

# Advantages & Challenges for Using Digital Technologies in the Classroom

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**Abstract:** *Today's college students often referred to as the "digital generation," use an impressive assortment of technological tools in a wide variety of ways. However, the findings reported here suggest that students prefer more traditional instructional technology for effective engagement and learning. Faculty members, however, prefer the use of course-learning technology offered by their universities or publishers. In addition to this potential mismatch between preferences of students and teachers, the research finds that there are vast differences in preferences and usage across disciplines, in particular, business and economics instructors and students having stronger technology preferences than instructors and students of the fine arts and life sciences.*

**Keywords:** Educational technology, Digital Technology, learning

## 1. Introduction

digital technology in the classroom' (DTC) can be taken to mean digital processing systems that encourage active learning, knowledge construction, inquiry, and exploration on the part of the learners, and which allow for remote communication as well as data sharing to take place between teachers and/or learners in different physical classroom locations. This is an expanded notion of technologies that recognizes their development from mere information delivery systems and also clarifies their role in classrooms in contrast to their wider use across colleges and learning centers.

## 2. Using Digital Technology in the Classroom

The organization that works for the UK education sector to champion digital technologies, have put together a portfolio of case studies exploring the ways in which different institutions are integrating technology into their curriculum, helping to enhance both teaching and learning

### 2.1 Use of computers in the classroom

Computers have evolved and they have changed the way the look and the way they function. Now days we have both desktop computers and portable computers commonly known as notebooks or laptops. New technologies have also emerged and birthed some new computer related gadgets like the iPod or Galaxy tablet. These computers can be used by teachers to assign work to students and study groups in a classroom. Also teachers can use computers to illustrate visual related subjects which help students to learn easily. Modern computers come with installed applications which can help students study well. For example, students can use internet explorer to search the internet, they can use word processing application to write notes. Teachers can also help their students to learn complicated applications on these computers as a way of making it easier for students to learn and also make the teacher's job easier.

### 2.2 Creating class websites and blogs

It is very easy to create a website or blog using Word Press or any other content management software. Teachers can create class blogs where they post assignments. If the school has no website server to host these class blogs, the teacher can use free website hosting services like wordpress.com or blogger.com. Via these platforms, the teacher will create a blog under a sub domain of that host. For example, **matchclass.wordpress.com**, so students will find all academic assignments via that blog. It is very easy to manage and post data to a blog, because they have simple HTML editors.

### 2.3 Use of digital microphones in the classroom

Big classrooms are characterized by endless noise, so teachers can resort to these wireless digital microphones. The microphone will transmit the voice to the loud speakers and every student will hear their teacher clearly. This helps the teacher not to strain their voice while trying to explain points to their students. These digital microphones are not too expensive so even a small income generating colleges can manage to buy a wireless microphone for every classroom. Also students can use the same microphone when asking questions to their teachers in class, or when they are explaining a subject to their fellow students during a classroom debate.

### 2.4 Use of mobile devices

Teachers and students can use smart-phones for academic purposes in the classroom. Mobile learning is becoming so popular. It is similar to e-learning or long distance education. Though it is based on mobile phones. M-Learning is convenient because it is accessible from anywhere. Mobile phones are very light yet they can also have the same application a simple PC can have, a student can access academic information like assignments via an educational mobile application (APP). Teachers can tell their students to use mobile apps like "Piazza" to access course materials and also to post questions about specific subjects, all this can be done in the classroom or outside the classroom.

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## 2.5 Use of smart interactive Whiteboards

Modern smart white boards have a touch screen functionality, so the teacher can illustrate points using a pen or their finger. Using a projector, teachers can display visual images on these white boards which improves the learning process. Students will learn more easily with visual images. Also students can use a white board to draw, write or manipulate images. Smart whiteboards come in various sizes, the wide ones are better, because they can show a larger image and can also be used by two students at a time. Most of them are electronically powered, so they can be switched on with a button, and they can also save teachers work for latter use.

## 2.6 Use of online media

Teachers and students can both use online streaming Medias to learn in the classroom. With the aid of a projector, computer, internet and a white board, a teacher displays a real-time example using sites like **Youtube.com**. This website has videos which can be used for academic reference. "Let's take a simple example on how a Geography class can use technology. Teachers can explain volcanic activities and its impacts on the environment using live stream YouTube videos about the subject. This type of illustration will attract the student's attention and they will learn easily."

## 2.7 Use of online study tools

Online study tools like "Dynamic Periodic Table" ([ptable.com](http://ptable.com)) which can be used by Chemistry students in keeping elements apart, "Foldit" ([fold.it](http://fold.it)) this tool can help biology students easily understand basics about proteins. "Mathway" ([Mathway.com](http://Mathway.com)) this helps math students solve math challenges, students can simply select a subject and hit solve, the equation will be solved by the tool. All these academic tools can improve the way students learn. The student's attention and they will learn easily."

## 2.8 Give students ownership of the technology

Move content to the cloud. This can allow students to more easily share ideas and resources with one another and be able to learn and share anytime, anywhere and with any device – taking more ownership of their work.

## 2.9 Develop the confidence and skills of your teachers

Continued professional development (CPD) delivered online, face to face, peer to peer and through mentoring is essential. Reading College aligned their CPD programme with staff appraisals to ensure consistency.

## 2.10 Offer a variety of communication and sharing methods

Staff and students at Reading College now use Gmail, Google Classrooms, Google Hangouts, Google Plus communities, and Google Docs to communicate, share information and resources, set and submit assignments and provide summative feedback to students.

## 2.11 Use Technology of the future now

Google Glass has proved especially valuable for demonstrating the achievements of students in vocational areas such as plumbing and catering. Students upload footage to their learning space for reflection and assessment, and as a record of what they have achieved.

## 2.12 Bring your own Device (BYOD)

In Google Classroom, staff have found a platform that allows them to share resources with students, manage assessment hand-ins and provide formative feedback to students in timely manner. The automatic email notifications ensure that students are kept up to date with what is being posted and the app that is available for both Android and Apple means it is easy to access it on a range of devices.

## 2.13 Set up learning spaces for those without access

Set up access for those who do not own their own devices or are unable to bring them to school. Reading College have a learning space, with laptops and iPods available to borrow if needed.



## 3. Other terms are associated with digital technologies in the classroom

### 3.1 Bring your own device (BYOD)

Learners bring their own technology into the classroom for use as part of the learning activity

### 3.2 E-portfolios

Learners and teachers create an electronic catalogue of work that tracks their learning journey. This is usually online and often uses multimedia files

### 3.3 Flipped classroom

Learners discover new content before the lesson from online videos or resources and then apply this knowledge in more personalized work in the classroom.

### 3.4 Personal Learning Network (PLN)

A PLN is an individual's loose collection of links with other people or resources. The aim of such a network is to facilitate an exchange of ideas that supports learning.

### 3.5 Virtual Learning Environment (VLE)

A VLE is an e-learning education system that is web-based, but modeled on conventional face-to-face education. It provides access to courses, course content, assessments, homework, links to external resources etc.

### 3.6 Interactive Whiteboards (IWB)

Allow images from a computer to be displayed through a digital projector, onto a large (usually wall-mounted) board. Users can interact with the content on the board using fingers or a stylus.

### 3.7 Software Applications (Apps)

These are designed to operate on mobile devices such as smartphones and tablet computers.

### 3.8 Web 2.0

Refers to the second generation of the World Wide Web. Web 2.0 includes features and functionality that were not available before, for example. Podcasts, blogs, wikis, RSS (Rich Site Summary – used for updating regularly changing web content), social networking and tagging

## 4. Benefits of digital technologies in the classroom

- The potential benefits of DTC are that it can foster dialogic and emancipatory practice. - Dialogic practice is that in which students are active, engaged and empowered participants in a conversation from which learning emerges. For example, learners working on a maths modelling programme can start to have conversations about what they see on a computer screen without having to rely on terminology that they may not yet have (look at 'that', what happens if you do 'this'?) The teacher can then add the appropriate language into the conversation as the project develops.
- Emancipatory practice is that in which an individual student's ideas go beyond the learning prescribed by the teacher/syllabus as they draw on knowledge gained outside formal education to construct understanding. For example, in music lessons learners can use their own knowledge and expertise of playing instruments or using technology to construct their own recording environments (perhaps using their mobile phone). They can then bring in ideas that they have created at home or in instrumental music lessons.
- Different technologies can improve learning by augmenting and connecting learning activities. For example, in a geography lesson two classes in different schools may link up via the internet to explore cultural differences in relation to a particular global issue such as pollution or energy

supply. The groups could work together to understand not just the issue itself but its impact on communities and individuals by talking to real people. In situations where bandwidth is limited this could be done at a whole class level via video or even over email or SMS (Short Message Service) messaging.

- Digital technology can often also be exciting for learners and offers a potentially more engaging alternative. At the same time it is important to be aware that some learners may be less confident in learning with digital technologies and steps need to be taken to ensure equality of access.
- Digital technology offers immediate feedback for both the learner and the teacher.

## 5. Challenges/criticisms of digital technologies in the classroom

- A lot of time and resources are currently being invested into technologies and applications that have yet to be proven to be effective or efficient when compared to more traditional classroom learning contexts. Teachers and schools need to think carefully about when, why and how to use technologies as well as evaluating their efficiency and effectiveness.
- There is a 'digital divide' - the divide between those who have access to digital technology and the internet, and those that do not.
- Implementing and then maintaining technology is costly particularly as systems can quickly become out of date
- There may be problems with the existing infrastructure, for example internet connections may be inconsistent and/or slow
- Safety for students and teachers is a key challenge with prevention of cyber-bullying, the hacking of personal information, access to illegal or banned materials and distractions from learning (such as social networking and mobile phone use) all being high on institutional agendas
- Some uses of technologies can be harmful. For example, poor posture and eyestrain are common problems when working at desktop computers for prolonged periods. Also Repetitive Strain Injury (RSI) is a risk that occurs from the repeated actions necessary to control mobile devices.
- Evidence suggests that at the moment the potential of digital technologies in the classroom is not being realized. A report on digital technologies from the charity Nesta in the UK notes, "What is clear is that no technology has an impact on learning in its own right; rather, its impact depends upon the way in which it is used" (2012:9)

## 6. Conclusion

The presence of educational technology is growing in the classroom. The new generation of students comes ready to work with these new technologies, which play an important role in students learning and acquiring various cognitive knowledge so that educational technology must be incorporated into future curricula. The application of educational technology enhances skills and cognitive characteristics. With the help of new technology comes an

explosion of learning and receiving new information, especially on mobile devices.

Teachers have been using new technologies in the classroom. However, the development and application of new technologies grows as a measure that is the question of whether teachers are trained to keep up with them. Here we have two problems. Are the teachers have the ability to use educational technology and whether the college is sufficiently equipped with all modern technical means? Numerous studies were carried out, some are still ongoing, but we have to find the right strategies to apply educational technology in teaching.

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