

Use of Technology, Integration and Best Practices in Higher Education

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ABSTRACT

The primary goal of this study is to explore and identify indicators of best practices in technology integration by the teacher education faculty. This is a qualitative study involving seven teacher education faculty members who participated in the University's federally funded grant, Preparing Tomorrow's Teachers to Use Technology (PT3). Interviews with faculty, classroom observations, faculty websites, and content analyses of the PT3 proposals written by each faculty member were used to triangulate the data. This study will benefit faculty members and their preservice student teachers by providing insights into their personal beliefs, philosophy, and practices. The emerging indicators of best practices will help illuminate the impact modeling can have on the preservice teachers. The indicators may also help faculty set a benchmark for their work and evaluate their practices against national and state technology standards.

KEYWORDS: technology, integration, practices, higher, education, faculty

INTRODUCTION:-

Professors need training on the effective use of educational technologies so as to help them get rid of the fear which is often associated with their hesitation to make use of ICT (Javeri, 2003; Laabidi, 2016). In fact, fundamental knowledge of both hardware and software implementations is required

so that teachers can promote the necessary qualifications to make successful use of the new innovations in their teaching practices (Hardy, 1998). For any educational institution, the curriculum is the roadmap for both teachers and learners. Curriculum development is a crucial aspect of making a course valuable to learners. It is the framework that provides the foundation to achieve a larger learning goal through suitable teaching methods, learning strategies, and instructional materials.[1,2,3]

Curriculum development is vital for the selection and organization of appropriate learning material and other activities so that learners can acquire the core competencies of a course. It helps teachers to choose their teaching approach and helps learners to achieve their goals and objectives. So, it is imperative to know what is the role of technology in delivering the curriculum.

While creating the perfect curriculum for students, instructional designers, and educators also need to factor in the role of technology in curriculum delivery in the field of education. Digital learning is the preferred mode of learning for today's tech-savvy generation. Therefore, higher education institutions are considering the role of technology in delivering curriculum and incorporating digital technology to make their curriculum more relatable and engaging.



Importance :

1. Organized path to acquire knowledge: The main purpose of the curriculum is to provide an achievable learning framework that helps students to acquire knowledge. To

make the wide spectrum of knowledge acquirable and understandable for learners, educational institutions have divided it into subjects and organized them in an engaging learning model.

2. Determining the structure of content: All subject matter needs to be represented in an acquirable form to the learners according to their learning capability. The development of a curriculum helps in determining the structure of the subject matter for a particular level of teaching.
3. Defining instructional methods: Curriculum development helps to determine a student-centric instructional method that makes the subject interesting to the learners.
4. Development of knowledge, skill, and attitude: A curriculum provides the framework for developing knowledge and skills along with enhancing creative ability.

The role of technology in curriculum development in higher education has revolutionized the learning process. Incorporating technology in the curriculum offers a dynamic as well as collaborative learning experience to students. For the tech-savvy Gen Z students, technology means not only quick access to a broad spectrum of knowledge, but also an interesting way of learning.

The use of technology in higher education such as digital learning platforms and interactive multimedia is already improving classroom engagement and educational outcomes. Implementing interactive learning features, quizzes, simulations, gamification, and so on in an educational curriculum can improve the motivation, performance, and achievements of learners.

Higher education institutions must focus on creating a need-based curriculum for students, with the help of smart education apps and AI-based programs. Embedding technology in the educational curriculum can help students learn in a better and effective manner.[4,5,6]

How to develop a curriculum for tech-savvy students

In the present scenario, when textbooks are getting replaced by laptops or tablets, and blackboards are giving way to smart boards, it has become essential to reform the curriculum for tech-savvy students and develop a new curriculum that embeds digital technologies. Many higher education institutions now realize the potential role of information technology in curriculum collaborating with IT and software organizations to develop smart learning apps and tools to integrate technologies into their curriculum. The aim is to provide students with instant access to a wide spectrum of knowledge and various types of learning materials. Some of the changes that higher education institutions can incorporate when it comes to developing a curriculum for tech-savvy students are:

- Developing and providing eLearning content
- Developing learning videos and audiobooks
- Incorporation of online lectures and interactive lessons for flipped learning
- Leveraging simulation and gamification to make the learning process engaging
- Use of learning software for better understanding
- Use of course management software for better collaboration
- Implementation of online collaboration and broadcasting tools to make the courses accessible from anywhere

- Adoption of cloud-based applications (such as – Learning management system) for the better learning experience[7,8,9]

For online or hybrid higher education programs, it is essential to have all study materials available online. Many institutions have already incorporated measures to facilitate a digitized learning infrastructure, such as the preparation of a course outline with due dates, planning of assignments for evaluation of learners' knowledge, creation of online quizzes, and so on. In short, the implementation of technology in the curriculum needs the collaborative effort of all teaching facilitators, institutional heads, and governing bodies. Some educational institutions are already using advanced technologies to improve the student learning experience. For instance, Temple University has implemented a chatbot to answer common and frequently asked questions by students.

With a thoughtful and seamless integration of technology in the curriculum, students will not only have a better learning experience, but the role of teachers will also evolve. Effective technology integration in the learning process will change classroom dynamics. Today's tech-savvy students are comfortable with smart campus concepts, where they can freely interact with smart devices and accumulate knowledge whenever and wherever they want. To facilitate this concept of active learning, educators prepare online lectures and interactive lessons (Flipped Classrooms concept) that students can access anytime.

Similarly, Active Learning Forum is one of the collaborative distance learning platforms on which both the educators and students virtually collaborate, and participate in a face-to-face learning process like a regular classroom, but all interactions occur remotely. Institutes like the University of Minnesota and North Carolina State University have been successful at running Active Learning Classrooms to facilitate learning activities. All these approaches are meant to make the learning experience more engaging for the tech-savvy generation.[10,11,12]

Several higher education institutions are currently focusing on the importance of technology and curriculum, and finding new ways to incorporate technology into their coursework. Some are also providing laptops or tablets and free internet connection on the campus to encourage learners.

The present scenario requires educational institutions to embrace the role of technology in delivering the curriculum and making it engaging and beneficial for today's tech-savvy students. To bring about an effective reformation in curriculum designing, all concerned individuals, including teachers, instructors, institution heads, and government authorities, should put in efforts in a progressive way.

Since the needs of students change with time and advancements in technology, gradual upgradation of the curriculum is essential. Technology integration is a vital step to make learning effective and collaborative, which in turn will make students future-ready.

DISCUSSION

As the world becomes increasingly connected and reliant on technology, the role of technology in education has never been more critical. Educational leaders must stay up to date with the latest technological advancements and learn how to leverage them to enhance teaching and learning experiences for their students. In this article, I will explore the best practices for educational leaders to use technology

effectively in education, including aligning technology with learning goals, providing professional development, ensuring access and equity, promoting collaboration and creativity, and ensuring data privacy and security. By implementing these best practices, educational leaders can use technology to support student success and prepare them for success in the digital age.

Aligning Technology with Learning Goals

The first step in using technology effectively is to align it with learning goals. Educational leaders must identify the educational objectives they want to achieve and then choose the technology that supports those objectives. This ensures that technology is used as a tool to enhance teaching and learning, rather than a distraction. What some schools can fall victim to as well is having a tool purchased just to be a tool without the enhancement portion of using that tool. Within the learning goals of using educational technology should be the increased learning and growth to pair together.

Providing Professional Development

Educational leaders must ensure that teachers have the skills and knowledge they need to use technology effectively. This can be achieved by providing professional development opportunities that focus on technology integration, digital literacy, and effective teaching practices. This ensures that teachers have the skills and knowledge they need to use technology to enhance learning experiences for their students. Without having proper training you will end up spending money on a tool that won't be used regularly or it will be used ineffectively. The training upfront is important, but also what you see most successful would be the ongoing training.[13,14,15]

Ensuring Access and Equity

Educational leaders must also ensure that all students have access to technology and that the technology is used equitably. This involves providing access to technology in the classroom, as well as at home for students who may not have access. It also requires ensuring that technology is used in a way that supports diverse learners and does not create barriers to learning. This really comes down to your community and both the staff using the technology along with the students and parents. A sometimes forgotten or ignored piece of this is working with parents so they can properly assist students in their learning.

Promoting Collaboration and Creativity

Technology can also be used to promote collaboration and creativity in the classroom. Educational leaders can leverage technology tools that allow for virtual collaboration, such as online discussion forums and collaborative workspaces. They can also encourage the use of digital tools that allow for creative expression, such as video editing software and graphic design tools. We are in such a great place of tools for collaboration, but often times what can happen is we mismatch the tool with what collaboration or communication is needed. There are collaboration pieces that are more for in-person versus virtual and vice versa. The more impactful role for educational leaders now is knowing the tool that fits the need and the people.

Ensuring Data Privacy and Security

Finally, educational leaders must ensure that data privacy and security are maintained when using technology in education. This involves adhering to data privacy laws and regulations, implementing secure systems and protocols, and educating staff and students on best practices for digital

security. More and more schools are finding themselves under some kind of digital security attack. What is lacking for many school district are some simple yet effective best practices.

Technology can be a powerful tool in enhancing teaching and learning experiences in education. By aligning technology with learning goals, providing professional development, ensuring access and equity, promoting collaboration and creativity, and ensuring data privacy and security, educational leaders can use technology effectively to support student success. As educational leaders, we must stay abreast of new technologies and best practices for using them in education to ensure that our students are prepared for success in the digital age.[16]

RESULTS

The future of the educational system is practically determined by the development of technology. Some educators and experts are against the trends of implementing EdTech tools and apps in every single aspect of the schooling system, mainly because technology is a source of distraction for students. However, proper technology integration guides students towards greater understanding of all concepts covered in class.

Advantages of Technology Integration in the Education Sphere

The teaching strategies based on educational technology can be described as ethical practices that facilitate the students' learning and boost their capacity, productivity, and performance. Technology integration in education inspires positive changes in teaching methods on an international level. Are you still wondering whether or not you should start relying on different apps and tools? The following list of benefits will help you come to a final conclusion.

1. Technology makes teaching easy!

Aren't you tired of giving theoretical explanations your students cannot understand? You simply cannot discover a way of presenting tough concepts that makes the concept clear for each and every student in the class. Technology has that power! Thanks to audio-visual presentations, your students will understand exactly how the knowledge is applied in practice. You can use projectors and computer presentations to deliver any type of lesson or instruction and improve the level of comprehension within the class.

2. Technology helps you track students' progress!

You are no longer limited to a plain-old diary and notes about every student. That would only get you confused. Today, you can rely on platforms and tools that enable you to keep track of the individual achievements of your students. My Students Progress and the Teacher Cloud Progress Tracker are great online tools that enable you to do that, but your school can also develop personalized software that would serve that purpose.

3. Educational technology is good to the environment!

Can you imagine the amount of paper and number of trees that would be saved if every school decided to introduce digital textbooks? Of course, that goal is far from realistic at this point, but you can make a change when you start from your own class. For example, you can instruct your students to take online tests and submit their papers and homework through email. You can also encourage them to use eReaders to go through the literature you assign.

4. Thanks to technology, students enjoy learning!

Students are addicted to Facebook, Pinterest, Instagram, Digg, and other websites from a very early age. The internet can distract them from the learning process, but you can also use their inclination to spend time online for a good purpose: Making learning enjoyable. Use touch-screen technology and online presentations to make the classes more interactive. You can also rely on technology when you want your students to take part in discussions. Set up a private Facebook group for your class and inspire constructive conversations!

5. Technology makes distance learning more accessible than ever!

Without the wonders of the internet, people wouldn't be able to get access to any type of information at the very moment they think of it. Today, distance learning is one of the most trending learning methods. Virtual lessons are slowly taking the place of traditional lectures. Students can organize their time in a way that works for them, and they can easily gain the knowledge they are interested in. For example, let's say one of your students shows great interest in Astronomy, but the traditional curriculum does nothing to feed that hunger for knowledge. You can recommend him/her to take beginner's course at Coursera, Udemy, or any other online service that offers high-quality virtual lectures.

6. Students and teachers can access information at any time!

This is possibly the most obvious benefit of technology. When old-school teachers were students, they had to spend hours in the library looking for the information they needed. Today, technology integration makes everything different and simpler. Students can easily access newspapers, scientific articles, studies, and any other type of content online. They can write better, deeper academic papers because they can support their arguments with more evidence. When you give a lecture the students don't understand, they can find simpler instructions and information with a single Google search.

7. Technology makes collaboration more effective!

Think about the way collaboration looks like in a traditional classroom setting. You organize groups, assign the projects, and suddenly the class becomes a complete mess. Some students express their opinions too loudly and firmly, while others don't get an opportunity to be heard. Online tools and apps offer a unique setting for students to engage in a group project. They can do the work from home; the team is connected through the Internet and everyone is inspired by the focused environment.

Don't Underestimate The Power Of Technology

You stand no chance of being called "the cool teacher" if you keep neglecting the use of educational technology in the classroom. The benefits of technology integration described above should convince you of the fact that this form education is great for both students and teachers.[17,18]

CONCLUSION

CAST provides numerous resources related to Universal Design for Learning. The UDL Guidelines are a tool used for implementing Universal Design for Learning.

Common Sense focuses on media and technology in education and family life. Within its Media section, you'll find age-based reviews for movies, TV shows, books, apps, games, and parenting. Within the Education section you'll find

edtech reviews, lesson plans, a free K-12 digital citizenship curriculum, and professional development that helps "develop effective strategies for teaching with tech and supporting students in their digital lives."

Discovery Education is devoted to "Giving educators innovative ways to design and deliver engaging learning experiences every day." Per its features, there are over 200,000 content resources spanning all grades and subjects, which you can "filter by grade, media type, language, literacy and accessibility supports, and more." There's a Video Player page where you can create video quizzes, assign a self-paced activity, jump to video segments, and find related instructional supports. Literacy tools include Immersive Reader, Lexile scoring, and differentiated reading levels. Professional learning opportunities are available, and curriculum packets for science, social studies, math, STEM, and coding. Additional features are noted at the site.

Free Technology for Teachers is a blog written by Richard Byrne, which contains free resources and lesson plans for teaching with technology.

Getting Started Enriching K-12 Curriculum with Internet Resources, written by P. Deubel, is an imaginative, tutorial approach of a teacher's exploration of the Internet with its enormous resource of materials to enrich K-12 curriculum. It is located on this site and was featured in the summer 2002 online edition of Learning & Leading with Technology.

Instructional Best Practices Using Technology from the Center for Distributed Learning at the University of Central Florida includes four sections: Pedagogy, Organization, Interaction, and Assessment. The strategies are helpful for any educator who is integrating technology in instruction.

Intel Education features resources for K-12 and higher education. For K-12, Intel Teaching Tools and Resources offers proven professional development courses to promote 21st century skills using technology. Intel's teaching tools and resources includes "a collection of exemplary unit and lesson plans that integrate technology into classroom projects. These plans aligns to standards and promotes higher-order thinking using curriculum-framing questions, authentic project tasks, effective instructional strategies, and performance assessment." Numerous resources are provided, as "Intel believes that young people are the key to solving global challenges, and a solid math and science foundation coupled with skills such as critical thinking, collaboration, and digital literacy are crucial for their success."

International Society for Technology in Education (ISTE) Standards for Students (2016) addresses skills, rather than tools, enabling learners to leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals; to achieve digital citizenship, to be a knowledge constructor, innovative designer, computational thinker, creative communicator, and global collaborator.

LOtus "is an educational technology company dedicated to empowering educators to harness and act on educational data to improve learner outcomes" (About section). Its platform includes assessments (prebuilt from multiple sources and aligned to standards), standards-based and traditional grading (grade books), data-driven instruction, and progress monitoring. There's also a library of resources that includes guides on topics such as social and emotional

learning, differentiated instruction; formative, summative, common, and performance-based assessments; grading, and more.

PowerUp WHAT WORKS provides "customizable resources for teachers, school leaders, PD facilitators, and teacher educators to improve teaching and learning for struggling students and those with disabilities." You'll find "teaching strategies supported by technology, technology use in schools and classrooms, Universal Design for Learning (UDL) and differentiated instruction, [and] guidance on meeting Common Core Standards" (About Us section).

Technology & Learning eBooks Download eBooks on a number of topics, including new tools that students use (podcasts, cell phones, blogs, social networking), the potential of interactive technologies, online safety, 1:1 computing, whiteboards, VoIP and networking, mobile devices, blended learning, wireless, and more.[19,20]

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