

Article (Original Investigation)

Technology Integration in the Classroom

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SUMMARY

Technological integration in the classroom is of significance, because it is catered to the needs of a student and can prepare learners for the 21st century and the skills they will need there. It can be defined as using technological devices, like computers and netbooks, in the classroom. Of course there are risks to this and the sensitivity of the data held on these devices is greatly underestimated. Computers need to be protected, with antivirus programs, firewalls and cables that connect computers to their hardware. Of course, educators are important in this respect, due to the fact that they are the facilitators of knowledge and need to acquire training in technological tools and software. The educator who leads this is the principal, who must use technology in order to motivate teachers and learners to use it as well. Technology has to be integrated into the entire curriculum, not just one subject, and this can be done by inaugurating a vision of technology in the entire school. Efforts must be made to get grants from the Department of Education, and other sponsors, for technology in classrooms and teacher training. Technology is incredibly important for the future of our world. ■

KEYWORDS

Technology; Education development; Integration; Classroom

Sci Insight Edu. 2016;2016:e00022. doi:10.15354/sie.16.re022

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Technology integration means using technology in the classroom, whether it is using a computer and networks or smartphones in the every classroom. Digital students can be identified as learners who are (i) hyper-communicators, (ii) multi-taskers and (iii) goal-oriented (1). These learners are able to pursue a multitude of goals at a single time. Astonishing, isn't it?

Though there are many different views on this, technology integration is one very important way to ready young learners for the 21st century. Technology is only going to become more important in the future and it is the duties of educators to prepare the learners for this. Skills that are important for the 21st century for students are flexibility and adaptability, initiative and self-direction (thus innovation) and creativity, social and cross-cultural Skills (communication) and collaboration, productivity and accountability (critical Thinking) and problem solving and, finally, leadership and responsibility (2).

TECHNIQUES INTEGRATED WITH TRAINING IN EDUCATION

Thus it is important to integrate technology into the curriculum of all subjects, history, physical science, and biology, and not as a once-in-a-while subject, like IT or CAT (3). For many educators, it is a challenge to integrate technology into their classrooms, because they do not have the right training in technology. As a current Teaching student learning about education, learning the basic things about computers and other technology is of great significance, and compulsory, but speaking to an old teacher of mine, he said that he had no idea how a computer worked and asked me what “whatsapp” was when I asked him to send me a contact number for someone. If he was above fifty years old, it would make sense, but he is in his forties! All he needs is training, in a variety of categories and application packages.

The first category of training these teachers require is to “facilitate and inspire student learning and creativity”, as depicted on the ISTE Standard for Teachers. This skill includes the promotion, supporting and displaying of inventive and advanced thinking and ingenuity, and engaging learners in determining actual issues and resolving candid problems using technology, and using technological apparatuses to safeguard that learners comprehend what is being requested of them and to

control how they think, plan and what their creative processes are (4).

The second category of training, according to the ISTE Standard for teachers, is the “design and development of digital age learning experiences and assessments”. This comprises the edition of existing learning practices to help with the use of technological tools and endorsing originality and education, to advance learning areas rich with digital tools and how to use them and familiarizing these tools to meet the needs of each singular learner (4).

The third category of training these educators require, as stated in the ISTE for Teacher, is “Model digital-age and work and learning”. This skill includes the aptitude to validate an understanding in technological schemes and transporting this information to the, working with learners and all the other stakeholders with the digital implements and to interconnect the desirable data to learners and the other stakeholders (4).

APPLICATION PACKAGES IN CLASSROOM

There is a variety of software available that schools purchase to use, but it is important to note that they did not buy the software, simply the rights to use it, and the ICT coordinator has to ensure that it can be used on the whole network. It is also important that pirated copies of the software aren't used, since there may be legal repercussions to such actions (5).

The first application package a teacher should have the ability to wield is a word processor, which is used to create, edit and format documents that are mainly text, documents like this include letters and faxes (6). A package one can buy is Microsoft Word and OneNote. The second application package an educator should be able to utilize is spreadsheet software (7), which allows the user to organize numbers into a variety of rows and columns (7). Teachers use this especially when entering a student's grades into the educational system. A package of this application one can buy is Microsoft Excel. The third application package an educator should be able to use is database software – a gathering of data that is decided in such a way that it permits tranquil admission to the data, as well as recovery of it and the standard use for it (8). It is also able to sort the data, delete it and edit it. An example of a package one could buy of this software is Microsoft Access. The fourth application package an educator should be able to make use of is

presentation graphics software, which is a method to showcase a appearance to a large number of characters, like a classroom, which the instructor has to generate in order for all intellects to be enthused (9). A package that can be bought in this criterion is Microsoft PowerPoint. The fifth application package a teacher must use is a web application, which allows the teacher access to the internet (10). A computer generally comes mounted with an application called Internet Explorer, but other one can buy include Chrome, FireFox and WaterFox.

REQUIREMENTS FOR TEACHERS IN THE PROCESS OF INTEGRATION

The world is changing – decades ago people believed the world is flat, and now? The world is growing smaller due to increased digital tools and social media. This is a good thing – people from two different continents can communicate. Africa and America are closer now. Via social media you can converse with someone you don't know, but come to know them and learn from them.

Educators need training in technology to make this happen, to open the world for their students. You can even take a virtual tour of places like London and South Africa, their museums and historical places. Technology makes visiting these places easier with the added advantage of clicking on links to learn more about certain aspects of these places. It is a hardship to visit these places physically and not always financially possible, but with technology there is an alternative.

Let us visit Southern Africa, which has a rich diversity plagued with a history of war and conflict, and go to the Coca-Cola Dome. You can see the dome, the overhead catwalk, and the management offices and so forth (www.hdvirtualtours.co.za). From here you can learn about the history and why this dome was built. This is all accessible from your classroom!

Let us continue our visit to South Africa. What exactly happened there? Why are there eleven official languages? Why is the National Anthem in a variety of languages? Why is it called the Rainbow Nation?

These facts can be searched on the internet, but only after the educator has viewed the websites in question and deemed them as appropriate. This is why training is important! You don't want your students to be exposed to pornographic advertisements when they search the World Wide Web, do you? A quick way to stop this, though, is by installing applications on your

internet browser that block these things (and certain websites).

Also – since it is at a school, there will be more than one computer and this comprises a network (meaning many computers linked to a main computer, known as a server) – advertisement blocking applications is not a question at all, it is a must. This includes antivirus programs and personal firewalls to keep the computers safe and data secure from viruses and unauthorized access (10).

Of course the majority of digital media cannot be used without the help of the district office, or the Department of Education. The Department can help with giving grants for teacher training and technological tools in schools.

How would one start with the integration of technology? Well, first we look at the school's leader, the principal, and expect him/her to lead by example. If the principal is knowledgeable, the administrative staff and teachers will follow, and then the students.

HOW WOULD A PRINCIPAL USE TECHNOLOGY?

For one, an online diary that is in synchronisation with their personal happenings, and has their day planned. Secondly they can use e-mails to communicate with the district office, colleagues and parental parties. So now we have motivated (and trained) educators. Obviously all classes can't have computers, that's why there is either one or two computers in a classroom, or students have to visit the media centre. Teachers have to schedule this, of course.

Let's go back to South Africa for a history lesson. We've visited the Coca-Cola Dome, but now we delve deeper into the history of this country. First we schedule time in the media center and we go to the internet!

Eleven official languages? What are they? Why eleven? This is an assignment for the learners. Divide the learners into groups, let them choose a language and find out why it is an official language and the history behind it. Make the assignment a graphic presentation (in Microsoft PowerPoint). Play educational games – pre-approved games, of course, since learners will use the computer for other games that would be restricted by schools – and there are a number of online games that are both educational and fun for any learner

other students from learning. Digital tools are used to plan strategies to guide their learning, to find and organize information from a sea of knowledge (known as the world wide web), to choose for themselves the information they deem necessary for the task at hand and to, finally, process these findings and report on them (12).

Let's go back to South Africa: we've visited the Coca-Cola Dome, explored the eleven languages, and now? Now we see if the South Africans are learning and what they are learning. Are they doing the same work that you are in your American classroom? How do things differ?

You, as an educator, no longer hold all the knowledge in your hands: the learning environment is now learner-centered and you, the educator, are now a facilitator of learning. You transfer your knowledge, but you do not dominate the classroom.

EFFECT OF TECH-INTEGRATION ON LEARNERS

What about the learners with special needs? Can they benefit from technology in the classroom? Yes! There exists software specifically designed for this purpose – to assist learners with physical disabilities or learning impairments finish their projects and help them with everyday tasks. Think of speech synthesis software, the ability to enlarge text on screens and even calculators that talk to you. Using all of these in combination with touch screen devices makes learning easier for the ones who struggle (13). And for these students with special needs, a learning area that provides no assistive technology does not meet the requests of the IDEA (Individuals with Disabilities Education Act). This Act is a law of non-discrimination that requires educational institutions to meet the needs of special needs students in order for them to have an equal opportunity to take part in and take advantage out of the generalized knowledge in the curriculum.

Integrating technology into the classroom is also a good idea for learners who do not learn well with traditional learning methods, like lectures and drill-and-practice, and would find it beneficial to work with mobile devices, something they also use outside the classroom to send messages and keep track of events around the world. This is known as mLearning (mobile learning)

and teachers who utilize this method find that their students' thinking and problem solving skills evolved (14). Both of which are essential skills for surviving in the 21st century.

One way to use technology in the classroom is to have the students run the school's website. This is challenging, especially for older learners, since it requires daily maintenance at the very least, whilst other elements would include writing news articles of what is going on at school – sport games, cultural festivities like musicals or choirs, the academic achievements of learners to boast about; the opportunities are endless. This entire project would also include graphic design and presentation designing. The main functions of the school's website are to, first, transport information to visitors of the website, like fellow students and their parents. Secondly the website gives the senior learners an opening to learn about website designing and how to develop and maintain it, like updating the introductory grade 12 examination timetables or give information about the next football or hockey game, and the scores the day after (15).

RECOMMENDATIONS ON TECH-INTEGRATION

John M. Keller said, in 1983, that no matter how wonderfully your instructional strategy is designed, it all for naught if the students placed in your care are not motivated to learn. They will study to pass a test, but the information won't be retained for a long time. The point is that educators should make learners want to learn! Keller developed what is known as the ARCS Motivational Model, which can be applied to technological integration.

A – Attention must be grabbed, boredom eradicated and curiosity stimulated. Your teaching methods must make the students yearn for more; think out of the box! And technology is just the right way to do that. As stated earlier, the usage of multimedia is efficient, but now we add that it efficient because it grabs the attention of the learners.

R – Relevance! Make learning relevant to what is happening in their lives and in current world events. This will not only increase motivation, but also understanding of the topic at hand (16).

C – Challenge/Confidence. Learners are a self-fulfilling prophecy: if they believe they will succeed, they do, and if they believe they will fail, they do. Using

a multitude of media and digital tools will allow learners to build confidence, since this is what they can do, they can work with computers and smartphones to access many fields that we as educators are unaware of. Here is where the multi-tasking of the digital generation comes in handy. Challenging the students leads to them gaining confidence in themselves.

S – Satisfaction/Success. What is the ultimate motivator? No, not money, but feeling good about yourself. If you feel good about yourself, nothing can touch you. Technology permits learners to use their newfound

skills and attain both satisfaction and success. And, of course, there must be showing off: technology allows learners to show their work and share what success they have achieved with their peers.

Technology, I ask: is it welcome? As a future educator I say yes. Life is too short to stay in the past, and the future? Well, they are staring at you with wide eyes when you pull out a mobile phone (17) to Google something, but then their eyes start to shine and they realize that this isn't for us, it is for them.■

ARTICLE INFORMATION

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Author Contributions: Mrs Catherine Raymond had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Raymond.

Acquisition, analysis, or interpretation of data: Raymond.

Drafting of the manuscript: Raymond.

Critical revision of the manuscript for important intellectual content: Raymond.

Statistical analysis: N/A.

Obtained funding: N/A.

Administrative, technical, or material support: Raymond.

Study supervision: Raymond.

Conflict of Interest Disclosures: The author declared no competing interests of this manuscript submitted for publication.

Funding/Support: N/A.

Role of the Funder/Sponsor: N/A.

How to Cite This Paper: Raymond C. Technology integration in the classroom. *Sci Insigt Edu*. 2016;2016:e00022.

Digital Object Identifier (DOI): <http://dx.doi.org/10.15354/sie.16.re022>.

Article Submission Information: Received, February 05, 2016; Revised: April 22, 2016; Accepted: April 27, 2016.

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