

Conference Paper

The Use of ICT in English Practice at Mechanical Engineering Classes

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Abstract

This study evaluates the use of Information and Communication Technology (ICT) tools as supporting features in teaching learning progress for student of mechanical engineering. Related to the sufficient of physical instrument provided by the staff management, Information and Communication Technology (ICT) tools are now available and ready to be used and applied in teaching and learning progress in the Department of Mechanical Engineering, State University of Jakarta. But still several obstacles are emerged due to the access to the internet. This paper focuses on the availability to use ICT tools in teaching English in the department of mechanical engineering to develop student achievement in Basic Technical English course. This research article argues that the physical equipment and facility are not the main factor in maintaining the use of ICT while the lack of access to the internet may embrace the progress in teaching learning activity. This study discusses the methods and techniques in teaching and learning progress that can be used to cope with the poor access to the internet. As a conclusion, using ICT tools in teaching and learning activity through off-lined activities can help students in acquiring effective communicative competence in English lesson. The method of investigation used to collect the data was observation sheets supported by some interviews conducted in department of mechanical engineering, State University of Jakarta. The participants of research were the students who had taken the course.

Keywords: information and communication technology (ICT) tools, effective communicative competence, off-lined activities, internet access

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Received: 11 January 2019

Accepted: 14 February 2019

Published: 25 March 2019

Publishing services provided by
Knowledge E

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Selection and Peer-review under
 the responsibility of the 3rd
 ICTVET 2018 Conference
 Committee.

1. Introduction

Information and Communication Technology (ICT) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. Though the ICT tools in Department of Mechanical Engineering, State University of Jakarta are sufficient and ready to be used and applied in teaching

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and learning activities in the classroom, they have not become the main component in the activities.

Some studies had discussed the benefit of using ICT in the education, for instance [1] found that exposure to computers in schools influenced the career choices of former students; [2] stated that advances in social media technologies and learning management systems have changed the ways in which video materials can be used in teaching and learning; and [3] also suggested that information and communication technologies (ICT) can and do play a number of roles in education. But most lecturers the department have never clearly stated the ICT competencies in their teaching activity. It has never been examined whether lecturers are using ICT in accordance with achieving their goals in teaching and learning process or not.

According to the syllabuses model the lecturers made in Department of Mechanical Engineering, innovative teaching practices using ICT are still far away from realization. The use of ICT for the student, if the department want to apply a student-centered learning, cannot be realized in the short term. It needs several times to do so. The students' (as well as most of the lecturers') knowledge about ICT integrated into teaching and learning will be 'the next project'. Educational technology comes up with the facility that may assist different teaching and learning activities which the lecturer may not have used or considered. The appropriate teaching and learning activities is dependent on several factors such as the curriculum or course objectives; i.e. the purpose of the teaching and learning, the learning styles of the student and the availability of certain facility that be used in the classroom. One of the most common problems of using ICT is to provide technological possibilities to run some programs in teaching and learning rather than educational needs. This is a contra productive situation compare to the sufficient facilities and equipment the department has.

The department has virtuous facilities in every classroom to be used as the aid in teaching and learning. In every single classroom, a set of computers, the CPU and the monitor have been settled on the desk of the lecturer. This computer set is also connected to a wide screen monitor attached on the wall in the front of the classroom so that all students can see it very clearly. The computer set can only be accessed by the lecturer to avoid the students from using it during a rest time or whenever the lecturer is out of the class. To access the computer as well as the internet connection, an account and a password are needed. An IT staff hired by the department has the authority to give all lecturers an account to log-in. This person is also responsible to manage the use of the computers, the screen, the network access and the maintenance

of the devices. The computer has been connected to internet by a Wi-Fi access, called a hotspot, but with a limited speed access.

Teaching and learning process in Mechanical Engineering will tend to have their activity regarding to achieve the goals by using less ICT tools. To introduce the use of ICT in the whole progress of education for lecturer and student, lots improvement needs to be facilitated first. Access for internet is one main aspect. Thus, the use of the internet in this department cannot be assumed as sufficient when it is related to the use of an online material in the teaching and learning activity in the classroom.

The need for the speed of the internet access is another expensive thing to get. A lecturer may try to convey teaching and learning activity assisted by ICT with unstable connection to the internet or even with a very limited access to internet, but the result may be frustrating since opening a website cannot be done quickly. For example, opening a website will spend more than 5 minutes. Consequently, the impact of using ICT tools in the format of using the online material or program software in education could not be evaluated yet. But still there is another way for the lecturer to use the ICT tools in the classroom meaningfully by applying an off-line material resource. These such resources can be downloaded from the internet or be created by the lecturer or even by the students themselves. To download material through the internet access provided by the institution needs patience and times consuming. Users of the internet can have a better access to internet with a fast speed by using other providers. Unfortunately, to get a fast access and a good connection to internet they need to pay more.

2. Methods

Speaking is an interactive process of constructing meaning that involves producing and receiving and processing information [4]. In addition, its form and meaning are dependent on the context in which it occurs; including the participants themselves, their collective experiences, the physical environment, and the purposes for speaking[5], [6]. It is often spontaneous, open-ended, and evolving. However, speech is not always unpredictable [7], [8]. Speaking in the front of the class room is not a skill that comes naturally to most students in department of Mechanical Engineering, State University of Jakarta. Students in this department tent to have lack of self-esteem when they were about to speak in English in front of their classmates. The students thought that English was difficult because they had to memorize the conversation pattern, as the result the students are reluctant to perform it in the front of the class.

To overcome this problem, the writer applied a collaborative learning strategy through a self-recording video project to improve their learning motivation in speaking activity. This method was chosen because it can help these engineering students overcome their shyness and motivated them to speak up [7], [9]. To make Engineering students talk, it might be quite helpful and supportive, to build a comfortable circumstance [10], [11]. This approach will give the students the knowledge how to give effective, persuasive presentations on topics in their field and their ability to present their own presentation without worrying of being embarrassed by their fellow classmates during his/her presentation [7], [12]. The expecting result is not on the fluency of their pronunciation or the grammatical correctness but the implementation of their understanding of the content of material and the mean of communication in English [13], [14].

Through self-recording video project, students are led to be motivated to speak English without hesitation. This expected result might be reached since they know there were no spectators by the time they produced oral communication. Students are believed to be much more relaxed for practicing their speaking ability without being watched by other students [15], [16]. Underlined by Cooperative Language Learning approach, the activities were focused on the idea that teaching should make maximum use of cooperative activities and interactions to identify students speaking mastery through the video project and the discussion pertinent to speaking proficiency [17], [18].

The research was conducted in one cycle consisting of three meetings. Each cycle consists of four stages: planning the action, implementing the action, observing the action and reflecting on the observation. The subject was two classes of D3 Mechanical Engineering program in department of Mechanical Engineering, State University of Jakarta. The first classes consisted of 21 students and the second consisted of 22 students. The data were the students' recorded videos. The data was taken through the following activities:

1. Students were shown a movie about a mechanical engineering activity taken from www.youtube.com in the classroom. The movie was chosen randomly by the students themselves. Since each classroom in the department of Mechanical Engineering has already had sufficient ICT tools and facilities, the movie could be directly shown in the classroom. When the access to the internet in the classroom is stable, the students were asked to choose and watch the movie directly from the internet access for its authentically material reason. After watching the film, the students then had a discussion session about it. From the students' perspective the writer, as the lecturer then asked the students to form a group of 5 students and gave all group to prepare a group work by recording the activity. **This presentation**

stage of teaching and learning process was done in the first meeting. The works of each group would be presented and shown in the classroom on the following meeting.

2. **The production stage** of teaching and learning process was in the second meeting. After all group work had presented their video project, the students were asked to give their opinion and suggestion about all works. From the opinions and suggestions, the writer and the whole class members then created the formula of doing the video project. The formula would be used to conduct the individual video project. Each student was given a task to create their own presentation of their activity in mechanical engineering work. The tools and devices used in the presentation and the procedure of the work should be in the real world and in the real time. Students might record their activity by using any ICT tools the students had such as smart phone, compact camera, video camera, or any device that can record the process in an audio-visual format. The students were permitted to choose any of activity they like most but had to have different theme and topic from others.
3. In **the evaluation stage**, the students' works then analyzed by the writer. For the feedback of their individual work, the writer as the lecturer explains the strengths and the weaknesses of the result. Furthermore, the writer displayed one of the videos from the other class. The writer then discussed the meaning of the words heard in the video along with the students. The common mistakes the students made in the video then analyzed and given some suggestions to make it better and meaningful.
4. The data collected from the videos then processed, which was viewed and given some notes on each work. The notes consisted of:
 - The duration of the video
 - The number of sentences the student could produce
 - The meaningful sentences the student could produce
 - The synchronization between the action and the words.

3. Results

All video were then checked by watching it one by one. Each student's video had notes regarding its strengths and weaknesses. The notes collected from their video were

used as the source of the discussion in the classroom. Then, the students were asked to form a group to create a better collaborative work in the next session of using ICT tools in the project of a group presentation.

Name	Length	Name	Length
5353125036 Ahmar Abiyad.wmv	00:08:19	aditya - 5353127374.MOV	00:07:13
5353125037 Harianto .3gp	00:08:07	agung andriyanto 5353127375.mp4	00:01:28
5353125039 Bantu Kristian .mp4	00:05:31	Ahmad Abidin 5353127377 Tugas B.Ingggris.3GP	00:08:31
5353125040 Ichado R Simanjuntak.3gp	00:05:25	Angga Gunawan D - 5353127382.mp4	00:05:32
5353125041 Try Gunawan.3GP	00:05:27	azis darmawan.avi	00:05:10
5353125046 Agung Eko.mp4	00:04:40	Budi Yulianto 5353127385.avi	00:06:48
5353125050 Chatrin Jelita.3gp	00:02:50	Dwi Amalia.avi	00:05:36
5353125051 TRI BUDI PRASETYO.wmv	00:06:30	DWI FADHLURRAHMAN.mp4	00:07:49
5353125054 Muhammad Johari.MOV	00:06:32	eko achmad.avi	00:05:38
5353125055 AGENG.wmv	00:08:29	Fajar Soemardi.mp4	00:07:15
5353125058 Ahmad Jamaludin M.wmv	00:05:31	fredi anggih awan.avi	00:03:34
5353125060 Bungaran Gabriel.MOV	00:09:52	Moh.Royan Abdillah.mp4	00:04:00
5353125064Dika Febriyanto.wmv	00:07:30	muhamad fauzi apriyana 5353127403.mp4	00:10:23
5353125065 Gumelar Pajar W.mp4	00:07:31	Muhammad Ridho P. 5353127405.mp4	00:06:08
5353125066 RIZKY DARMAWAN.wmv	00:07:59	Nur Riyansyah.mp4	00:05:35
5353125072 Hari Din Nugraha.wmv	00:05:13	Putra Triguna.mp4	00:04:55
5353125075 LADIKA.wmv	00:07:15	Raden Rifqi H alwafi - 5353127412.mp4	00:05:07
5353125080 RIO JUNJUNGAN T.mp4	00:08:35	rahmat hidayat.mp4	00:05:53
5353125083 Geyanda Bagastara.mp4	00:05:23	Rivali Ramadhan.mp4	00:06:32
5353125084 Perry Haganta G.mp4	00:05:12	Rizkal Arsyia 53535127416.mp4	00:05:24
5353125085 Hefflin Perdana Putra.wmv	00:05:20	Sigit Setiawan 5353127417.mp4	00:05:04
		syarifudin 5353127418.mp4	00:05:00

Class A

Class B

Figure 1: List of Students' video and length of time of the video.

From the result of the discussion, the students were forced to make a draft of the words they need to be used in the pair presentation in the following meeting. They are also giving an opportunity to practice their presentation using their own video project as the reference, but with some improvement from the discussion in the previous meeting. There is a significant difference according to the interpretation of the data in the video project and the students' presentation in the classroom. Most students were able to produce simple sentences in explaining their works while they were performing a short presentation.

4. Discussion

This study has two major purposes. First, the study is to find out the proper equipment and facility that can be used to achieve best impact of using ICT in teaching learning progress in teaching Basic Technical English for the students of department of mechanical engineering, States University of Jakarta. The second is to find out suitable activity using ICT tools in the classroom.

All equipment and facilities provided by the department may not support the use of ICT in the teaching learning process since there is no stable or fast access to the internet. Without enough access to the internet does not mean that the lecturer cannot afford the teaching learning activity using the ICT tools. There are a lot of activities to conduct an exciting progress of teaching learning by using ICT tools facilitated by the staff management of the department in this such condition combined with the ICT tools owned by the students. The combination of the two resources may lead to the attractive teaching and learning activity in the classroom.

Students can use ICT to find out information and to gain new knowledge in several ways. They may find information on the Internet or by using an ICT-based encyclopedia such as Microsoft Encarta. They may find information by extracting it from a document prepared by the teacher and made available to them via ICT, such as document created using Microsoft Word or a Microsoft PowerPoint slideshow. They may find out information by communicating with people elsewhere using email, such as students in a different college or even in a different country[19].

Students can use ICT as part of a creative process where they must consider more carefully the information which they have about a given subject[20]. They may need to do simple program like carry out calculations (e.g. by using Microsoft Excel), to check grammar and spelling in a piece of writing (perhaps using Microsoft Word), or they may need to re-sequence a series of events (for example by re-ordering a series of Microsoft PowerPoint slides) to the more complex application and software such as present a good presentation using Prezi, Flipbooks, or even the most complicated program like Claroline.

5. Conclusion

According to the previous discussion regarding the result of the video project, it is concluded that the use of ICT tools through students' recorded video can improve the students' learning motivation in speaking activity. The use of ICT helps lecturers and students to improve the quality of education[1], [3], [21]. Moreover, ICT can enhance the quality of education in several ways: by increasing learner motivation and engagement by facilitating the acquisition of basic skills, and by enhancing teacher training. ICT is also transformational tools which, when used appropriately, can promote the period to a learner-centered environment. ICT such as videos, television and multimedia computer software that combine text, sound, and colorful, moving images can be used to provide challenging and authentic content that will engage the student in

the learning process[6], [22], [23]. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic sketches, and other performance conventions to force the students to listen and become involved in the lessons being delivered. Compared to any other type of ICT, networked computers with Internet connectivity can increase learner motivation as it combines the media richness and interactivity of other ICT with the opportunity to connect with real people and to participate in real world events[13], [24].

Students can use ICT to present their work in a highly professional format. They can create documents and slideshows to demonstrate what they have learned, and then share this with other students, with their lecturer, and even with people all around the world via email. ICT tools can make teaching and learning process effective and efficient and more attractive. In contrast, ICT tools were not always easy and ready to use due to insufficient technical supports at the institutions (the department or campus) and limited access to Internet[1], [19], [24]. In this situation, ICT prevent lecturers to use ICT in the classroom. Shortage of class time and time needed to learn using ICT were also considered as another barriers for lecturers to integrate ICT into the curriculum and activities[20], [25], [26].

After practically, the result of this study will be useful for, first, English lecturers by using ICT tools in their activity to deliver the knowledge. The earlier, students' achievement can be improved with the use of ICT tools in the classroom during the progress of teaching learning activity.

Acknowledgement

This research was held in the department of mechanical engineering classes and fully-supported by the coordinator of the machinery technology study program State University of Jakarta and the staffs. The writers would like to thank their colleagues, students as well as other lecturers for their contribution and support to the research. The researchers would like to thank the technicians of the Mechanical Engineering Workshop, CNC Laboratory, and Automotive Workshop in Faculty of Engineering, State University of Jakarta.

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