

## IMPACT OF TECHNOLOGY IN HIGHER EDUCATION

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### ABSTRACT

As we consider technology in education, we must consider the implications of that technology on the learner and as well as the teacher. What role does technology have for these two intertwined groups of people? I will show a correlation between the positive effects on both the student and teacher related to academic performance, meaningful learning, and those afflicted with learning disabilities. Furthermore, I will also show the positive effects on the applications of technologies in the classroom. Combining education and technology creates a more stimulating learning environment. In order to accomplish higher order thinking skills such as critical and independent thinking, the application of technology and improved motivation and attitudes, technology must be integrated into the everyday curriculum. This paper describes some impacts of technology on education through the experiences of teachers and students.

**Keywords:** *Technology, Higher education, Evaluation, Challenges and Conclusion, Issues, Classroom*

### INTRODUCTION:

In today's technology-enabled knowledge economy, many universities find themselves facing a new challenge: how not only to equip students with an adequate education in their field of study, but also to arm them with the skills and knowledge required to leverage technology effectively in the workplace. How well do current graduates fare? Some academics in the US warn that the quality of their domestic university brand may be slipping. Private-sector respondents are particularly concerned, with 46% expressing worry that the US is lagging behind other countries in its ability to produce high quality professionals. In fact, only about 40% of all survey respondents believe that current graduates are able to compete successfully in today's global marketplace.

#### 1. OBJECTIVES:

This paper consists of following objectives:

- 1) To study challenges in higher education.
- 2) To study effect of technology in higher education.
- 3) To analyze findings and provide suggestions for future research.

#### 2. TECHNOLOGY CHALLENGES FACING EDUCATION

Despite increasingly widespread adoption of technologies in virtually every aspect of K-12 education, significant challenges are preventing widespread effective implementation. According to researchers, though some of those challenges are systemic and some related to the technologies themselves, teachers and education leaders share in the blame as well.

"The NMC Horizon Report: 2013 K-12 Edition," put together by the New Media Consortium as part of the Horizon Project, identifies key emerging issues in education technology using primary and secondary research and input from an advisory board comprising "internationally recognized practitioners and experts" in ed tech. Among those issues are challenges that represent significant constraints on the adoption of technology in education.

In past reports, those challenges have centered largely on reluctance on the part of administrators and teachers, lack of preparation, and lack of support or funding. This year's findings followed largely along those lines as well, though some new challenges were identified as well.

#### **Challenge 1: professional development:**

Key among all challenges is the lack of adequate, ongoing professional development for teachers who are required to integrate new technologies into their classrooms yet who are unprepared or unable to understand new technologies.

"All too often, when schools mandate the use of a specific technology, teachers are left without the tools (and often skills) to effectively integrate the new capabilities into their teaching methods," according to the report. "The results are that the new investments are underutilized, not used at all, or used in a way that mimics an old process rather than innovating new processes that may be more engaging for students."

- **Challenge 2: resistance to change:**

Resistance to technology comes in many forms, but one of the key resistance challenges identified in the report is "comfort with the status quo." According to the researchers, teachers and school leaders often see technological experimentation as outside the scope of their job descriptions.

- **Challenge 3: MOOCs and other new models for schooling:**

New in this year's report, new models for teaching and learning are providing "unprecedented competition to traditional models of schooling." In particular, the MOOC (massive open online course) — probably the hottest topic in higher education right now — was identified as being "at the forefront" of discussions about new modes of delivering K-12 education.

"K-12 institutions are latecomers to distance education in most cases, but competition from specialized charter schools and for-profit providers has called

attention to the needs of today's students, especially those at risk," according to the report.

- **Challenge 4: delivering informal learning:**

Related to challenge 3, rigid lecture-and-test models of learning are failing to challenge students to experiment and engage in informal learning. But, according to the report, opportunities for such informal learning can be found in non-traditional classroom models, such as flipped classrooms, which allow for a blending of formal and informal learning.

- **Challenge 5: failures of personalized learning:**

According to the report, there's a gap between the vision of delivering personalized, differentiated instruction and the technologies available to make this possible. So while K-12 teachers seem to see the need for personalized learning, they aren't being given the tools they need to accomplish it, or adequate tools simply don't exist.

- **Challenge 6: failure to use technology to deliver effective formative assessments:**

The report noted: "Assessment is an important driver for educational practice and change, and over the last years we have seen a welcome rise in the use of formative assessment in educational practice. However, there is still an assessment gap in how changes in curricula and new skill demands are implemented in education; schools do not always make necessary adjustments in assessment practices as a consequence of these changes. Simple applications of digital media tools, like webcams that allow nondisruptive peer observation, offer considerable promise in giving teachers timely feedback they can use."

## **7. EMERGING TRENDS AND OPPORTUNITIES:**

In the context of those challenges, the annual NMC Horizon Report identified emerging technologies that will have a significant impact on education in the near term, mid-term, and long term. It also identified key emerging trends, which we reported in our earlier preview of the 2013 report.

To recap, the report's authors identified five key trends impacting education over the next five years. Those included:

1. An increasing shift toward blended learning, online-learning, and technology-driven collaborative learning;
2. The growth in the potential of social networks to allow teachers to engage students online;
3. Openness of educational resources and technology is "becoming a value";

4. BYOD is becoming more common as the cost of technology drops for students; and
5. The role of the educator is being challenged as resources become more accessible on the Internet.

## **8. EMERGING TECHNOLOGIES:**

The report also identified the technologies that will have a palpable effect on education over the next five years, broken down by near term (one year from now or sooner), the mid-term (two to three years out), and the long term (four to five years out).

In the near term, cloud computing was identified as the top trend. The report cited several examples of its use in teaching and learning, including cloud-based 1-to-1 programs using Chromebooks and computing platforms that allow for shared desktops. It also identified the use of the cloud in K-12 IT infrastructure.

Also in the near term is mobile learning. According to the report: "Because of their portability, flexibility, and natural, intuitive interfaces, mobiles are especially enticing to schools, and a growing number of them have turned to tablets as a cost-effective strategy for one-to-one learning — a systemic solution in which every student is provided a device that can be used to support learning in and outside of the classroom. In many regions of the world, students come to class already familiar and comfortable with the technology. At the end of 2012, the Daily Mail reported that 75% of ten-year-olds in the UK, for example, own a mobile device, and the global average is approaching 50%."

In the mid-term, NMC identified learning analytics — the use of data and analytics to customize education for individual students — and open content (also known as open educational resources) as significant technologies that will impact education. The report characterized OER as essentially the opposite of cumbersome, expensive, and quickly outdated textbooks.

"Educators are taking advantage of open resources to expand their curricula with media-rich tools and texts that can be used and adapted to specific lessons," according to the report. "Formerly bound by the framework of standardized course materials, teachers now have access to a wealth of digital information that they can use to meet district expectations."

In the longer term, four to five years, the two technologies identified in the report were 3D printing and virtual and remote laboratories. Both are currently in use in several districts in the United States and are not technically new; but, according to the report, they are about to become more mainstream, in particular in the context of improving STEM education (science, technology, engineering, and math). In the case of 3D printers, physical models of fossils or proteins or molecules or other objects can

be whipped up on the fly, allowing students to interact with them. In the case of virtual and remote labs, schools that lack resources to buy costly equipment will be able to fill in the gaps with less costly alternatives, allowing students to engage in experimentation, even if that experimentation isn't direct.

The complete report, "NMC Horizon Report: 2013 K-12 Edition," will be available to the public Wednesday on NMC's site. A preview and additional information about the report is available now. For more, visit [nmc.org/publications/2013-horizon-report-k12](http://nmc.org/publications/2013-horizon-report-k12).

## **9. FIVE POSITIVE EFFECTS OF TECHNOLOGY ON EDUCATION**

The prevalence of technology drastically affects many areas of society in positive ways, including education. Modern-day students not only have computers to help them with their schoolwork, they also use the Internet for research while teachers use technology to enhance their lessons.

- **Research**

If a school's library is outdated or lacking in a selection of titles, a student might find it difficult to compile the necessary research for an essay or research paper. As long as the school has a computer lab, students are able to use the Internet and digital encyclopedias to obtain the research they need. While students should be wary of the legitimacy of some of the content they read online, many schools use software like the Encyclopedia Britannica to help students do research.

- **Globalization**

When schools in different parts of the state, country or world connect, students can "meet" their counterparts through video conferencing without leaving the classroom. Some sites, such as Glovico, are used to help students learn foreign languages online by pairing a group of students with a teacher from another country. □ **Educational Games**

In younger grades, teachers expose children to computers through educational games. Instead of playing board games that focus on education, students can learn the basics of spelling, counting and other early educational lessons through computer games that make learning fun. Because many schools have at least one computer in each classroom, the teacher can make that computer a vital part of learning for young students.

- **Distance Education**

In the past, students could take distance or continuing education classes, also called "correspondence courses," at community colleges and universities. After enrolling in a course of this style, a student would receive course documents in the mail and would be required to mail assignments to his teacher at the educational institution. The process could be long and complicated. Thanks to technology, continuing education students can take courses over the Internet at their convenience.

- **Web Seminars**

Not every school has the resources and budget to send its students on field trips related to the course of study. When this is the case, the students' education can suffer. But thanks to technology, students can use the Internet to virtually attend Web seminars put on by museums and other educational institutions. NASA, for instance, offers a program that allows students to talk to astronauts in space.

### **10. TECHNOLOGY IN HIGHER EDUCATION BEYOND**

A recent Times Higher Education article looked beyond 2015 to predict key trends over the next five years which are expected to further accelerate technology adoption. These included:

- using technology as a catalyst to reposition institutions within the global marketplace in order to promote a “culture of innovation”
- increasing cross-institution collaboration to pool resources and/or work toward common goals in acknowledgement of the larger ecosystem
- customizing the learning experience and/or measuring performance through analysis of massive amounts of student learning data
- the increased presence of open education resources within the public domain to aid teaching, learning and research
- the evolution of “blended learning,” in which higher education institutions offer a mix of both online and classroom methods
- emerging educational models, including “flipped” classrooms, in which knowledge is delivered online while course time is reserved for discussion for a more practical, interaction-based experience

That today’s higher education environments are virtually unrecognizable compared to the ones of just a quarter of a century ago is largely due to technological strides. While it’s impossible to predict precisely what we can expect a year, five years, or 50 years from now, we can safely conclude that technology will play a significant role in shaping the future of higher education. Read more about studying Technology.

### **CONCLUSIONS:**

Today the rapid advances in technology are reshaping our society, social institutions and schools. Modern technologies have vastly increased our capacity to know and do things and to communicate and collaborate with others. They allow us to transmit information quickly and widely, linking distant places and diverse areas of endeavor in productive new ways. These advances allow us to form and sustain communities for work, play and learning in ways unimaginable just a decade ago. The students of today have a wide range of new technology open and available to them. This information changes the relationship between people and knowledge. As you can



see when technology is applied to learner's lives a positive outcome arises. By adapting technology for education teachers, students and parents alike will see positive improvements in many different categories such as:

- academic performance
- motivation
- critical thinking skills
- Literacy
- attitudes
- real life work skills

The No Child Left behind Act of 2001 is a federal law to improve education for all children. It also holds schools responsible for results, gives parents greater choices, and promotes teaching methods that work. In accordance with that law technology will enhance education in all areas. The technology that we use in our everyday curriculum, whether it is computers, iphones, web casting or any other type of mobile technology, will only lead to enhancing our educational system in the 21<sup>st</sup> century

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