

NEW EMERGING HARDWARE AND SOFTWARE TECHNOLOGY AND ITS IMPACT ON EDUCATION

Rajesh kumar Sharma

Research scholar
Institute of Education
Amity University, Lucknow Campus (Uttar Pradesh)

Abstract: Education is very vast area Human development and development of education is closely related to each other. Current educational development is entirely dependent on new teaching techniques; new techniques are being invented each day. In which computer hardware and software technologies are very handy There is high use of software techniques in teaching field today, Today no field is complete without computer technology .In other words, without using hardware & software none of our fields are completed Whether it is teaching, training, medical, automobile, management, defence and research etc.

The research paper presented by researcher is based on the computer hardware and software which is being used in the teaching sector. It Attracts attention to the new technologies which are currently being used in India. Or will be used in the future. And think seriously about it. Also introduces us with new technology. The potential of each technology varies according to how it is used. Haddad and Draxler identify at least five levels of technology use in education: presentation, demonstration, drill and practice, interaction, and collaboration. Each of the different hardware & software —print, audio/video cassettes, radio and TV broadcasts, computers or the Internet—may be used for presentation and demonstration, the most basic of the five levels. The potential of each technology varies according to how it is used.

Keywords: hardware & software, computer, technology, invention

Introduction

Computer hardware and software technologies originally are applied to serve as a means of improving efficiency in the educational process. Furthermore, it has been shown that the use of computer hardware and software technologies in education can help improve memory retention, increase motivation and generally deepens understanding computer hardware and software technologies can also be used to promote collaborative learning, including role playing, group problem solving activities and articulated projects . Generally, computer hardware and software technologies is promoting new approaches to working and learning, and new ways of interacting. Majority of faculty members are major catalyst to promote the necessary changes and to equip students with the skills they are expected to have upon graduation .In higher education systems, there has been a significant shift in enterprise training policy in recent years. In the other words, computer hardware and software technologies learning and utilization is one of the most concerns of educational issues around the world and for a number of years there has been evidence in the training and development area. It is essential that the pedagogy of computer hardware and software technologies becomes the main focus of staff development and this will have to build upon in a constructive manner in order to allow instructors to achieve the full benefits of using computer hardware and software technologies in their daily tasks .It is generally understood that university teaching and learning refers to both the contents (skills, understandings and values) and the processes of teaching in all type of education. In the case of an institution's internationalization efforts, this may apply to both the 'what' and the 'how' of teaching and learning, usually with reference to educational borrowing or lending from international sources. Indian universities like other higher education institutes in the region are in the process of internationalizing their respective curricula.

New hardware and software technology used for education purpose

InfoDev –a program of the World Bank – promotes innovation and entrepreneurship in smart agriculture, digital technology, and climate change technology. Through business programs and early stage financing, we help developing countries in the Caribbean, Africa, and Asia go green and develop solutions to local problems. In the past, infoDev worked with computer hardware and software technologies and education. While our programs do support some entrepreneurs and start-ups that develop educational technologies (like Afroes and ListenMi), computer hardware and software technologies and education are longer the focus of the mission

Flashnotes

Flashnotes allows students to upload their lecture notes and sell them to other students who need more help or resources. The rating system allows the best note takers to get more business and the general pool of knowledge expands as students continue to share their work with one another.

Lore

The new startup is using a Facebook type platform- riding the wave of what works- and tailoring it for education. This social network allows professors and students to communicate, follow one another, and discuss class work and lectures.

In addition to the social aspect, it allows for document uploads, calendar sharing, and a grade book option. So no one medium is this better than Facebook. Simply put, social networks aren't always the best place to develop academic networks.

3. Study Blue

Imagine your smart phone as your primary source for study materials. This company has created an app that allows students to organize their coursework, store notes and flashcards, and share their materials with other students.

Study Blue's main attraction is that it is mobile. Whether standing in line for coffee, riding the train, or waiting at the dentist, a student can easily access their class work and prepare for an exam. The social aspect also helps students find other people studying similar subjects, capitalizing on a different set of notes and study guides.

4. LEAP Motion

Imagine the ability to sign your name on a digital document using only your finger and the air. That is technology behind LEAP Motion, a company intent on giving people a more natural way to interact with the computer.

LEAP has developed a piece of hardware that allows anyone to write, draw, zoom, play, and interact with their computer screen using a finger, fingers, or entire hand. By moving your hand over the device, the mouse follows your movements.

This is a huge improvement from the days of the stylus and pad- even with the fine motor control- it was difficult to make drawings look authentic. LEAP is set to do that.

5. Papertab

Papertab be ready to use in 2018, I think it's interesting enough to include it in this list. Paper, after all, is HUGE part of the school life.

6. Chrome books

Despite the rising popularity of tablets, Google's Chrome book may snatch the competition in the lower grade school classrooms. The laptops have a few distinct advantages over the apple iPad:

- They are less expensive
- One-button-push easy setup
- Easy to control settings and restrictions
- Offers the traditional keyboard for fast typing and note taking
- Hardware fixes are easier and less costly

READ

12 Tech Tools For Student-To-Student Digital Collaboration

60 Smarter Ways To Use Google Classroom

7. Celly

Teachers are continually fighting against the ever-growing list of distractions that a smart phone offers to bored or shy students in the back of the room. But Celly is a text-messaging network that allows anyone to create a network anywhere- at a rally, event, in the classroom, or on a field trip using smart phones.

Teachers that have used this in their classrooms have noted that those who normally never speak up...do. It forces students to write their thoughts clearly and concisely. Rather than fighting the tide against texting, instructors are using it for academic purposes.

8. Flipped Classroom

While not a technology per se, this teaching model is using technology to change the way instructors teach. Rather than spending the class time lecturing the students, the lectures are delivered to the student's in video format for them to watch at home (or in study hall).

Then, the classroom time is set aside for 1 on 1 help, discussion, and interaction based on the lecture homework. With nearly every student carrying a mobile device or laptop, this model may give students and teachers more time to work on areas of difficulty rather than simple straight lecture. For too long, instructors have seen that precious class time go to waste while a teacher scribbles on a blackboard and has their back to the students.

9. Snagit, Jing, Camtasia

These screen capture video software programs are making it easy for instructors to give online tutorials. Tech Smith offers a host of different products from a free screen capture to professional quality videos.

Imagine a tech-ed teacher trying to explain how to download an app. He/she can record narration while capturing the screen shots as he/she demonstrates the action. This feature can also be used for teachers who are correcting a paper or demonstrating a math problem.

10. Lesson Cast

Teachers need help and support with their lesson plans just as much as students need help with studying for exams. Lesson Cast allows teachers to submit a 2-minute lesson plan strategy, idea, or resource using video, documents, Power point, etc. and share it with other instructors.

The free-based software is just another way to offer networking opportunities and a general pool of knowledge that globally impacts education in a positive way. Teachers Paying Teachers is a similar network that allows educators to sell their lesson plans to other instructors.

11. Kid Blog

Designed specifically for younger students; Kid Blog provides a safe opportunity for children to start up their own blog connected to the classroom.

Teachers can help students design a blog around a science project, a history lesson, or an entire year's worth of school progress. The students get the benefit of other students and parents commenting on their work- a great motivation for hesitant writers. Kid Blog makes it easy to keep the child and content secure from the dangers of the Internet.

12. Glogster EDU

Gone are the days of laboring over a diorama made from a shoebox or wrestling with markers on a poster board. When it is report time, students can use Glogster to creatively display their research.

Glogster allows students to collage pictures, text, video, and custom graphics to create a visually appealing presentation for their latest project. The Glogs are easy to make and share!

13. Donors Choose

Funding websites are popping up all over the Internet. People who are frustrated with the bureaucracy of grant writing decide to strike out on their own and build a project from the ground up. With Donors Choose, you can pitch your idea for your classroom.

Teachers create projects they hope to accomplish with their students. Much like Kick starter, individuals can fund or back any project they choose. Then they share it across social media and if a teacher has created the project pitch well, it gets the attention and money it needs.

14. Live Binders

Those handy three ring binders are now digital. Using the same idea as pinning and bookmarking, the binder allows educators to collect and organize resources for lesson plans.

The Live Binder can also work for students who are amassing resources for a big project. You can also browse other binders and share your own.

15. Knewton

This new technology company aims at personalizing content for optimal learning. The platform monitors the student's activity and uses the information to give the student the best personalized resources based on their level of performance.

The technology also boasts integration among different disciplines creating a more comprehensive set of resources that interact with one another. Knewton grows more intuitive the more the student uses the software. It can follow a student through their entire education career.

Some field of education where we use Computer hardware and software technologies

Classroom aids

Some educational software is designed for use in school classrooms. Typically such software may be projected onto a large whiteboard at the front of the class and/or run simultaneously on a network of desktop computers in a classroom. This type of software is often called classroom management software. While teachers often choose to use educational software from other categories in their IT suites (e.g. reference works, children's software), a whole category of educational software has grown up specifically intended to assist classroom teaching. Branding has been less strong in this category than in those oriented towards home users. Software titles are often very specialized and produced by various manufacturers, including many established educational book publishers.

Assessment software

With the impact of environmental damage and the need for institutions to become "paperless", more educational institutions are seeking alternative ways of assessment and testing, which has always traditionally been known to use up vast amount of paper. Assessment software refers to software with a primary purpose of assessing and testing students in a virtual environment. Assessment software allows students to complete tests and examinations using a computer, usually networked. The software then scores each test transcript and outputs results for each student. Assessment software is available in various delivery methods, the most popular being self-hosted software, online software and hand-held voting systems. Proprietary software and open-source software systems are available. While technically falling into the Courseware category (see above), Skill evaluation lab is an example for Computer-based assessment software with PPA-2 (Plan, Prove, Assess) methodology to create and conduct computer based online examination. Model is an example of open-source software with an assessment component that is gaining popularity. Other popular international assessment systems include Assessment Master, Question Mark, Evalu Net XT and Quest Base.

Reference software

Many publishers of print dictionaries and encyclopaedias have been involved in the production of educational reference software since the mid-1990s. They were joined in the reference software market by both startup companies and established software publishers, most notably Microsoft.

The first commercial reference software products were reformulations of existing content into CD-ROM editions, often supplemented with new multimedia content, including compressed video and sound. More recent products made use of internet technologies, to supplement CD-ROM products, then, more recently, to replace them entirely. Wikipedia and its off spins (such as Wiktionary) marked a new departure in educational reference software. Previously, encyclopedias and dictionaries had compiled their contents on the basis of invited and closed teams of specialists. The Wiki concept has allowed for the development of collaborative reference works through open cooperation incorporating experts and non-experts.

Custom platforms

Some manufacturers regarded normal personal computers as an inappropriate platform for learning software for younger children and produced custom child-friendly pieces of hardware instead. The hardware and software is generally combined into a single product, such as a child laptop-lookalike. The laptop keyboard for younger children follows an alphabetic order and the qwerty order for the older ones. The most well-known example are Leapfrog products. These include imaginatively designed hand-held consoles with a variety of pluggable educational game cartridges and book-like electronic devices into which

a variety of electronic books can be loaded. These products are more portable than gener laptop computers, but have a much more limited range of purposes, concentrating on literacy.

Courseware

Courseware is a term that combines the words 'course' with 'software'. Its meaning originally was used to describe additional educational material intended as kits for teachers or trainers or as tutorials for students, usually packaged for use with a computer. The term's meaning and usage has expanded and can refer to the entire course and any additional material when used in reference an online or 'computer formatted' classroom. Many companies are using the term to describe the entire "package" consisting of one 'class' or 'course' bundled together with the various lessons, tests, and other material needed. The courseware itself can be in different formats, some are only available online such as html pages, while others can be downloaded in pdf files or other types of document files. Many forms of educational technology are now being blended with the term courseware. Most leading educational companies solicit or include courseware with their training packages.

Corporate training and tertiary education

Earlier educational software for the important corporate and tertiary education markets was designed to run on a single desktop computer (or an equivalent user device). In the years immediately following 2000, planners decided to switch to server-based applications with a high degree of standardization. This means that educational software runs primarily on servers which may be hundreds or thousands of miles from the actual user. The user only receives tiny pieces of a learning module or test, fed over the internet one by one. The server software decides on what learning material to distribute collects results and displays progress to teaching staff. Another way of expressing this change is to say that educational software morphed into an online educational service. US Governmental endorsements and approval systems ensured the rapid switch to the new way of managing and distributing learning material

Digital culture and digital literacy: Computer technologies and other aspects of digital culture have changed the ways people live, work, play, and learn, impacting the construction and distribution of knowledge and power around the world. Graduates who are less familiar with digital culture are increasingly at a disadvantage in the national and global economy. Digital literacy—the skills of searching for, discerning, and producing information, as well as the critical use of new media for full participation in society—has thus become an important consideration for curriculum frameworks.

In many countries, digital literacy is being built through the incorporation of information and communication technology computer hardware and software technologies into schools. Some common educational applications of computer hardware and software technologies include:

One laptop per child: Less expensive laptops have been designed for use in school on a 1:1 basis with features like lower power consumption, a low cost operating system, and special re-programming and mesh network functions. Despite efforts to reduce costs, however, providing one laptop per child may be too costly for some developing countries.

Tablets: Tablets are small personal computers with a touch screen, allowing input without a keyboard or mouse. Inexpensive learning software (“apps”) can be downloaded onto tablets, making them a versatile tool for learning. The most effective apps develop higher order thinking skills and provide creative and individualized options for students to express their understandings.

Interactive White Boards or Smart Boards: Interactive white boards allow projected computer images to be displayed, manipulated, dragged, clicked, or copied. Simultaneously, handwritten notes can be taken on the board and saved for later use. Interactive white boards are associated with whole-class instruction rather than student-centred activities. Student engagement is generally higher when computer hardware and software technologies is available for student use throughout the classroom.

E-readers: E-readers are electronic devices that can hold hundreds of books in digital form, and they are increasingly utilized in the delivery of reading material. Students—both skilled readers and reluctant readers—have had positive responses to the use of e-readers for independent reading. Features of e-readers that can contribute to positive use include their portability and long battery life, response to text, and the ability to define unknown words. Additionally, many classic book titles are available for free in e-book form.

Flipped Classrooms: The flipped classroom model, involving lecture and practice at home via computer-guided instruction and interactive learning activities in class, can allow for an expanded curriculum. There is little investigation on the student learning outcomes of flipped classrooms. Student perceptions about flipped classrooms are mixed, but generally positive, as they prefer the cooperative learning activities in class over lecture.

Conclusion

As it has been seen in research paper can be noted that there are several challenges pertaining to computer hardware and software technologies application in India such as lack of National Policy for using computer hardware and software technologies in Education, lack of adequate investments, cultural obstacles, financial challenges, lack of continuity in computer hardware and software technologies use, and lack of systematic training and development programs. Regarding this challenges, it should be considered that the education system of India is centralized UGC, NCTE, CBSE and MHRD, all general decisions are making at central level. Among different programs assigned to universities computer hardware and software technologies application is an important one. However, the scope and the rate of using computer hardware and software technologies in education institutions are determinate by different bodies, which play major roles in this regard. There are many governmental entities, which are responsible for developing policies and strategies in computer hardware and software technologies application. After Indian digital Revolution, High Council of Informatics established to systemize information technologies (IT) and ICT activities. Its primary role is to assess and to classify computer hardware and software technologies enterprises and supervise software development activities. This situation reflects the limited authority of universities and colleges in providing the financial and physical supports for computer hardware and software technologies application. However, findings related to unfamiliarity of academics with software, which can be used in their teaching, lack

Of culture of working in web environment, and faculty and student disability in using computer hardware and software technologies in teaching and learning refer to an important concept of "computer hardware and software technologies competency" of faculty members in India. In the same way some important facilitating factors such as providing training programs, keeping academics informed on new developments in computer hardware and software technologies, improving faculty members' belief on effectiveness of computer hardware and software technologies and other factors imply on "computer hardware and software technologies literacy" of academics in Indian higher education community as a real and urgent need. Regardless of the low rate of participation of faculty members in computer hardware and software technologies workshops and training and development events, consequently most important prerequisites of computer hardware and software technologies application in Indian public universities are providing a basic set of computer hardware and software technologies competencies that allow development of meaningful faculty members' development programs in order to integrate computer hardware and software technologies into academics' teaching and learning to advance student learning and to improve other Professional duties. It seems there is a big discrepancy between current situations as official report says and ideal situation in which all academics equipped with required computer hardware and software technologies competencies. According to the new education policy about assigning curriculum development and change to major public university (2016), recently the universities have been given more authority on curriculum and training decision-making. Under such circumstances, with respect to importance of IT Literacy training in promoting internationalization of campus and doing different duties of university faculty members, assessing computer hardware and software technologies literacy of academics and designing an specific program based on this assessment will be a real need for higher education community in India.

REFERENCES

1. Alberta Education. 2012. Bring your own device: A guide for schools. Retrieved from <http://education.alberta.ca/admin/technology/research.aspx>
2. Alsied, S.M. and Pathan, M.M. 2015. 'The use of computer technology in EFL classroom: Advantages and implications.' *International Journal of English Language and Translation Studies*. 1(1).
3. Ayers, C., et al. (2002). *Integrating Instructional Technology: in the California Community Colleges*. Available at: www.rpgroup.org/cssweb
4. BBC. N.D. 'What is an interactive whiteboard?' Retrieved from <http://www.bbcactive.com/BBCActiveIdeaSandResources/Whatisaninteractivewhiteboard.aspx>
5. Burk, R. 2001. 'E-book devices and the marketplace: In search of customers.' *Library Hi Tech* 19(4)."
6. Chapman, D., and Mählck, L. (Eds). 2004. *Adapting technology for school improvement: a global perspective*. Paris: International Institute for Educational Planning.
7. Cheung, A.C.K and Slavin, R.E. 2012. 'How features of educational technology applications affect student reading outcomes: A meta-analysis.' *Educational Research Review*. 7.
8. Dunleavy, M., Dextert, S. and Heinecke, W.F. 2007. 'What added value does a 1:1 student to laptop ratio bring to technology-supported teaching and learning?' *Journal of Computer Assisted Learning*. 23.
9. Edwards, S. et al., (2006). The assignment that triggered change: Assessment and the relational learning model for generic capabilities. *Assessment & Evaluation in Higher Education*, 29 (2), 141-157.
10. Mc Nergney, R. F. (2000). *Why technology standards will not affect the use of technology in teacher education: Preparing teachers to meet the challenge of new standards with new technologies*. Washington, DC: Council of Chief State School Officers, 59-67.
11. Tapscott, D. (1998). *Growing up digital: the rise of the Net generation*. New York: McGraw Hill, p. 142.
5. Blurton, C. 2000. *New Directions of ICT-Use in Education*. United National Education Science and Culture Organization (UNESCO).