

# Application of Digital Tools for Improving Learning

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**Abstract**—The use of technology in the classroom is an issue that is constantly evolving. Digital age students learn differently than their teachers did, so now the teacher should be constantly evolving their methods and teaching techniques to be more in touch with the student. In this paper a case study presents how were used some of these technologies by accompanying a classroom course, this in order to provide students with a different and innovative experience as their teacher usually presented the activities to develop. As students worked in the various activities, they increased their digital skills by employing unknown tools that helped them in their professional training. The twenty-first century teacher should consider the use of Information and Communication Technologies in the classroom thinking in skills that students of the digital age should possess. It also takes a brief look at the history of distance education and it is also highlighted the importance of integrating technology as part of the student's training.

**Keywords**—Digital tools, on-line learning, social networks, technology.

## I. INTRODUCTION

TEACHERS of the XXI century must renew their teaching methods as ICT (Information and Communications Technology) can provide these possibilities. Now our students are not learning as they did in the past decades, i.e., the teacher gave his lecture for 1 or 2 hours and students remained static listening and following the instructions of the teacher. Now with existent technologies, such as smartphones, students are reviewing their Facebook status, uploading their photos to Instagram or sending some 'tweet' through Twitter. It is intended to support with this claim that teachers who do not change their way of teaching, are already away from their students. However, the use of ICT in the classroom entails to train the faculty in pedagogical issues to be aware of the implications this will have on the process of students learning and how they adopt these technologies.

The teacher can now choose to create an account for academic purposes on Facebook and then create a group with students to share news of the subject or leave any academic activity. Many times the classroom limits us in terms of time or space, but using technological platforms allows us to be at the forefront, three examples will be given. First, on YouTube you can find videos that support the cathedra being taught, either because they share a video about the subject or because they can see how students from other universities make or have made a technological project. Second, the contents of the subjects are not updated as often as technology advances, but if we are to improve our cathedra, we can share any resources

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(manual, book or page) that have just been published. Third, we can use this group as a virtual platform to post activities in some new digital tool; which is the objective of this work.

Applying ICTs in classroom sessions, can be moved the space in which there is interaction with students to virtual platforms in which you can continue classes from unlimited domains. In developing countries, it is common to find that workspaces are limited or nonexistent. That is, the computer classrooms are not equipped properly, do not have an appropriate network structure, WiFi access is limited or very low speed, all of the above and many other aspects. However, we realized that engineering students get to have (mostly) more sophisticated computer equipment that they are provided by the University and even have high-speed internet at home. Therefore, many different activities can be planned that make use of all devices at their disposal (computer, smartphone or tablet etc.).

When designing tasks that go beyond those that would normally be assigned in the classroom, we promote in our students various skills they must have to complement their graduate profile: responsibility, commitment, self-motivation, teamwork, research, abstraction of ideas, etc.

This research project was developed with the aim of integrating digital tools alternative to a classroom course. The challenge was twofold, firstly that teachers have had to make the planning of the most appropriate unit of learning, on the other students in the group had to be convinced of the benefits of making digital tools differently their school activities. The project was conducted in a college located in Jalisco, Mexico, was taken as reference the subject Project Evaluation of the eighth semester of studies in Computer Systems Engineering.

## II. STATE OF THE ART

### A. The Importance of ICT in the Teaching-Learning

There have been several studies that have been carried out to justify the benefits of applying ICT in the classroom. As mentioned in [1], several studies show that the use of new technologies in the classroom is essential to allow students to operate in the information age. Institutions continue to prepare their students in the traditional manner, while they are not ready not to compete in IT organizations today. As mentioned in the study, students have used to improve basic skills such as memory retention, increased motivation and deepen their learning.

With unlimited access to content information such as the Internet, students can get lost in a world of false or misleading content. In addition, the more advanced students may want to explore or advance their studies to outcomes that are not necessarily expected by the teacher. So once again, almost as in traditional education, the teacher must handle with

intelligence and skill, the learning of the students, in order to achieve this, it must be selected the best content online available, as well as establishing learning objectives to such students.

### *B. Overview of Online Education*

Distance education has been a constant in human affairs. In the early twentieth century were common correspondence courses, courses in which through natural shipping and receiving of materials courses that lend themselves to this modality were taught. Later there were courses via television, in Mexico it was created a whole infrastructure around this system: the "telesecundarias" (school via television). However, television has not been the only means of self-instruction is known, other courses have been by audio tapes, cassettes and video conferencing; and in more recent times: digital books, courses and MP3 comprehensive platforms for distance courses 100%.

Much has been written and continues discussing and researching the platforms 100% online, perhaps the most widely used is the Moodle platform, a platform that has allowed institutions to provide not only online courses, but also provide Bachelors, Masters (Grades) and Doctoral completely online. The integration of online courses for a university as part of its academic offerings should not be taken lightly or because it is fashionable, must be based on a proper course planning. For this, institutions may be based on designs online courses to outline what they want to get as expenses skills of their students.

One such model was proposed by [2], which consists of four stages: Design, Development, Evaluation and Review. The authors propose that an online course is improved through various activities such as lectures, tutorials, tools, communication, administrative and support tools. It is also mentioned that establishing an online platform should include constant review to maintain an updated and nice interface to students.

### *C. Learning through Mobile Devices and Social Networks*

According to [3] in a survey conducted by CourseSmart, it was found that college students can't go long without checking their digital devices (such as smartphones), that's one of the reasons because young adults are so dependent on them. Reference [3] also tell us about the fact that many colleges have sensed the evolution of this technology, so they've been creating a certain amount of apps for the smartphones in order to communicate better with their students, and also offering them a richer set of functionalities.

When it comes to a social media perspective, [4] describes the use of it for education based on four aspects: social interaction, a platform for sharing, content publishing and to increase participation. In this study, we agree with this author due to the following: students became more interactive; secondly, the teacher and students were able to share ideas, files and assignments on a communal wall; thirdly, Facebook was a great platform to share a set of papers, related-books, videos and other related content; then, it was a

stupendous way to increase and motivate their participation since they could be monitored.

In [5] is stated the importance of the literacies of social media that both teachers and students should have. These are: Attention, Participation, Collaboration, Network Awareness and Critical Consumption. All of these are important capabilities that everyone should have when using and studying on the internet and through social media.

It is recommended to go through the works in [3]-[5], to discover the many similarities that these authors have in common for topics such as the hesitance to adopt mobile phones for education and the many recommendations on how to conduct a course through mobile devices and/or social media.

## III. METHODOLOGY

### *A. Focus*

The research approach is qualitative, according to [6] this approach "used data collection without numerical measurement to discover or refine research questions in the process of interpretation." This approach also includes the perception of the individual and it is in this area where the study deepened.

### *B. Research Design*

The research is quasi-experimental as in [6], the design of the groups are already formed at the time of research and can handle at least one variable. In this case, the students already knew each other and each unit could manipulate the activity that would be carried out as part of the study. In addition, as part of the design is the fact that this is longitudinal, as it was conducted over a semester of work with study subjects in question.

### *C. Method*

The method is inductive since it is going from the particular to the general, that is, with this case study are thinking to apply their results in all students of this university, to demonstrate the benefits is the application of ICTs in their learning processes.

### *D. Variables*

The independent variable is conformed by all the techniques that were used to improve the experience of the students but also to test their abilities and skills in digital environments. The dependent variables are the applicability of certain tools (ie both was feasible or not use this activity as part of the unit) and the degree of utilization (how much students could have benefited or not to have used the tools to be indicated).

### *E. Collection of Information*

After each activity, a questionnaire in Google Docs platform in which they were asked questions anonymously for them to express how they felt having worked in a different way than they had ever done was enabled.

#### IV. RESULTS

The way to carry out this work can be summarized as the end of each learning unit, students had to develop some activity related to the subject in a digital tool that teachers had previously investigated to assess the relevance of using it. Following this activity a simple online survey to know their perception of itself it is applied, but also for their reviews or contributions to improve research. The way it was in contact with the students was through a Facebook group created in them and where they were just teaching; group that also took advantage to share with their peers the tasks were left with each Unit.

##### A. Blogs

While blogs are well known on the internet, it was thought that students create their own Google Blogger Blog scientist so that they could share with their peers. Information from other sources, images, videos, but especially that offered analysis of the researched and substantial criticism: For this activity typically included the results of documentary research, but was changed to include the Blog took issue. With particular emphasis on the latter because care must be taken in students from any discipline to be critical of what is researched, to not only investigate and deliver the mere reporting of research. Finally, the activity invited to comment on the blogs of their peers.

##### Survey Results

According to discharges results, students report that they find it the ultimate homework this way because they can know the ideas of their peers. They say that it takes them longer to do the tasks in this way but the end result is quite attractive and are significant. All agree that they could learn more about the issue when carrying out the task of selecting and analyzing information.

##### B. Flipboard

Flipboard is a tool to create your own e-zine. Through an innovative yet simple design once you create your magazine with topics that he is interested and can keep adding sections or subsections. He asked the group to employ this tool were looking for the sources of information they would need to write your Blog. This tool is available for both smartphones and Web, for those who were able to download on your device could be working from it.

##### C. Mind Maps Online

ExamTime is a website that allows the creation of mind maps online. Doing this activity is common in class, but doing so online they changed the picture, allowing them to share resources with other peers (URLs, videos, images, etc.). But above all, it is remarkable that before they couldn't know the work of their peers neither express their points of view about them.

##### Survey Results

Students rated as good to very good perception of the usefulness of the tool. 66% of them felt that the mind maps

online is an innovation over work it the traditional way. Finally say they like more the idea of a mind map that performing a test and that serves as a graphical way to capture your ideas.

##### D. Forum Index

Google tool also offers discussion forums. For which two teams among the group members were formed and each was given a topic of discussion for Spillage their opinion on different topics yet interrelated. This activity is chosen by allowing the teacher to monitor the contributions of each student as well as the quality of the opinions. You can see which of them is really interested in the subject and also documented to participate. Is omitted working online also can be shared to create digital resources necessary to support their claims.

##### Survey Results

Fortunately most of the reviews were favorable for this activity. Foremost among other issues in a debate in the classroom cannot comment because they are not informed while doing so online can be documented enough to make a judgment of value. We also mention that in the lounge feel embarrassed to face discussion while being online can participate more freely and when you have the real taste of it through.

##### E. Nearpod

Nearpod is an application that allows the participant to submit a job with direct slide on the screen of their mobile devices. It is ideally designed for the teacher's use as it can make real-time assessments, for example; but it was thought to give a different aspect to which Nearpod offers and instead all students presented their work directly using this application. Those who could not go could be witnessing through the Web because the tool allows this mode.

##### Survey Results

In this case, mixed results were obtained. While all were struck by the tool and were asked to present it in this new way, it is true that they believe Prezi is best known to make their presentations.

#### V. CONCLUSION

For work performed during this investigation it can be concluded that students are always willing to work on alternate platforms that they already know, and even more if these are digital. The teacher should encourage teaching methods that make use of at least one of these ICTs. Also you do you feel the student is at the forefront, you can get in touch with him through social media to continue the work covered in class.

Each activity must have apedagogicalbackground, because digital tools must not be used just because. There should be a proper planning of the activities to be used and especially the digital tool to be used for the student to discover what is causing him to result in a greater benefit in his education and school achievement.

Teachers who read of this paper are invited to participate by posting cases similar success to the present to which in turn we can also apply to our students and to build increasingly teaching twenty-first century: a teaching of the digital era.

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