

# ED TECH ISSUES

ISDT 7350

SPRING 2019



## *Building Techquity*

## Overcoming Educational Resource Obstacles

*How to make informed decisions before investing in educational technology*

# ED TECH ISSUES

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# THE PROBLEM

Technology. The word alone generates apprehension among both educational administrators and organizational leaders. From computers to software, licensing agreements to requisitions, the cost of technology affects the bottom line of any organization, regardless of the purpose. This shift into the 21st century has delivered several repercussions. While some of the accompanying issues were anticipated, many were not, and resource funding is quickly becoming one of the top issues within both educational environments and professional organizations.

Instructional technology continues to evolve, giving way from the traditional classroom to incorporate new and exciting opportunities. Blended classrooms, flipped learning, and online classes are continuing to permeate the traditional concept of a “classroom.” These concepts have also spread into business and industry, transforming the traditional concept of training. These transformative evolutions have given rise to countless resources as companies vie for a seat at the table. There are millions to be made in the instructional technology arena. Any district or corporate contract can launch an educational start-up into legitimacy.

However, how does an administrator or manager choose where to invest their money? A poor decision could result in a massive loss of resources. While some corporations may be able to absorb the hit, many educational institutions are already running on limited funds. From a business perspective, a negative return on investment may even bankrupt a company. Avoiding technology is no longer an option. As the world becomes increasingly plugged in, technology is no longer a luxury, but a necessity.

This challenge is at the heart of this current Ed Tech Issue. Technology and private educational resources costs are soaring and are economically unsustainable. An unfortunate result could be the late adoption of technologies required for effective and efficient instruction in a technologically dependent world. Instructional designers must not only design and implement effective technology but also consider viable alternatives to address resource limitations.

We are here to show you how.



# THE CURRENT REALITY

Clearly, there is a need for conversation concerning the funding and implementation of educational resources in both the private and public sectors. A litany of research reveals a need for change. Major issues that immediately surface are the cost of private educational resources and the acceptance/adoption rate of technology. A deeper dive into research reveals that current technology integrations are delivering mixed results and open educational resources aren't even being considered. These issues are contributing to an avalanche of wasteful spending that could be prevented.

## Private Educational Resources Too Costly

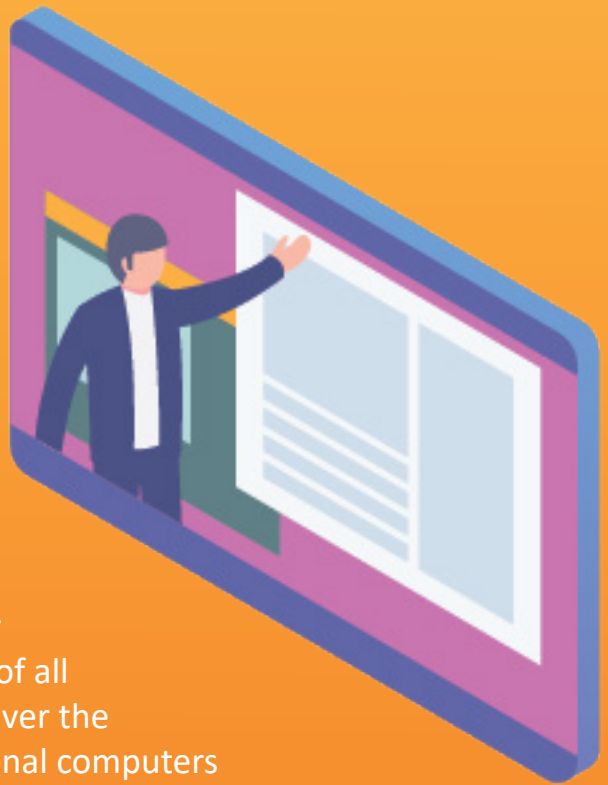
Both students and teachers are struggling to keep up with the financial demands of educational resources. Eighmy-Brown, McCready, and Riha (2017) found that “textbook prices have increased 88% from January 2006 to July 2016, which is three times the rate of inflation” (p. 94). As a result, “65% of students surveyed have opted not to buy a textbook due to cost and 95% of those students were concerned that this would negatively impact their grades” in a survey study of 2,000 students across 150 campuses (Eighmy-Brown et al., 2017, p. 94). This financial impact is a significant challenge for some students. In response, library-led initiatives have started to engage access to open accessible digital content (Eighmy-Brown et al., 2017, p. 93), thus relieving some of the financial burden. This forward-thinking approach is the key to successful technology integration. To guarantee success, school districts and business administrators must shift funds from textbooks and other supplies and move toward supporting technology initiatives for 21st century learning (Puente, 2012).

Students are not the only ones feeling the pinch of technology costs. “With declining budgets in higher education, the challenge of providing students with the resources they need has become increasingly difficult” (Hua, 2013). But the problem is not unique to higher education. “As financial budgets become tight and restrictive, school districts and employers may not afford a contemporary

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device for every learner and/or employee. As a result, a gap exists between what is taught and what needs to be taught in the classroom today” (Ackerman & Krupps, 2012, p 35). Lack of funds is only part of the financial problem: often, organizations rarely calculate the total cost of technology integration. “The initial cost often only considers the input from content developers and learning technologists but the hidden costs invariably include the purchase, depreciation and service costs of all of the technology that is required to develop and deliver the learning resource to the user, such as software, personal computers and servers” (Sandars, 2011). Due to lack of understanding, research, or both, “A comprehensive calculation of the total costs is extremely rare” (Sandars, 2011).



In desperation, some districts are looking to cost-sharing options such as vendor-sponsored materials. But this solution adds unexpected issues as well. “Despite the potential benefits, the decision to adopt vendor sponsored materials into an academic program should not be taken lightly. While the vendor may not charge much to use their materials, there are likely to be a number of hidden support costs. These include fees for subscriptions/site licenses, hardware, software, and vendor support. A more significant cost to consider is the potential loss of academic freedom which results from attempting to fulfill specific usage requirements by sponsoring vendors (Hua, 2013). Other entities have sought to minimize costs by implementing massive open online courses, or MOOCs, in an effort to attract new students. However, the cost to sustain these online courses include hardware, software, and manpower. On the surface, they appear to be a quick and easy solution. However, the total cost of technology integration is not realized. “Many interviewees expressed concern at the lack of sustainability for MOOC initiatives given the heavy burden on faculty time and other institutional resources. There was widespread acknowledgement that the current expenditures on MOOC development could not continue indefinitely without financial justification” (Hollands & Tirthali, 2014).

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## Technology Adoption/ Acceptance is Low

Let's assume you're lucky enough to have the funds to launch the tech applications you desire. Your next hurdle is employee acceptance and adoption. Brownell, Haney, and Sternberg (1997) questioned teachers and administrators about their perceived needs for technology as part of professional development experiences for teachers. Whereas Seventy-seven percent of the respondents stated their district's teachers have positive attitudes toward technology in the classroom, 90% reported the same for their administrators; however, only 17% perceived that teachers in their district were skilled enough to integrate technology into their instruction. These past studies stress the importance of teachers' attitudes toward technology use in the classroom. (Holden & Rada, 2011, p. 349). This lack of confidence can have a legitimate impact on your bottom line. In the case of a learning management system (LMS), some reports shows limited instructor buy-in and proper use for learning. Many utilize it as more of a tracking and managing system than a collaborative learning environment. Although 99% of colleges and universities today support instructional technologies such as learning management systems (LMS), only 41% of faculty utilize its most effective learning functions such as collaborative interaction and social learning (Dahlstrom, Brooks, & Bichsel, 2014).

Lack of technology confidence extends into the student realm as well. Although leading stakeholders, such as the Common Core State Standards (CCSS) support media and technology integration, survey results show that 43% of students feel they are unprepared to use technology while only 8% of faculty feel they fully integrate technology within the classrooms (Cardullo, Zygouris-Coe, & Wilson, 2018, p. 39). The Leading Education by Advancing Digital (LEAD) commission placed emphasis on addressing two major research questions: "Why is the adoption of technology moving so slowly?" and "What can we as a country do about it?" (Cardullo et al., 2018, pp. 43–44). Cardullo et al. (2018) identifies one of the possible causes is the "natural aversion among some administration,



A tool may have  
***“bells and whistles,”***  
yet may not augment  
the student’s  
learning



# VISION FOR THE FUTURE

Design Divas believe that the viability of open educational resources combined with the “bring your own device” concept are an affordable solution to the growing costs associated with tech integration. We also believe in designing or redesigning systems to incorporate these technologies, implementing sound learning principles and significant learning models to support a learner-centric, active and collaborative learning environment. Upon establishing Leadership Buy-in and Support, we plan to increase self-efficacy and attitudes through professional development and training.

The system design is central to establishing effective and transformative change. According to Wiley (2018), “When every single student in a course has full, no-cost access to all the materials they are assigned to read, watch, and practice with, there is a noticeable impact on student success” (p. 320).

Upon the integration of OERs, the first step in the command change requires the buy-in of leadership; their support is a crucial component to the success of the program. “Leaders in higher education must be able to understand, articulate, and communicate, the cost of online education, as well as the methodology for collecting cost data. Second, as part of a larger approach, higher education leaders must explore efficiencies that may exist on their own campus as a result of a cost study. These efficiencies, once identified, can be managed across a campus, or across an entire university system, thus reducing costs for students” (Bryan, Leeds & Wiley, 2018). Communication across departments is also critical, as the technology leadership must be in sync with the financial goals of the organization. They must also be prepared to support the staff through all phases of integration. Studies show that school technology leadership is critical to improving technology adoption and acceptance through proper professional development, training, and vision for technology integration (R. E. Anderson & Dexter, 2005; Chang, 2012; Zhong, 2017).

The best leadership combined with a stellar system design is still no guarantee that the organization can still reach its goal. With proper support in place, the focus shifts to the self-efficacy and attitudes of the users themselves. It is important to note that “teachers who demonstrate positive attitudes and perceptions as well as high self-confidence toward technology usage may be more likely to utilize technology for instruction” (Holden & Rada, 2011, p. 348). However, the benefits don’t stop there. “Adults with higher proficiency in literacy, numeracy and problem solving in technology-rich environments tend to have better outcomes in the labour market than their less-proficient peers” (Chinchilla Calvo, Silmi Moyano, & Rabadan Marina, 2016, p. 18). This translates into higher productivity in the education arena, and possibly higher production in the corporate realm.



Finally, once a solid framework is established, we can turn our focus to the benefits of OERs and the cost-savings of “bring your own device” (BYOD) technology. UNESCO (2002) has defined Open Educational Resources (OERs) as the “technology-enabled, open provision of educational resources for consultation, use, and adaptation by a community users for non-commercial purposes”. These resources be anything from open-access journals to cloud-based application suites. Some organizations have embraced the OER concept, launching OER initiatives with the purpose organizing, classifying and storing digital educational resources and their associated metadata in web-based repositories which are referred to as Learning Object Repositories (LORs). OERs have other transformative repercussions as well; “OER have the potential to not only help address the cost of textbooks but also transform teaching and learning since OER enable faculty create a curriculum all their own, as opposed working from commercial textbook curriculums” (Davis, Cochran, Fagerheim, & Thoms, 2016, p. 23).

OERs are especially valuable in the arena of open access journal publications. Technology such as open educational resources (OER) may provide “much lower cost and increased accessibility of online work” (T. Anderson, 2013, p. 81). Like other disruptive innovations, OER may transform online authorship and open access adoption as a viable and acceptable quality alternative to costly closed and private journals. Anderson (2013) presents evidence confirming that “open access journal publications have been relentlessly increasing in use and as importantly in quality as attested to by impact factors assigned to open access journals” (p. 90). These resources allow open access of information without the debilitating financial responsibilities.

The financial savings associated with the “Bring Your Own Device” initiative are unmistakable. However, there are even more benefits to making a change to a BYOD culture. “Through the use of Bring Your Own Technology (BYOT), teachers and students can change the focus of the classroom and become more student-centered. The role of each member of the classroom may also change to reach the student’s maximum learning potential by creating a customized education for each type of learner” (Ackerman & Krupps, 2012, p. 35). Such devices people bring include, but are not limited to the following: smartphones, tablets, E-readers such as Nook and Kindle, laptops, iPods, and many others (Ackerman & Krupp, 2012, p.35). Allowing students to use these additional forms of technology not only allows the organization to

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