

Impact Comparison of Twitter vs. WhatsApp as Micro Learning Tools in Instruction

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Abstract

Twitter is a social networking web site that helps people to get connected through tweets from different regions of the globe. In addition, each post has a limit of 280 characters, which makes each post a concise summary and micro content. WhatsApp is a free of cost communication tool that is used through electronic devices to create and forward written text, photos, videos and other related content. Micro learning can be defined as the division of information in small units and using them in small steps. This research paper is a comparative study by merging two experiments carried out on students, studied a module of Information Technology. In this manuscript these students were linked to three groups, including 'A' and 'B' as experimental groups, and 'C' as a control group. The content of the module was converted into micro content and was sent to the participants of experimental groups, using twitter (for group 'A') and WhatsApp (for group 'B') to use the content for the purpose of revision that they had learnt in their face-to-face sessions. Group 'C' attended formal mode of face-to-face classroom based lectures only. The impact of micro learning content through these electronic communication tools was measured through conducting the exams for these groups on the studied module. For the purpose of comparison, statistical means of the exam results for the groups were calculated, and compared among experimental groups and the control group. The results of the comparisons are of great interest to teachers, field experts, and other educational stakeholders. Consequently, teachers, students, field experts, and other stakeholders in the Sultanate of Oman, GCC countries, and international countries are recommended to use these information and communication technological tools through micro learning technique for their teaching and learning to achieve better learning outcomes.

Keywords: Comparison, Instruction, Micro Learning, Twitter, WhatsApp

1. Introduction

Education continues to be a vital and significant component of our lives. Teaching practices are extremely important for the acquisition of knowledge and skills. Teacher conveys knowledge and skills to students and students develop their understandings, ideas and skills.

Traditional mode of face-to-face instruction refers to a method of teaching and learning that bounds a teacher and learners to spend one, two or more hours with in a face-to-face session, to be engaged in educational related activities. Overall, most of the teachers and learners have to dedicate one third or one fourth of a day for teaching and learning activities. Consequently, both the stakeholders of the educational process get tired and bored during these lengthy hours, and underperform to deliver and attain an in-depth understanding and knowledge. Here, micro learning gets in as a solution for these long lectures (Ahmad, 2017c). Literature reveals that micro learning is a method of teaching and learning that uses digestible bite-sized learning contents in small steps. Moreover, literature also tells that twitter and WhatsApp are electronic communication tools those are extremely beneficial if used to deliver micro learning content, which elevate the intended learning outcomes towards successful accomplishment.

This research compares the effects of twitter and WhatsApp those were used to deliver the content of a course module in micro learning form to the two experimental groups, 'A' and 'B'; and compared the effects with the control group 'C'. Exams on studied module were conducted for all the groups, and the statistical mean of exam results were used to compare the impact of micro content sent through twitter and WhatsApp. Next sections of this paper are linked to literature review, purpose of study, methodology, results, conclusions and future work and references. Author has conducted these experiments separately and published the outcomes of these two experiments in a prestigious journal (Ahmad, 2019) and conference (Ahmad, 2020b). This manuscript is an integration and comparison of those two conducted experiments among experimental groups and the control group.

2. Literature Review

2.1. Micro Learning and its Benefits

Micro learning is a method in the world of teaching and learning that divides the content of a topic in tiny, and bite-sized content that is consumed in small steps (Hug, 2005). Consumption of the micro-bites of information by a learner is known as micro learning (Mosel, 2005). The use of micro content is useful in the process of teaching and learning because it helps in understanding of knowledge, and development of skills (Minimol & Habil, 2012).

2.2. WhatsApp and its Benefits

WhatsApp is an application used by electronic gadgets as a social media platform, including smart phones and other portable and non-portable electronic devices, and can send digital content such as text messages, pictures, audio and video files, web links and other digital

content (Webwise, 2018). Moreover, Webwise (2018) further elaborated that cost of WhatsApp is nothing as compared to the text messaging services of telecommunication companies.

Said (2015) stated that the use of WhatsApp elevated active participation of students in the process of teaching and learning. Students were strongly connected with their teachers, and overall the impacts of learning outcomes were constructive.

2.3. Twitter and its Benefits

Twitter is a micro-blogging site that links a huge number of twitter users around the world to share their information and ideas (Haewoon et al., 2010). A message sent and displayed on the twitter is known as a tweet that is based on micro bits of data in the form text messages, videos or pictures (Carolline, 2019). The size of a tweet on twitter is limited to 280 characters that forces a twitter user to be brief and focused (Gil, 2019).

2.4. Digital Information, Methods, and Digital/Electronic Communication in Education

Digital information and use of digital methods facilitate effective communication, and play an important role in today's interconnected world. The industry of education is using multiple digital methods for the process of teaching and learning, and overall educational ecosystem is getting positive impacts because of diverse digital integration methods. Today successful remote online proctoring can be done through different digital tools (Ahmad, 2021b). Vice Chancellors of the universities can make effective decisions based on visual digital dashboards to improve the rankings of their universities (Ahmad, 2022b; Ahmad 2023c; Ahmad 2023d). There are frameworks available in the literature those could be used as checklists by educational organizations to test the readiness towards digital mode of teaching and learning (Ahmad, 2022c). Use of Virtual Reality and Augmented Reality are new forms of digital integrations with the pedagogical processes that endeavour to enhance intended learning outcomes (Ahmad, 2022d). Integrating artificial intelligence (AI) tools are the new form integrations those are essential to be integrated with the curriculum in 21st Century (Ahmad, 2023e). The use of digital or electronic communications produce positive results (Ahmad, 2011; Ahmad, 2014a; Ahmad, 2014b; Ahmad, 2016a; Ahmad, 2016b; Ahmad, 2016c; Ahmad, 2017a; Ahmad, 2017b; Ahmad, 2017c; Ahmad, 2018a; Ahmad, 2018b; Ahmad, 2019; Ahmad, 2020a; Ahmad, 2020b; Ahmad, 2021a; Ahmad, 2022a; Ahmad, 2023a; Ahmad, 2023b; Mocanu & Deaconu, 2017).

The integration of electronic communication (e-communication) technologies with traditional classroom based instruction is a norm today, which is enhancing the learning outcomes (Auster, 2016). If twitter is used to share the micro learning content with students, the learning outcomes get enriched (Ahmad, 2020b). WhatsApp is a supportive tool if used for sending micro content of learning to the learners that effects the learning outcomes in a positive way (Ahmad, 2019).

2.5. Blended Learning

Blended learning is the mixing of different teaching methods with traditional face-to-face instruction (Poon, 2013). When digital information is mixed with formal method of classroom based teaching is known as blended learning (Ahmad, 2019). Blended learning helps to elevate the abilities of learners ((Nazarenko, 2015).

3. Purpose of Study

The purpose of this study was to compare the impacts of two experiments conducted on two groups of students, 'A' and 'B', and comparison of their results with control group 'C'. All the groups had studied a course module of the subject Information Technology. Micro learning contents were sent to groups 'A' and 'B' through twitter and WhatsApp for the revision of topics learnt inside the formal face-to-face classroom based sessions. Group 'C' (the control group) was taught through formal face-to-face classroom based instruction only. Comparison is based on the statistical group means of exam results for these three groups.

4. Methodology

This research is a comparative study centred on two experiments conducted through micro learning technique on the two groups of students, 'A', and 'B' within a blended learning environment, and their comparison against the participants of a control group 'C' those did not use these e-tools, and studied in a formal face-to-face classroom based environment. These students had studied the course module titled 'Computer Fundamentals' of the course 'Basic Computing Skills'. The contents of this module were converted into micro content using twitter and WhatsApp for groups 'A' and 'B' respectively. For twitter, the number of participants for group 'A' was 21. The learning content was divided with a maximum limit of 280 characters, to convert the information as micro; keeping in view the freely allowed limit provided by twitter. Learners used portable e-gadgets to read the tweets to revise their lectures, attended by them in a face-to-face session; consequently, that was a blended learning environment.

Likewise, the same contents of 'Computer Fundamentals' were divided to micro content for WhatsApp. Total number of participants for this group 'B' was 15. As WhatsApp permits to

send written messages, auditory stuff and videos. Therefore, written messages were limited to 280 characters that is the free allowed length by twitter. Moreover, the audio podcast were recorded for less than 5 minutes to make the content micro. Participants were requested to listen a single podcast at a time. The next podcast should be heard after a gap of 10 minutes. In addition, pictures were used to describe the contents of this module and participants were requested to see the pictures for a maximum of 5 minutes, and gap of 10 minutes should be given to have a look on other pictures. The process was started by sending recoded micro audio podcasts, then micro definitions of the contents, and finally pictures were sent.

Total number of participants for the control group 'C' was 36. This group had attended formal face-to-face classroom based lectures.

Exams were conducted for the studied module, and evaluation was done to compare the impacts of these e-tools on the exam marks of groups 'A' and 'B' as compared to the exam marks of the control group 'C'. Statistical means of exam results were taken to compare the effects among these groups.

5. Results

Figure 1 and Table 1 show the statistical means of exam results conducted for the three groups 'A' (twitter), 'B' (WhatsApp) and 'C' (Control group). It is obvious that twitter supported students of Group 'A' (that used twitter as a tool of micro learning) to get better marks (8.06% extra marks for each student) as compared to the control group 'C'. Likewise, it can be seen that WhatsApp elevated the marks (7.73% extra marks for each student) of Group 'B' (that used WhatsApp as a tool of micro learning), as compared to the control group 'C' that was under the formal face-to-face instruction only.

Table 1: Analysis of Exam Results

Group Means of the Exams conducted for Groups 'A', 'B' and 'C'		
Total Marks of the Module: 15 Marks		
Group Mean of exam conducted for group 'A' (used twitter)	Group Mean of exam conducted for group 'B' (used WhatsApp)	Group Mean of exam conducted for group 'C' (Control Group) – face-to-face instruction only
9.7	9.65	8.49

Difference of Means Group A – Group C $\Rightarrow 9.7 - 8.49 = 1.21$ \Rightarrow Conversion to percentage $\Rightarrow 1.21 * 100/15 = 8.06\%$	Difference of Means Group B – Group C $\Rightarrow 9.65 - 8.49 = 1.16$ Conversion to percentage $\Rightarrow 1.16 * 100/15 = 7.73\%$	
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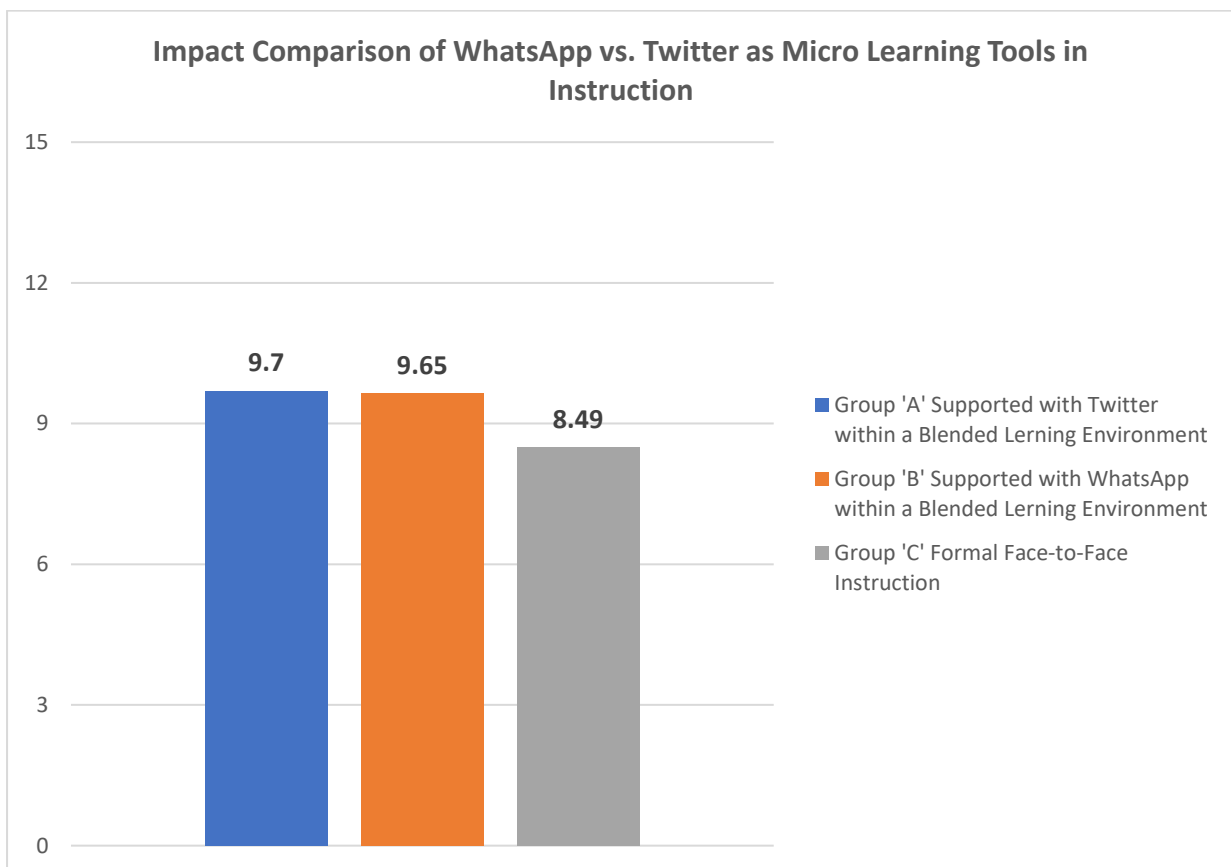


Figure 1. Statistical Group Means of Exam Results - Groups 'A', 'B' and 'C'

6. Conclusions and Future Work

Blended learning is a method of integrating different other methods or digital content with formal face-to-face instruction, and is known as a useful method in the process of teaching and learning. Twitter and WhatsApp are tools of information and communication technologies. This research provides empirical evidences that twitter and WhatsApp have elevated the exam marks of experimental groups 'A' and 'B' as compared to the control group 'C', and are almost

equally effective (twitter's group mean = 9.7; and WhatsApp's group mean = 9.65). Therefore, the use of these e-tools through sending the course topics as micro learning contents within a blended learning environment is extremely useful; consequently, when digital content is used with face-to-instruction within in a blended learning environment the results are constructive.

Hence, twitter and WhatsApp as micro learning electronic communication tools within a blended learning environment are productive and helpful, and a great addition to the field of education. Dear teachers, field experts, specialists, heads of educational institutions and other key stakeholders in the Sultanate of Oman, GCC countries, and international institutions; please do not wait anymore. Start using twitter and WhatsApp as electronic communication tools of micro learning within a blended learning environment to improve the intended learning outcomes. Moreover, it is worth mentioning that the use of twitter and WhatsApp is economical, known by everyone, do not need heavy installations of any specific software, and can be used without any specific requirements of software usage trainings.

As a future work, micro learning content could be planned, prepared and shared through virtual reality and augmented reality applications, websites, blogs, and other electronic communication tools to evaluate their impacts.

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