



4th International Conference on Innovative Data Communication Technology and Application

Employment of Technological-Based Approaches for Creative E-Learning; Teaching Management Information Systems

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Abstract

One of the most critical areas of concern in the online learning process is to design engaging courses that are easy to follow and interactive to keep the audience attracted when there is no in-person communication between instructor and learner. Online courses may be challenging for learners, instructors, and institutions as well. However, the employment of creative approaches incorporates into online training strategies aims to make learning more interactive for learners. This case study discusses the employment of a range of creative e-learning strategies and online technological tools to deliver knowledge in a virtual environment based on collaborative learning, learning by doing, and team-based learning techniques. Common challenges of e-learning faced by the instructor and learners and the way they are approached are also discussed. The introduced approach has been employed in a Management Information Systems course as a case study.

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Peer-review under responsibility of the scientific committee of the 4th International Conference on Innovative Data Communication Technologies and Application

Keywords: E-Learning; Technology-Base Learning; Creative Teaching; Information Systems; Innovative Teaching; E-Education; Teaching Excellence; Management Information Systems

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1. Introduction

Efficient knowledge transfer is the key to sustaining success and development. The advancement of technology has made knowledge transfer and learning processes faster and more convenient and online learning through the Internet and web applications has enabled individuals to study globally. The Internet has provided people from all over the world to gain equal education opportunities and simply transfer knowledge. Online learning through the Internet and web applications enables individuals to study and teach from anywhere in the world in a cost-effective and time-saving manner [1]. Especially with the coronavirus outbreak and the limitation of in-person classes, virtual education has been welcomed. Furthermore, the hectic lifestyle, ease of internet access, and increase in access to educational tools are other reasons for the popularity of online courses [2]. The major customers of e-learning services are schools, universities, educational institutions, and the training department of industries. In industries, employees' efficient performance is significantly reliant on frequent and regular education; however, since employees are almost busy attending in-person courses, delivering the training material by e-learning makes a significant contribution to keeping them updated. E-learning is an online learning platform that emerges in a formal context and employs a variety of multimedia and communication technologies for a convenient learning process [3]. E-Learning is moving toward more inclusive developmental approaches with the necessity to deliver more interesting, effective, and engaging e-learning courses [4].

Flexibility is the main advantage of online learning. Unlike the traditional or face-to-face learning method, online learning and distance education have improved businesses and education systems in many aspects [5]. Distance education provides students with the opportunity to get connected to their counterparts in different parts of the world while the instructor assigns them in teams to deliver group assignments remotely and engage in video calls and distance meetings unlimitedly [3].

One of the main advantages of online learning over traditional classrooms is that it provides a better opportunity for students to get control over their activities by collecting material shared by the instructor and searching as well since their curiosity may be amplified through online learning [6].

Electronic learning or e-learning is a formalized education system based on electronic resources such as computers, tablets, and cellular phones that are connected to the Internet. E-learning is also referred to as web-based training or online training, which is the acquisition of knowledge happening through electronic technologies. It includes numerous types of media that deliver text, audio, images, animation, and streaming videos, and includes applications such as audio, video, and CD-ROM. Electronic learning relies on technology to enhance and expand the learning experience aiming to provide a pleasant and effective experience for all parties. These technologies are designed to develop and deliver individualized and comprehensive learning content that is accessible anytime and anywhere [5]. While there are different definitions for e-learning, it is generally accepted that e-learning is a process in which teaching, and learning are facilitated by computers and other associated technologies [7]. Despite the benefits of online learning, it is also challenging in terms of keeping the audience engaged and transferring knowledge fully. Online course contribution factors could be categorized into two parts including trainees' dependent items such as age, comprehension capability, the value and necessity of the learning as well as incentives and e-learning dependent items such as difficulty level of content, length of the training session, and on-line training schedules, the degree of fun, creativity and innovation in presentations, and finally the level of meeting trainees needs and expectations. Thus, creative approaches are required to be employed by instructors and institutions to ensure quality online education. Considering the challenges of online learning, this case history introduces approaches to address the challenges of e-learning through the employment of a range of creative methods.

2. Literature Review

Scholars described e-learning as a time and cost-saving method of learning and development [8]. Based on the findings of a study conducted by Brandon Hall Group, e-learning saves around 60% of training time [9]. Previous studies on e-learning discussed great outcomes of this learning method, such as performance enhancement [10], improved thinking skills [11], and learning motivation through interactive e-learning applications [8]. Electronic

learning holds promising power to enrich knowledge and skills through interactive applications, such as Qstream, isEazy, and Raptivity. These applications are generally designed to include interactive media which encourages participation in learning activities and motivation. The environment of the classroom and students' expectations are also constantly changing as a result of technology developments. Technology provides a more advanced learning environment and supports education in many aspects by providing the opportunity to integrate a range of cross-disciplinary elements to deliver a lesson [6].

Creating an effective e-learning program requires accurate planning. Also, educators need to be aware of the challenges that are associated with the online or distance learning process [12]. Adjustment, lack of clarity, and lack of motivation are the major challenges that educators may face during an e-learning course. Adjustment is one of the common challenges that educators may face when switching from traditional or face-to-face learning to online or distance learning. As online learning is not dependent on any specific physical space and it is accessible regardless of time and location limitations, it would be challenging for some individuals who are used to a specific learning environment like a classroom or library [13]. Therefore, educators should do their best to ensure that e-learning channels, time, and approaches are convenient for all learners and that all learners are enabled to freely interact with the educators and respond to their questions [1].

Laziness is the natural attitude of the human brain. According to this fact, individuals highly prefer to stay in their comfort zone and not thrive. However, strong motivations could stimulate the brain to reveal enthusiasm toward e-learning and keep it focused within training sessions. Generally, arousing the feeling of satisfaction from e-learning is the main challenge. Investigations in this regard represent fun and joy as well as quenching the thirst for achievement as the main incentives for attending e-learning classes and gaining desirable results. Therefore, obtaining a curriculum that takes advantage of creative methods based on noted motifs could turn e-learning into an attractive and full of pleasure tool.

Consistently, scholars suggested that effective e-learning requires planning and development [11]. The first step in the planning process is to set clear and achievable learning objectives. Online learners are required to be clear about the goals of learning and their tasks during the learning process. The next step is to define the learning content, which ties into the goals of the e-learning course and the level of online learners' knowledge about the subject of the course. The next step is to select the best approach for teaching the subject matter. There are various channels and applications for distance learning, such as Web-based learning applications, computer-based learning applications, and virtual classrooms. The selected e-learning channel should be accessible to online learners. Also, a systematic feedback collection is required to ensure that e-learning methods are convenient and useful. Feedback collection after each program helps identify the barriers to effective learning, select effective methods of problem-solving, and improve the system [14].

It is true that the Internet contains lots of information on any subject matter and e-learning enables individuals to explore different areas of knowledge and access various sources of information. However, the abundance of data brings along a negative side recognized as "lots on the Internet". In other words, it is likely to lose direction and get disoriented by having unlimited access to sources of information [14]. However, the main reason is the lack of clarity when it comes to instructions and the solution is to set real-time interaction with the educator or the instructor who explains the roles and clarifies individuals' tasks [10]. Thus, to employ the benefits of applying distance learning techniques, the negative impacts should be reduced through efforts by instructors to facilitate the transition [2].

3. Methodology

The objective of this case study was to study the employment of creative approaches in the virtual learning environment. These e-learning approaches have been built up based on theories, principles, and research in educational background, and they were then applied in the Management of Information Systems case course. The purpose of this study is to investigate the elements and processes of e-learning systems in virtual learning environments in higher education and describe the applied e-learning approach in the virtual learning environment in higher education. This study seeks to identify some creative methods and processes of e-learning in virtual learning environments in higher education and examines if these approaches and methods are effective to deliver knowledge in the virtual learning environments in higher education.

The employed methodology in this case study is a combination of student engaging and collaborative learning based on the approach of learning by doing in a team-teaching environment. These approaches have been integrated with case-based strategies to deliver material efficiently in a virtual environment in teaching the Management of Information Systems (MIS) course. The main focus of this approach was to ensure that students are engaged in class material and stay connected to their classmates and the instructor for knowledge transfer. The applied methods are described in a multiple-phased process as they have been performed in the case course from beginning to end. All learners should follow the process of learning activities to ensure educational goals are achieved [14].

Activities that are employed in the case Management of Information Systems (MIS) course to increase the productivity of e-learning are listed as the following.

3.1. Activity 1: Initiation

At the beginning of an online course, it is challenging to break the ice in a virtual environment in comparison to in-person classes in which students have the opportunity to get connected simply through meeting each other in a physical classroom. Performing an icebreaker activity is expected to help students stay focused on the class material [14]. Otherwise, students are not expected to feel comfortable engaging in-class activities and ask their questions in case the icebreaker process has not been performed. This may lead to failure in meeting academic achievements and isolation accordingly. In a remote course, shy students are more likely to leave their webcam off in a teacher-oriented manner in which some students can be solo listeners. However, the instructor needs to provide a dynamic relationship to achieve expected academic performance. Thus, the icebreaker plays a crucial role to ensure all students are getting to know each other, building comradery, and eventually learning better together. Solving the tension and saturation in the classroom through a range of activities to make the class more conducive and fun before starting to deliver the main material of the course is referred to as an icebreaker [14]. The ice breaker activity eliminates boredom, fatigue, and anxiety from the classroom by leading to do fun and free activities [14]. The proposed icebreaker in this case study was based on student collaboration in which all students were expected to participate actively by watching a video. At the beginning of the course, a short meaningful video around general subjects but still related to the subject of the course was shared with students. Then, they were asked to share their ideas and feeling about the video. This could be also considered a virtual brainstorming session in which brilliant ideas emerge. Thus, students were expected to share their ideas without any judgment with their classmates. This is also a method to ask students about their background education and job experience. The instructor plays a critical role in this method to use a sense of humor and make students connect to each other by finding similarities and differences in their perspectives.

3.2. Activity 2: Engagement

In a traditional class, the instructor checks the attendance of students and moves to deliver the core activities. However, in a virtual class, students are likely to lose commitment to follow the class material as there is no in-person interaction [14]. To address this challenge, students were assigned to breakout rooms by the instructor. Breakout rooms in virtual learning are suitable to engage students by offering a cooperative learning method [15]. Thus, the instructor plays a significant role to guide students through the learning activity and effectively manage the learning process [14]. Students were then asked to tell their expectations of the class, their personal commitment to this class, and their concerns in this class to their teammates. One of the team members was responsible to summarize the responses of group members and deliver them in three statements. Setting rules and defining expectations in determining members' roles and leaders' roles was also helpful to moderate the virtual environment. For example, the leader was responsible to ask each member to share ideas about the questions in oral or written forms. This solution could also help the instructor to realize concerns and feedback of learners anonymously and manage them accordingly. Also, it could help learners to stay focused and stick to their personal commitments. To ensure all students are engaged in this activity, the instructor joins each breakout room for a few meets trying to make the discussions collaborative.

3.3. Activity 3: Teamwork

As another solution to facilitate virtual learning, breakout rooms are employed. Students' interaction and participation decrease in virtual classes as students are likely to get demotivated because of a lack of involvement. Employing breakout rooms to put students in groups by splitting large groups into smaller groups of students facilitates collaborative learning and increases interaction between the students in each breakout room as well as between students and the teacher [15]. Breakout rooms are an active learning method to connect students into smaller groups that may feel more comfortable sharing ideas and completing a task in a virtual classroom platform [16]. Virtual classroom platforms facilitate organizing the classroom content whether it is video, presentation, file annotation, or PDF file. At the beginning of each class, students were assigned to breakout rooms. In groups, they were expected to determine a leader. The leader was in charge of asking all members to participate and summarizing their responses to present the output of the teamwork to the class as soon as the deadline of the teamwork is met. Assigned tasks to each team were different aspects or considerations of a single concept. For example, each principle of a concept could be given to a single team to discuss and conclude ideas. This ensures that the presentation of each team remains engaging for other teams since they are not listening to repetitive theories. Besides, students were asked to share their real-life experiences regarding each concept to ensure they understand the material deeply and can make an effective network with their classmates based on their background knowledge, job experience, or preferences. All students are asked to collaborate in team activities. To ensure effective collaboration of all learners, roles are shared among team members and the results of each team are presented by team members.

3.4. Activity 4: Evaluation

Evaluating the understanding of material and class participation can be also challenging in virtual environments in comparison to physical classes. Despite many benefits of virtual classes, they may have negative impacts on student academic performance and the student's performance evaluation as well [17]. Employment of virtual classroom platforms; however, offers a wide range of features to assess learners and ensure their class participation through online quizzing and poll for feedback. To ensure students are listening actively to class material, they were required to design a question around the subject area as soon as the material was delivered through a lecture. Then, students were expected to ask their prepared questions by selecting a random number that is assigned to each student. If the question was appropriately responded to, the respondent would gain a positive mark and ask a question from another learner. The game continued till the material is deeply understood by most of the learners. This question-and-answer class activity ensures the instructor that the class is collaborative as all students are required to participate in this part of the class. Besides, by the end of each session, students were expected to visit the question-and-answer forum to respond to the questions regarding the material that was delivered in the class within a certain deadline. This could help the instructor to get feedback about the depth of understanding and discuss the most challenging topics in future sessions. Eventually, students were also expected to deliver their offline case scenario within certain deadlines. The participation of students in the case scenario could be evaluated by sharing an online form in which each student scores the role of other team members. Thus, the overall evaluation of the case scenario was extracted from the average score that each member obtained from other members. Another solution to provide effective virtual learning, storytelling is one of the most powerful active e-learning tools that engage students to collaborate effectively. In this case study, case scenarios have been prepared regarding the subject matter and students were asked to discuss their viewpoints in separate breakout rooms through a combination of storytelling and a role-playing activity. Thus, group members were expected to play different roles in real-life case scenarios. For example, in a business case, one member is required to play the role of an unsatisfied customer and another member can play the role of the sales manager. Thus, all students could share ideas, possible feelings, and solutions to proposed challenges in each case. This activity was also assigned as team homework to ensure students are making their network and collaborating effectively in teams. Thus, students could get prepared for their roles and present the scenario in a group presentation. At the end of the term, students' collaboration in team activities is evaluated by their teammates through a form asking all team members about the performance of others.

3.5. Activity 5: Use of Technology

The virtual environment is so potential to make learners bored and distracted since there is no in-person interaction. Technology-based group activities that are designed based on a range of blended technologies help to ensure students are engaged since they provide a team-teaching environment. For doing this, Jamboard which is a free online tool was employed as a digital whiteboard that provides a collaborative experience for teams [18]. A range of different creative activities were prepared, and the link was shared with members of each breakout room to collaborate mutually. This freely accessible technological solution offers pens and colors to share ideas on the whiteboard in real-time, sticky notes and flashcards to brainstorm ideas together, and highlight objects using the laser pointer tool. Different concepts related to the class material could be shared and discussed in groups using the digital whiteboard. The digital whiteboard could be also used for the question-and-answer part of the class in which each learner types of the answer on the digital whiteboard anonymously. Thus, it increases the likelihood of students' collaboration in the activity since they are not afraid of being judged by others. Effective online learning employs available technologies and content to facilitate the learning process rather than forcing online learning [19]. It may be challenging for virtual learners who are commonly avid tech lovers to take paper notes in online classes. Besides, material in online learning may be delivered to learners through different platforms and file formats including documents, videos, images, voices, and texts. It may be challenging for students to collect all relevant material for review and future reference purposes. Thus, technological tools to take digital notes and categorize them as soon as they are delivered and exported from anywhere and on any device were also introduced to interact with students. Since some scanned documents or pictures may be shared with students, they could also use digital note-taking tools to convert them into text notes or attach them to their messages. An all-in-one inclusive collection of learning material facilitates the learning process for students and ensures the instructor that no learning material is missed. Thus, students can employ an online note-taking tool to save recorded voices, videos, screenshots, documents, and images in a categorized order.

4. Future Directions

The effectiveness of the applied approaches in this study has not been analyzed and compared in numbers due to access to data limitations and the scope of the study. However, to ensure the effectiveness of each activity, students' evaluation scores in this course should be extracted and compared to other similar courses. Besides, surveys are required to ask students about their level of understanding, feeling, and perspectives regarding the effectiveness of learning in this approach. They can also be interviewed to share their thoughts about each employed activity in this course. For future studies, it is recommended to collect data and further look into the effect of each activity by analyzing students' evaluation scores, survey results, and in-person interviews.

5. Conclusion

The importance of delivering creative approaches in teaching is highlighted since a considerable shift has been witnessed in the classroom environment by the spread of e-learning. E-learning courses are required to assure the attendee's improvement in competency, knowledge, and skill by providing accurate and applicable processes for knowledge transfer. In this case history, methods that have been employed in an online MIS course to ensure that the class is collaborative, and students learn by doing in a team-based environment have been introduced. The feedback received from students by taking technology-based approaches in teaching MIS and students' evaluation records has demonstrated the success of the approach; however, to realize the reliability of the approach in comparison to similar teacher-oriented e-learning courses should be analyzed using students' evaluation records in different courses. Also, a systematic feedback collection is required to ensure the proposed e-learning methods are convenient and useful. Feedback collection after each program helps identify the barriers to effective learning, select effective methods of problem-solving, and improve the system.

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