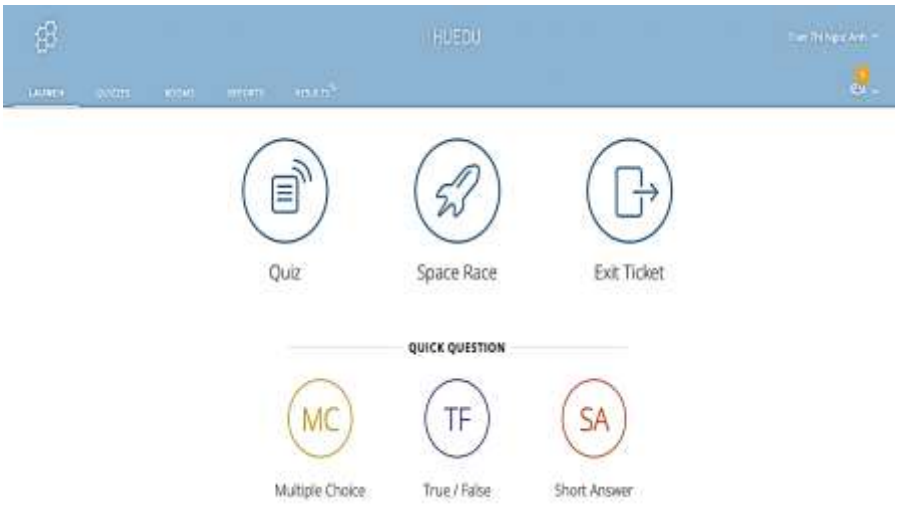

Figure 1. Question Formats on the Socrative Website

Using the "room or contest number", students in this research could access the questions presented by the instructor. This makes Socrative an ideal application for the sort of instruction that uses instant feedback systems. The site admin may create or import MCQs. Sequencing questions, true/false tests, multiple-choice tests, and short answer tests are all examples (Figure 1).

Socrative compiles real-time data from students' responses. Graphs and charts of any statistical information may be generated and analyzed instantly. The desktop and mobile versions of Socrative (i.e., on computers, smartphones, and tablets) are available at no cost (teachers do, however, need to sign up for free). Their inexpensive underlying technology has been widely acknowledged as having a profoundly favorable effect on how instructors and their students learn (Wekerle et al., 2022; Wu et al., 2022).

As Fonagy et al. (2021) point out, using the SRS approach may get students excited about studying and increase their motivation overall. Socrative have been used to implement this strategy in a variety of academic disciplines. Their use has been shown to increase student motivation and attendance in fields as diverse as reading comprehension, foreign language teaching-learning, physics, and chemistry (Bel-Oms & Segarra-Moliner, 2021; Kolisnyk et al., 2022), engineering (Chernov et al., 2021), and healthcare (Munusamy et al., 2019). Additionally, there are methods to help learners become more used to mobile learning resources (Shadiev et al., 2018). Talan (2020) confirms this perspective and points out that students have enthusiastically embraced these technology tools. Regarding how students feel about using Socrative in the classroom, there aren't any discernible distinctions between the sexes.

Some of the most notable aspects of SRS programs are the speed with which they produce results and the real-time comment they provide to educators. Many experts agree that they may be helpful for a fast and accurate evaluation of pupils and identification of learning gaps in the classroom. Students believe that Socrative facilitates their class participation and offers a more conducive atmosphere to raise questions and get feedback, as Perera & Hervás-Gómez (2021). Primary school instructors promote technological innovation, particularly M-learning, which I feel is essential for getting meaningful outcomes from students. Training in digital competencies, including the capacity to move beyond the selection and modification of resources, was verified to be necessary by Betancourt-Odio et al. (2021). Despite the numerous promising research that has been conducted on the topic, there is a lack of refinement in the process of training educators to use the M-Learning approach (Al-Rahmi et al., 2022). Studies may provide conflicting results, which may be partially a result of the technique used, the kinds of questions posed, or the topics involved.

Some writers utilize a focus/control group structure to determine how much students learned via M-Learning. In contrast, others compare the outcomes of the same students at the beginning and end of the course or compare students from different years (Abdulla, 2018).

In the opinion of some academics, the M-Learning approach has the potential to enhance students' learning in a variety of ways. Çelik & Baran (2022) finds no significant differences between the Socrative group's and the non-Socrative group's scores but do discover a significant difference between the groups on the first and final exams, suggesting a difference in the knowledge-acquisition process. Daphtary & Baloglu (2022) don't either, since they found no significant differences between the scores of the focus group and the control group.

On the other hand, the formative evaluation findings conducted in a more conventional classroom setting may at first be more reliable than those acquired in a BYOD (Bring Your Own Device) setting (Pozo Sanchez et al., 2020). They attribute this to the fact that some students may be unfamiliar with these electronic platforms. As time progressed, however, the BYOD group outperformed the regular class group regarding information retention. Parra-Santos et al. (2018) argues that tools like Kahoot and Socrative should not be overlooked because of their potential to help identify problems in the classroom. However, there are specific issues that students have run into while attempting to utilize these two applications: the need for expensive Internet access by mobile phone and the restrictions of the available Wi-Fi network.

Table 1. Advantages and disadvantages of the M-Learning approach

Possible Flaws	Possible Advantages
Using the Internet on a mobile phone	Increases motivation and interest
Wi-Fi network limitations	Improves class attendance rate
Apps need devices to be compatible.	Promotes participation and collaboration
Some students may lack experience with online settings.	- Allows preserving anonymity (masked identity) - Decreases students' anxiety level concerning questions posed in class and exam questions.
Distraction from studies by using other app.	- Immediate evaluation and comments for educators and students - More effective learning - Enables the detection of gaps in the learning process of students

This research compile what discussed so far regarding the M-Learning approach into Table 1, organized as possible benefits and drawbacks. The research by Sharma et al. (2021) notes that the quality of internet access is the primary area of focus that has to be examined to improve M-learning. Distraction from schoolwork and the need to switch attention to other apps are only two of the negative aspects of M-learning that were noted in this research. As a result, the scarcity of mobile devices compatible with the Apps, students unfamiliar with digital surroundings, and the likely restriction of mobile data or Wi-Fi network are the primary drawbacks of the M-Learning application. Studies have shown that there is a socioeconomic and racial inequality in the availability of digital technologies, with the split being most pronounced in rural regions and poorer neighborhoods (Korovkin et al., 2022; Muwani et al., 2022; Shameem & Sanjeetha, 2021; Merisalo & Makkonen, 2022). Atchia and Chinapah (2022) and similar research show that rural schools have more issues with digital learning.

In this paper, it intends to examine how incorporating an M-Learning platform into a university's regular training in high school Education Teachers program affects students' ability to absorb course materials and maintain their interest in learning while taking classes related to the Method Teaching discipline. The authors note that M-Learning has positive effects on student's motivation and interest (greater involvement and attendance rates in class) and their psychology (students can remain anonymous, which can lessen their anxiety before asking questions in class) and that it also has positive effects on students' learning (more rapid knowledge acquisition, better identification of knowledge gaps, and easier dissemination of results, according to some studies). In this paper, it tests two hypotheses: (i) that implementing the M-Learning methodology in the classroom could help identify students' knowledge gaps; and (ii) that doing so could improve students' assimilation of essential academic contents and have a beneficial effect on their initial and final evaluation. This research includes the long-term use of such methods, would be required to fully appreciate their benefits, particularly in examining the performance of learning and motivational factors.

2. Methodology

Participants

This study also employed a satisfaction survey. Two hundred and eighty-three students of the University of Education, participated (65 males and 218 women). All participants were given a Socrative account and instructed to download the app before the start of each session on their electronic device (phone, tablet, or computer). They were tested twice using the Socrative app: once at the beginning of the semester (as an informal survey) and once more after the semester (as a formal evaluation) (in the fashion of a summative evaluation). It was required that participants (a) be enrolled in one of the courses being studied, (b) not be repeat students, (c) have access to electronic devices compatible with Socrative, and (d) have a class attendance rate of at least 80%, and (e) make a commitment to completing the final questionnaire and the two planned evaluations.

Materials

This research was conducted using the app Socrative since it enables educators to administer polls, surveys, and other forms of audience participation in real-time from students' own mobile devices. Applications were also utilized in the classroom to assess students' prior understanding of the session's material or to review and reinforce topics already covered earlier in the semester. The survey has ten questions which used a 5-point Likert scale (Totally Disagree, Disagree, Neutral, Agree, Totally Agree), and ten questions used a single checkbox, checking if it meant agreement. The findings were shown on a screen during the instructor's session, sent in an email, or entered into an online spreadsheet.

Methods

A student evaluation and suggestions for improvement were analysed using a satisfaction survey created by the faculty. A multiple-choice exam with ten questions, created in Socrative, was utilized for both the first and last evaluations; only one of the four answer choices was correct. Students responded independently using their mobile devices. When all the exams were over, the students who had taken them and satisfied the requirements were given a questionnaire about their experience using the various programs. All individuals who participated in the research provided their informed permission before participation. Finally, an SPSS matrix was used to input the data gathered from the questionnaire and tests for additional statistical analysis.

Statistical Analysis

SPSS 24.0 was used to conduct the analysis. The survey's many components were adequately defined so that it may ascertain the respondents' overarching preferences. To assess the consistency between the quantitative data from the preliminary and final evaluations of each group, a test of comparison of means (Student's t-test for related samples) was also carried out.

3. Results

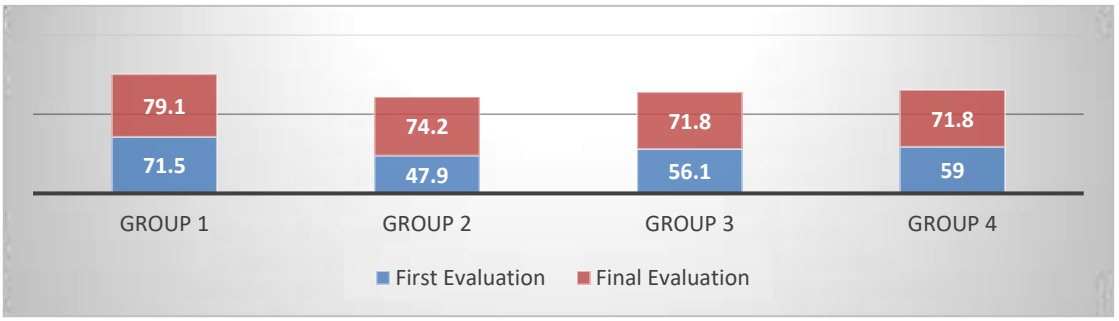

Figure 2. Students' first and final evaluation results

Figure 2 displays the data about the mean score of each group and the mean score achieved in each evaluation used in Socrative app. A total of 1.5 points separated the pre-test and post-test versions of the knowledge exam (first versus final assessment: 5.8 points vs. 7.2 points).

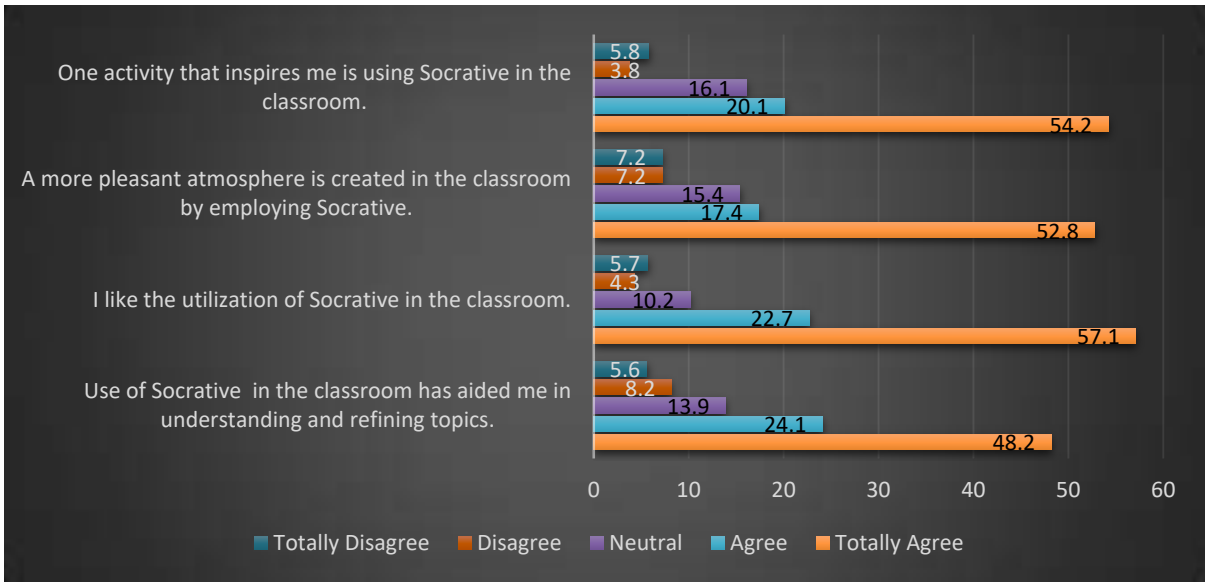

Figure 3. Motivating factors, effectiveness, and student satisfaction levels

According to the satisfaction survey, M-Learning is seen as a device that motivates students (74.3%), (ii) improves the atmosphere in the classroom (70.2%), (iii) increases student satisfaction among class attendees (79.8%), and (iv) gives students the impression that they were supported in acquiring knowledge (72.3%). Figure 3 displays these findings visually.

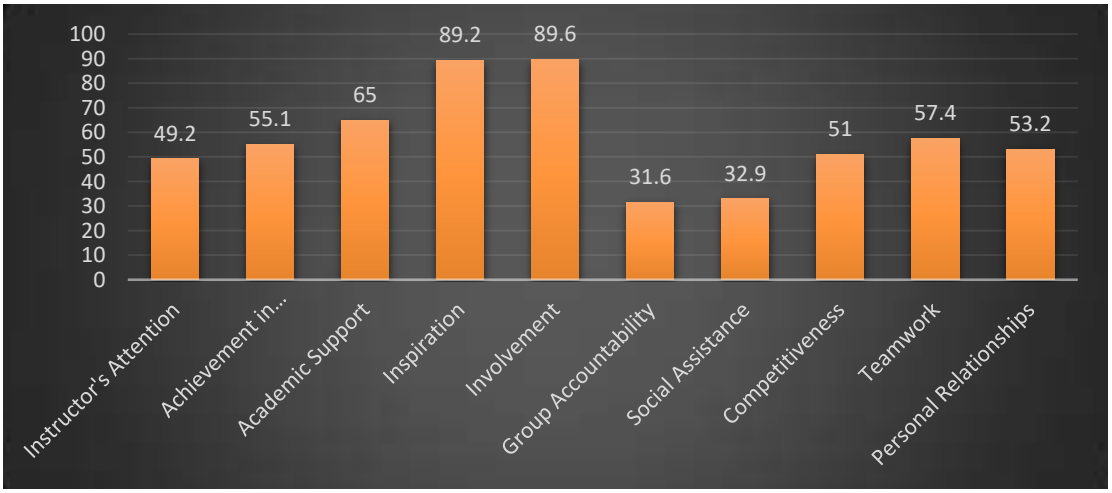

Figure 4. Student evaluations are included in the satisfaction survey's individual checkboxes

Figure 4 displays the survey's aggregated findings from responses to questions asked of respondents individually. Students placed the most emphasis on active engagement (89.6%), intrinsic motivation (89.2%), and academic support (65%).

4. Discussion

In this article, it examined the impact of the M-Learning approach on the retention of course materials and rated students' happiness and motivation. The primary findings provide credence to the idea that incorporating M-Learning into the classroom might aid students in grasping the fundamental topics covered across various course offerings, resulting in the improvement of their average final exam score. Multiple studies have shown that using a student response system based on a game increases performance and dedication while lowering anxiety during final examinations. As a result of the M-Learning concept being implemented individually, the social media component has been the least well received by learners. Figure 4 shows that the following are among the least valued: enhancing social ties (53.2%), teamwork (57.4%), competitiveness (51%), social assistance (32.9%), and a sense of collective duty (31.6%).

In addition, almost all (96%) of the course's participants felt inspired by the course. The findings are consistent with those of other writers on the pleasure and motivation of students (Donkin & Rasmussen, 2021; Pryke, 2020). A few academics have previously analyzed the benefits and drawbacks of adopting mobile devices in higher education (Fuchs, 2022; Sprenger & Schwaninger, 2021; Turan et al., 2019). Some researchers worry that this tech-based approach will have unfavorable results for educators (Li et al., 2019) and pupils (High et al., 2022). They worry that mobile gadgets will harm human communication in the classroom and that students will be distracted from learning. While I can see how this conventional perspective of schooling may make sense for younger kids, I believe that more recent research showing the benefits of mobile technology for higher education students cast serious doubt on this long-held belief.

In addition, the M-Learning strategy, one in which involvement and cooperation are encouraged, has recently been examined and benchmarked (González-González, et al., 2018). The majority of research supports its promising potential for boosting students' interest in and engagement with class material while noting that the approach is being used inconsistently in most existing studies. The issue that follows is whether or not the increased motivation in class can be maintained if the M-Learning approach can be implemented routinely - the same amount of time each week as the conventional ones. According to the findings, the likelihood of a student adopting M-learning is significantly impacted by their sense of innovation and their assessment of the technology's near- and long-term utility. It is also possible to protect students' identities using the M-Learning approach (Ramos et al., 2022). This is especially helpful for students nervous about giving presentations or performing in front of others. Chen & Yang found that students valued anonymity and quick communication most (2022). Finally, one possible benefit of the M-Learning approach is that students who are uncomfortable being the center of attention in class may feel less anxious while using this technique (Phisutthangkoon, 2021). Students are more engaged in the learning process and have less exam anxiety when using a game-based student response system, as shown by Mohamed et al. (2022).

5. Conclusions

Because of the positive effects that using Socrative has had on students' attendance, motivation, and involvement in class, as well as their retention of essential learning materials, I have reason to believe that adopting M-Learning technologies is a promising strategy for fostering more effective teaching and learning. According to the findings of this study, including the Socrative app in a classroom setting may improve students' capacity for knowledge acquisition and retention. The Socrative application might be used to execute group methods and activities to boost the importance placed on social factors, including student-teacher connection, student collaboration, and group accountability, all of which have been rated lowest in this research. I believe that multiple longitudinal studies analyzing the influence of the apps throughout a degree cycle and their link with the credentials gained (academic performance) in various courses would benefit the advancement of the subject matter tackled below.

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