International Journal of Information Technology and Language Studies (IJITLS)

Assessment of the Applicability of using Telegram as a Learning Management System

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Article Information

Article type: Original Research

Article history:

Received: August 14, 2021
Revised: December 02, 2021
Accepted: December 10, 20xx

Keywords:

E-learning,
Learning management system,
Social networks,
Telegram application.

Abstract

This paper studies the applicability of using a Telegram application as a learning management system (LMS) and compares its performance with the traditional in-class hall teaching method. The study was conducted during the critical time of the Covid-19 social distancing policy and percussions in January 2021 at the Department of Computer Engineering at the Faculty of Engineering of Alzaiem Alazhari University in Sudan. The study is based on a designed survey questionnaire covering 58 students on six courses, three delivered online through Telegram, and three delivered through traditional in-class. The analyzed results obtained from the designed experiments conclude that a Telegram is an acceptable medium to communicate the learning materials (video and lecture notes) and provide an acceptable level of learning interactivity. Furthermore, the average success rate of students in the courses taught via Telegram was better than the courses taught in the classroom.

1. INTRODUCTION

With the growth of knowledge at rapid rates and technological advancement, educational technologies have developed, and modern terms such as e-learning have emerged. E-learning is a set of processes associated with transferring various types of knowledge and science to the learner using computer networks and information technology tools. These tools are used to access various online teaching and learning resources (Clark & Mayer, 2016; Liaw & H.-M. Huang, 2013). Today, learning systems specialists believe that e-learning has realized any the time any place degrees of freedom to the educational process by making use of a set of ICT technologies that facilitate the learning process between the teacher and the learner (Arkorful, Valentina, & Abaidoo, 2015; Dabbagh & Kitsantas, 2012). Furthermore, E-learning is one of the best methods of distance educations. Historically, with the beginning of radio broadcasting technology, radio is used in the education process. After a while, and by the coming out of television and modern video devices, the processes of distance education were developed but indeed it is efficiency frontier was pushed behind by making use of computers and ICT technologies (S. Bennett, 2012).

E-learning is divided into two methods: synchronous e-learning and asynchronous e-learning. Synchronous e-Learning is real-time-like learning. In this learning method, the learners and the teacher are online and interact at the same time from different locations. They deliver and receive the learning resources via mobile, video conference, Internet, or chat. Synchronous e-Learning is gaining popularity because of improved technology, Internet bandwidth capabilities, and communication system infrastructure such as the 5th generation cellular systems(Saeid & Osman, 2017). On the other hand, Asynchronous eLearning is a pause-and-resume kind of learning. In this type, the learner and the teacher cannot be online at the same time. Asynchronous e-Learning may use technologies such as email, blogs, discussion forums, e-Book's CDs, DVDs, etc. and the Learners may learn at any time, download documents, and chat with teachers & also with co-learners (Gao, 2013; Hrastinski & Stefan, 2019).

In 2020, we had different opinions of university students towards the process of e-learning during the global crisis of the Coronavirus pandemic (Covid-19). During this closedown time, all the educational operations in schools and/or

universities in all countries around the world were either closed or partially/ completely delivered online without even appropriate preparation and technical orientation.

In January 2021, with the spread of Covid-19 in Sudan (Health, 2021), an e-learning system has been applied by a lot of educational institutes in the country. During this time, e-learning was applied to three courses to the seventh semester of the computer engineering program at the Faculty of Engineering of Al-Zaeim Al-Azhari University (AAU). This action was taken by the faculty to reduce the number of students' attendance at university buildings. The switch over to e-learning in AAU was applied using Telegram so fast and without preparing a qualified e-learning platform or conducting any orientation training. In this paper, we study and analyze the perception of the learner on using a Telegram as a Learning Management System at AAU. The remainder of this paper is organized as follows: section 2 summarizes the related works; section 3 explains the data collection and experiments design. Section 4 presents the results and discussion and section 5 concludes the paper.

2. RELATED WORKS

Learning Management System (LMS) is a platform designed to manage the development, tracking, and delivery of learning content and experiences to the learner with the goal of improving their skills, productivity, and capacity building. Today, as a result of the development of the ICT and LMS systems, the switch from traditional in hall teaching to the E-learning system has become a global trend (Elfahal, 2021). During the Covid-19 social distancing policy, the transformation to online went fast. During this time, institutions including schools, high schools, and universities around the world have suspended their traditional courses and migrated to a model of online education (Al-Hujran, Aloudat, Al-Hennawi, & Ismai, 2013; Butnaru, Valentin Nit, Anichiti, & Brînză, 2021; GiorgiBasilaia & Kvavadze, 2020). Also during this outbreak time, it is reported that a lot of ICT less fortunate communities/institutes are changing their conventional learning methods to e-learning systems using telegram programs. Even in the recent literature, there were many studies looking at how students perceive Telegram Classroom as a learning tool (Gyane, 2021; Iqbal et al., 2020; Kusuma & Suwartono, 2021). These studies revealed that during the COVID-19 pandemic, many factors influence students' online learning processes using Telegram, including utility, ease of use, ease of learning, and satisfaction. Thus, Telegram is a great way to improve the talents, abilities, discipline, and self-directed learning of students by providing them with teaching materials in less ICT-equipped institutions. This study explores the potential benefits of integrating Telegram into online teaching undergraduate computer engineering program and compare it with the traditional in hall learning.

3. DATA COLLECTION AND EXPERIMENT DESIGN

The purpose of this study is to make a comparison between a low-cost e-learning management system platform (based on A Telegram social networking system) and Traditional lecture hall Learning systems and also to find out if the Telegram program is effective and can be used for distance teaching process or not? During the critical time of the Covid-19 social distancing policy and percussions in January 2021, the Department of Computer Engineering at the Faculty of Engineering of Alzaiem Alazhari University in Sudan decided to teach a part of the program courses online to reduce the number of students inside the faculty building. Because of the unavailability of a professional LMS platform, the department decides to provide the learning material to the learner via the Telegram social network system. The data collected for this study is from the seventh-semester computer engineering program. For evaluation and comparison, the study experimental methodology was designed to weigh up the Online teaching with Telegram versus the Traditional in lecture hall teaching methods. Table 1: list the six courses considered in the study associated with their corresponding method of teaching as considered in the study design.

Course Code	Course Title	Course Teaching Method
CO 421	Computer Technology I	Online
EE 431	Digital Circuit Design II	Online
CO 411	Introduction to Communication	Traditional
CO 441	Multimedia	Online
CO 401	Electromagnetic Field	Traditional
CO 431	Computer Architecture	Traditional

Table 1. Methods of Teaching for the Seventh Semester Courses as considered in the experiment design

At the beginning of the semester, a total of 58 students were asked to install the Telegram application on their smartphones or laptops. After that, the e-learning coordinator was asked them to enter the channels and groups according to the links announced to them and their corresponding lecturers. After one week of the starting of the online semester, the students were asked to fill up the first form via an online survey. The initial online survey questionnaire form consists of three questions developed and published using Google form. The objective was to get an initial assessment of the teaching

method and to know if the students were able to understand the lecture remotely, and to know whether the content of the lectures was received by them or not? This initial assessment was important to see whether it is better to complete the online courses via Telegram or not? After the end of the online semester, the students were asked also via online survey questionnaire consisting of 8 questions developed and designed to evaluate Telegram as an LMS system. Finally, the closing results obtained by the class (from both the online courses and traditional in hall courses) were used to compare a Telegram as a LMS tool and the Traditional in hall teaching method.

4. Result and Discussion

Referring to the designed experiment for the initial learning assessment, evaluating a Telegram as an LMS, and learning method comparison, in the next section, we use descriptive statistics methods to explain and discuss the obtained results and show out the take-home ideas.

4.1 Initial Learning Assessment Results

As explained in the previous sections, the first survey questions were developed to know the ability of the students/ learner to download the educational content and make use of it. The result shows that 92% of students were able to download the first lecture learning materials (video and lecture notes). The result of the second survey question reflects that 75.6% of the students were able to understand the learning materials. Furthermore, 70.5% of the students' learners prefer to continue the teaching of the selected courses via the Telegram applications.

4.2 Evaluating the Learners ideas about Using a Telegram as an LMS

As elaborated in the previous sections, the second survey questions were developed to evaluate the learner's perception of using Telegram as an LMS. The first survey question is about the learner's previous experience with using Telegram application as an educational tool. The pie chart of Figure 1 shows that 25% of the students have not used the Telegram tool for educational purposes in the past. But because it is an extremely simple application, they easily cope with using it.

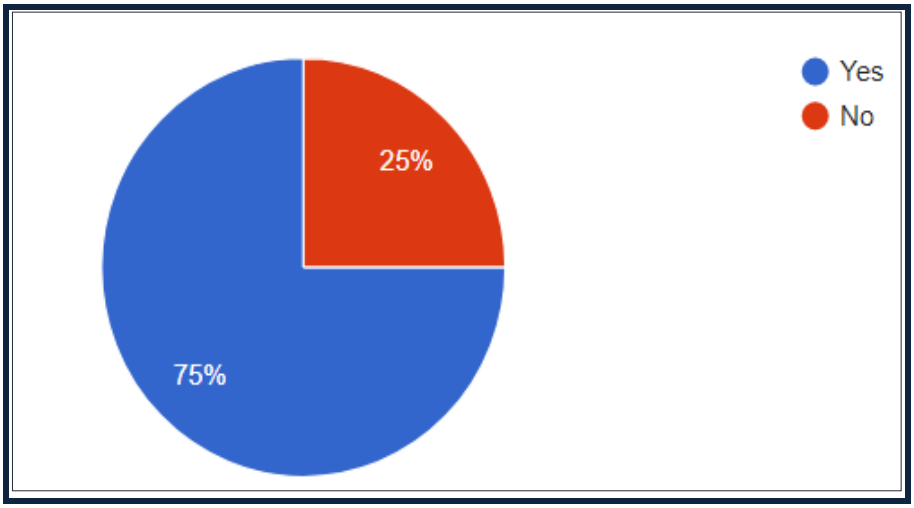

Figure 1. Student experience on Telegram as educational tool

The second survey question was about whether remote teaching with Telegram has made it easier to share the educational notes and videos and providing limited feedback? The pie chart of Figure 2 shows that 44.7% of students/ learners strongly agree that using Telegram makes it easy for them to share the educational content.

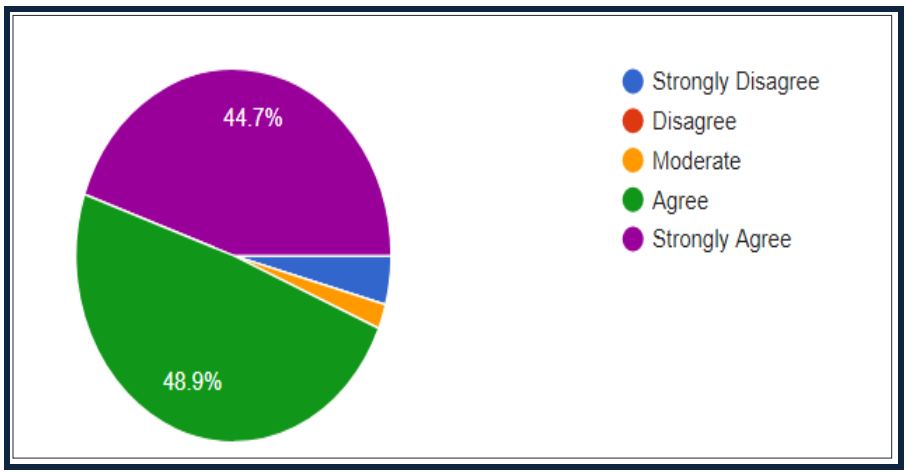

Figure 2. Learners' reflection on Telegram as a tool for educational content sharing

The third survey question was on whether the qualities of notes, assignments, etc. Communicated using Telegram was sufficient for learning? The pie chart of Figure 3 reflects that only 2.2% strongly disagree.

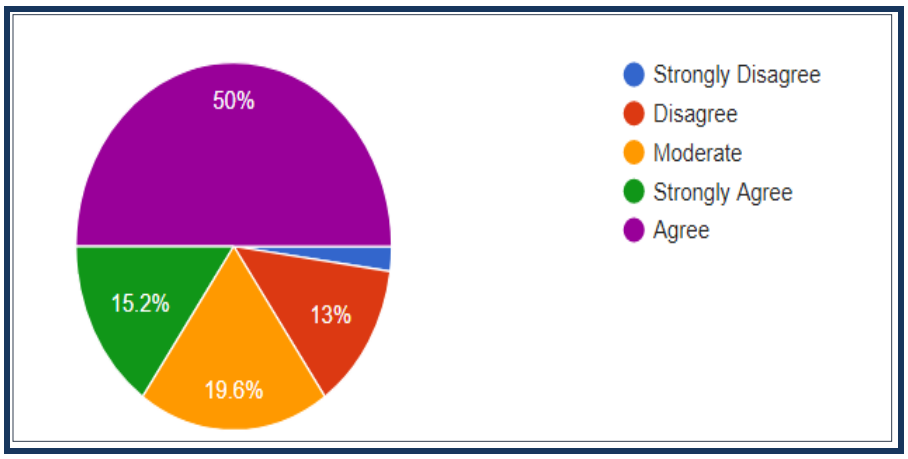

Figure 3. Students' reflections on qualities of notes, assignments, etc.

The fourth survey question was on whether a Telegram as an LMS system improved the students learning process? The pie chart in Figure 4 reveals that only 4.3% of students/ learners strongly disagree.

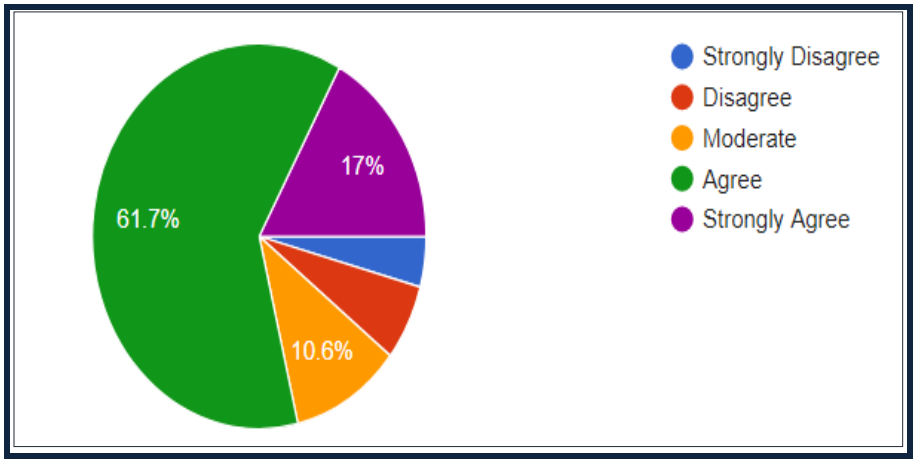

Figure 4. Answering the question, whether a Telegram improved students' learning process.

The fifth survey question was whether the Telegram allows the students to interact with lecturers more effectively? The pie chart in Figure 5 shows that only 4.3% of students/ learners strongly disagree.

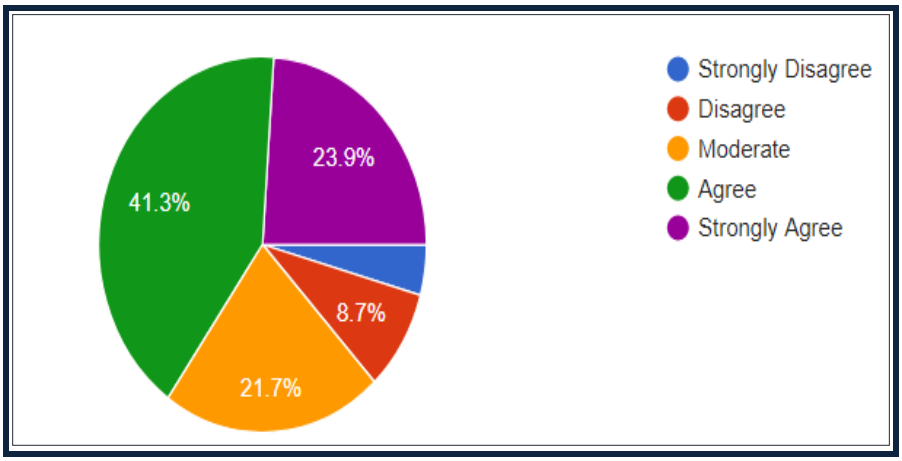

Figure 5: Reflection of the learner on whether the Telegram allows for students to interact with lecturers more effectively

The sixth survey question was on whether a Telegram should be used for other courses next semester? The result on the pie chart in Figure 6 shows that only 6.4% of students strongly disagreed.

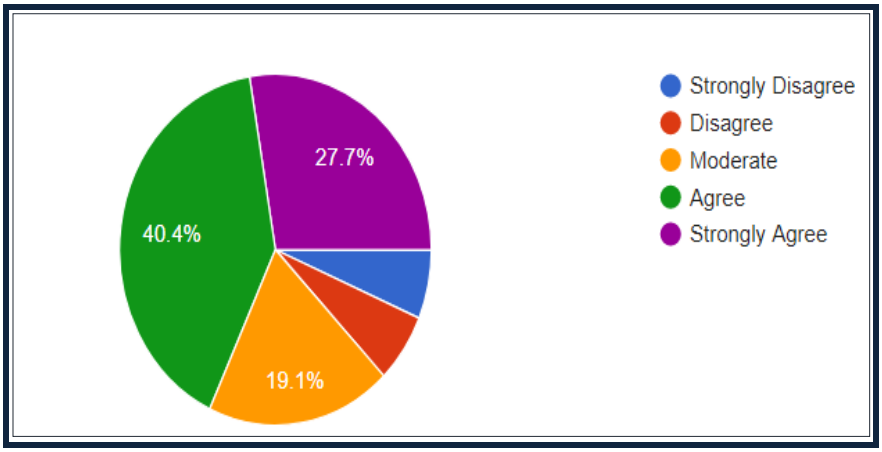

Figure 6 Results of the question on whether a Telegram can communicate other courses in the next semester

On the seventh and the eighth survey questions the learner were asked to qualitatively list the main merits and demerits of the Telegram as LMS system. Among the most notable benefits listed by the learner for a Telegram as LMS system are:

a) Easy to use (has a simple interface).
b) The best option e-learning system for less fortunate communities having ICT difficulties (to access professional LMS systems).
c) Providing any time any place access to the learning material
d) Made the teaching process easier.

On the other hand, the most picked demerit point mentioned by the majority of the learners is the problem of internet connectivity.

4.3 Comparison Between the Online Teaching with Telegram and the Traditional in lecture hall Teaching methods

Finally, the final closeout results of the courses listed in Table 1 were analyzed based on courses outcomes. Figure 7 shows the percentages of the success for the courses. The results showed that the average success rate of students in the courses taught via Telegram was 94.7%, and the average success rate of students in the courses taught in the traditional in hall classroom was 84.2%.

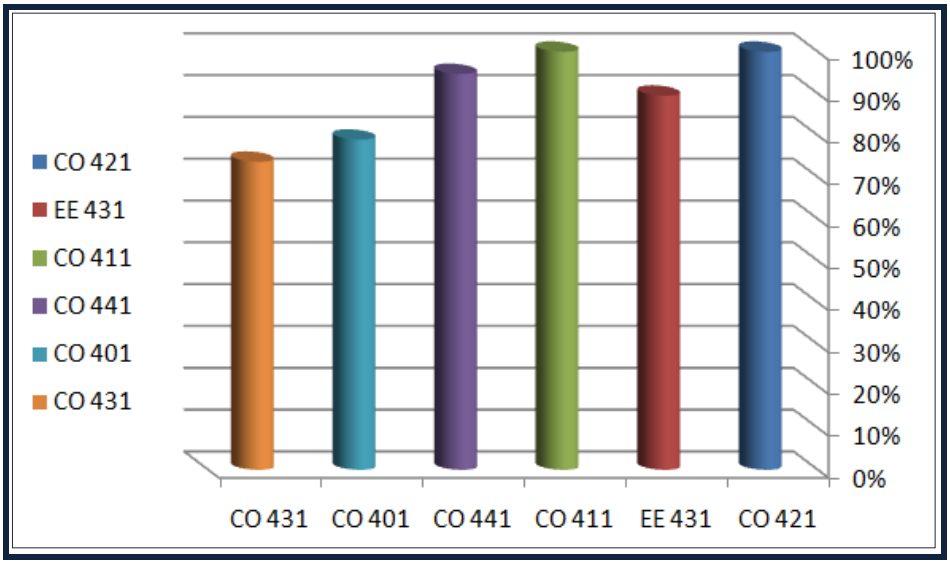

Figure 7. Success rates for the seventh-semester courses

5. CONCLUSION

This paper evaluates the learners' receptions about using a Telegram as an LMS medium for less fortunate ICT-equipped communities during the critical time of the Covid-19 social distancing policy and percussions in January 2021. The purpose of the study was to compare the low-cost e-learning management system platform (based on social networking system), and the traditional lecture hall learning systems and find out if the Telegram program is effective and can be used for the distance teaching process or not? The analyzed results obtained from the designed experiments conclude a Telegram is an acceptable medium to communicate the learning materials and provide an acceptable level of learning interactivity. Furthermore, the average success rate of students in the courses taught via Telegram was better than the courses taught in the traditional classroom.

References

Al-Hujran, O., Aloudat, A., Al-Hennawi, H., & Ismai, H. N. (2013). Challenges to E-learning Success The Student Perspective. Paper presented at the International Conference on Information, Business and Education Technology

Arkorful, Valentina, & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. International Journal of Instructional Technology and Distance Learning, 12(1), 29-42.

Butnaru, G. I., Valentin Nit, ă., Anichiti, A., & Brînză, G. (2021). The Effectiveness of Online Education during Covid 19 Pandemic—A Comparative Analysis between the Perceptions of Academic Students and High School Students from Romania. Sustainability, 13(1-20).

Clark, R. C., & Mayer, R. E. (2016). E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning: John Wiley & Sons.

Dabbagh, N., & Kitsantas, A. (2012). Per-sonal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. The Internet and Higher Education, 15(1), 3-8.

Elfahal, H. S. (2021). IMPLEMENTATION OF E-LEARNING SYSTEM CASE STUDY FACULTY OF ENGINEERING - AL-ZAIEM AL-AZHARI UNIVERSITY – SUDAN. Humanitarian & Natural Sciences Journal 2(7).

Gao, F. (2013). A Case Study of Using a Social Annotation Tool to Support Collaboratively Learning. The In-ternet and Higher Education

GiorgiBasilaia, & Kvavadze, D. (2020). Transition to Online Education in Schools during a SARS-CoV-2 Coronavirus (COVID-19). Pandemic in Georgia Pedagogical Research, 5(4).

Gyane, S. O. J. (2021). Perceptions of Students on The Use of Telegram During the Covid-19 Pandemic. Acta Informatica Malaysia (AIM), 5(1.), 21-24. .

Health, S. M. o. (2021). Covid-19 spread statistcs Retrieved 31/7, 2021, from https://fmoh.gov.sd/Acess

Hrastinski, & Stefan. (2019). What do we mean by blended learning? TechTrends 63(5), 564-569.

Iqbal, M. Z., Alradhi, H. I., Alhumaidi, A. A., Alshaikh, K. H., AlObaid, A. M., Alhashim, M. T., & AlSheikh, M. H. (2020). Telegram as a Tool to Supplement Online Medical Education During COVID-19 Crisis. Acta Inform Med, 28(2), 94–97. doi: 10.5455/aim.2020.28.94-97

Kusuma, L., & Suwartono, T. (2021). STUDENTS' RESPONSE TO THE USE OF TELEGRAM IN ENGLISH CLASS DURING COVID-19 PANDEMIC. Journal of English Education and Applied Linguistics, 10(1), 20-35.

Liaw, S.-S., & H.-M. Huang. (2013). Perceived satisfaction, perceived use-fulness and interactive learning environments as predictors to self-regulation in e-learning environments. Computers & Education, 60(1), 14-24.

S. Bennett, e. a. (2012). Implementing Web 2.0 technologies in higher education: A collective case study. . Computers & Education, 59(2), 524-534.

Saeid, E., & Osman, W. (2017). 5th Generation Cellular Communication Systems Enabling Technologies and Challenges. INTERNATIONAL JOURNAL OF INNOVATIVE TECHNICAL AND APPLIED SCIENCES, 1(1), 19-25.