The Transition to Diverse Online Teaching and Student Learning In Higher Education

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The Transition to Online Teaching and Student Learning in Higher Education

This paper addresses the concern of educating diverse university students in an increasingly digital environment. Specifically, educators question the quality of student online research skills and how to address gaps in research skills in both the virtual and physical classroom. A 2012 survey conducted by the Pew Research Center in collaboration with College Board and the National Writing Project found of the 2,492 teachers surveyed, 94% stated their students were very likely to use Google search engine as their first source when conducting research for an assignment, rather than traditional sources such as university subscribed databases. The vast majority of teachers surveyed stated the top priority in the classroom is teaching students how to assess the information they find online, how search engines work and how to develop strategic research skills. These findings highlight the discrepancy between how students currently access information and how professors teach students to access information (Purcell, et al., 2012). This problem is important to address because as Ferrario, Hyde, Martinez, and Sundt (2013) found in their independent study, professors must adapt their teaching pedagogy to the new digital age to ensure future student success.

Review of Relevant Research

As the demand for higher institutions to offer high quality, engaging online courses increases, professors must rapidly adapt the way they design their online curriculum. In 2014, Johnson, Adams-Becker, Estrada, and Freeman examined emerging technologies for their potential impact on and use in teaching, learning, and creative inquiry within the environment of higher education. With the adoption of technology, specifically online degree programs, accelerating in higher education, the pedagogy for teaching must evolve to meet the needs of a new generation of students (Ferrario, Hyde, Martinez, & Sundt, 2013).

Skills Needed

Research indicates developing 21st century skills of creativity, critical thinking, communication, and interdisciplinary collaboration require pedagogy that has evolved beyond the traditional lecture (Kutaka-Kennedy, 2015; Linder-VanBerschot, & Summers, 2015; Michello, 2014). Kutaka-Kennedy (2015) proposed a model to increase creativity, collaboration and accountability in the online classroom. According to Kutaka-Kennedy (2015) the proposed model is based on a need for 21st century skills for both teachers and students as the demand for online education increases, high drop rates for online courses increases, student disengagement increases, and poor online course quality is prevalent. Kutaka-Kennedy (2015) reported over 86% of institutions of higher education offering online courses, up from 72% a decade ago. Three years ago in 2012 over 62% provided completely online programs in contrast to 34% in 2002. In 2015 almost 70% consider online education strategic for success and critically essential. Kutaka-Kennedy (2015) discovered isolation is common as a contributing factor to the higher online drop-out rate of 10 to 20%, as are the students' age, maturity, and online proficiency.

Linder-VanBerschot and Summers (2015) argue as instructional designers strive to provide quality and sustainable online learning experiences, they must frame instructional design decisions around learners' current needs and interaction with technology. They examined the implications of technology transience on instructional design. In the case study conducted by Linder-VanBerschot and Summers (2015) they found the transience in technology provides a multitude of learning options for today's students; scenario-based learning, just-in-time learning, or mobile learning, for example. One important element in online course design was students receiving individualized feedback from instructors and peers. Instructional designers strive to be purposeful in their course design while building upon student learning outcomes.

Michello (2014), a professor for LaGuardia Community College, found the need for varied instructional strategies that are inquiry-based and support higher-order thinking. This is especially critical when dealing with non-traditional students, who are at a higher risk than traditional students for dropping out, and are also more likely to take online or hybrid classes for their much-needed scheduling flexibility. Michello (2014) offers her reflection of practice through a case study she conducted based on an interdisciplinary, inquiry-based assignment. As a result of Michello's professional assessment she found key elements for online curriculum design include inquiry-based assignments which promote student collaboration and engagement as well as peer learning. Michello (2014) further recommends best practices which employ innovative curricula for better trained online instructors in order for the learning environment for students to be optimal.

Curriculum Design and Assessment

Recent research shows online teaching and learning requires the development of student-centered innovative design and assessment (Burgess, 2015; Clark-Ibáñez & Scott, 2008; Hunt et al., 2014). Marisol Clark-Ibáñez and Linda Scott (2008), argued instructors no longer need advanced technical knowledge to teach online, but it does require a new pedagogy to engage students, stimulate critical thinking, and provide a safe environment for learning. Their qualitative research data comes from course evaluations and anonymous surveys administered in their courses and is also based on an American Sociological Association workshop about best practices for online teaching. Their "constructivist approach where the instructor facilitates student learning" has yielded greater student engagement and positive feedback (p. 34). Results from one anonymous survey clearly identified the majority of their online students felt their

learning was the same or greater than in a traditional face-to-face class (Clark-Ibáñez & Scott, 2008).

After a year of teaching online courses Dr. Olivia Burgess (2015), teaching assistant professor for the division of liberal arts and international studies from Colorado School of Mines, reflected on her experience. She applied a case study approach to her own online courses as well as an analysis of thirteen current publications on the topic of teaching particularly online teaching. Burgess gleaned from her research that when instructors are guided by a pedagogical focus on creating effective student learning in concert with online technologies, they offer higher education a meaningful way to meet the needs and expectations of 21st century learners both online and in-person.

Hunt et al. (2014) examined data collected from an interdisciplinary range of faculty to explore the relationship between faculty attitudes, experiences, self-perceived preparedness, and concerns about teaching online courses. Specifically, the authors examined whether faculty who have taught online courses feel more prepared and motivated to teach online and have more positive attitudes about online teaching than those who have not taught online. The researchers distributed an online questionnaire to Augusta State University faculty to examine concerns and motivations for teaching online courses. Data were collected from 121 respondents, for a response rate of approximately 27%. The findings indicated student related concerns were among the most important. Student related concerns included lack of student interaction and engagement with faculty and other students, faculty response time to students, and students with disabilities. Other important concerns indicated in the findings were sufficient training for instructors and self-efficacy in order to address the diverse needs of 21st century students.

Innovative Technology

With the education landscape becoming increasingly digital professors teaching online courses are adapting by being innovative, accepting of technology, and engaging in self-efficacy while achieving student learning outcomes (Forrer, Wyant, & Gordin, 2014; Schaffhauser, 2015; Horvitz, Beach, Anderson, & Xia, 2015; 2014). Researchers Forrer, Wyant, and Gordin, (2014) conducted a study of faculty innovativeness in relation to inductive teaching and the use of and acceptance of technology in an online academic environment. The assessment instrument for their research was the Rubric for Online Competencies and Standards (ROCS) developed by Hodges University. Their findings indicated the following averages: learner support 58%; online organization and design 59%; instructional design and delivery 45%; assessment and evaluation of student learning outcomes 69%; innovative teaching with technology 63%; and use of student feedback 66%. While these results are positive they do indicate a need for further research in the application of inductive teaching and learning. The technology available today provides instructors a variety of delivery options and learning opportunities to enhance their course.

An example of technology use in a classroom setting was demonstrated through the doctoral program at Michigan State University which has begun experimenting with the use of robots to pull on-campus and off-campus students closer together (Schaffhauser, 2015). The Educational Psychology and Educational Technology (EPET) doctoral program focuses on the study of human learning and development and the diverse technologies supporting learning and teaching. During a spring course in 2015 all but one student participated by being present in the form of an Apple iPad affixed to a swivel robot that was stationary while one student was on a robot that could move around the classroom. The effective use and acceptance of technology in education has and will continue to change the face of instruction and learning by providing access to educational opportunities.

Further research explored faculty self-efficacy related to online teaching. (Horvitz, Beach, Anderson, and Xia (2015; 2014). Through this qualitative survey based study the researchers sought to gain understanding of the challenges professors face as they make the transition to teaching online. Out of 345 potential participants 91 surveys were viable, a 26% response rate. Results showed that online teaching self-efficacy was high among the professors surveyed with no self-efficacy scores lower than 3.69 out of 5. These results suggest a greater need for training to increase instructors' self-efficacy.

The 2015 New Media Consortium (NMC) Horizon Report on Higher Education (Johnson, Adams-Becker, Estrada, & Freeman) includes those trends considered to be key drivers of educational technology adoption in higher education as:

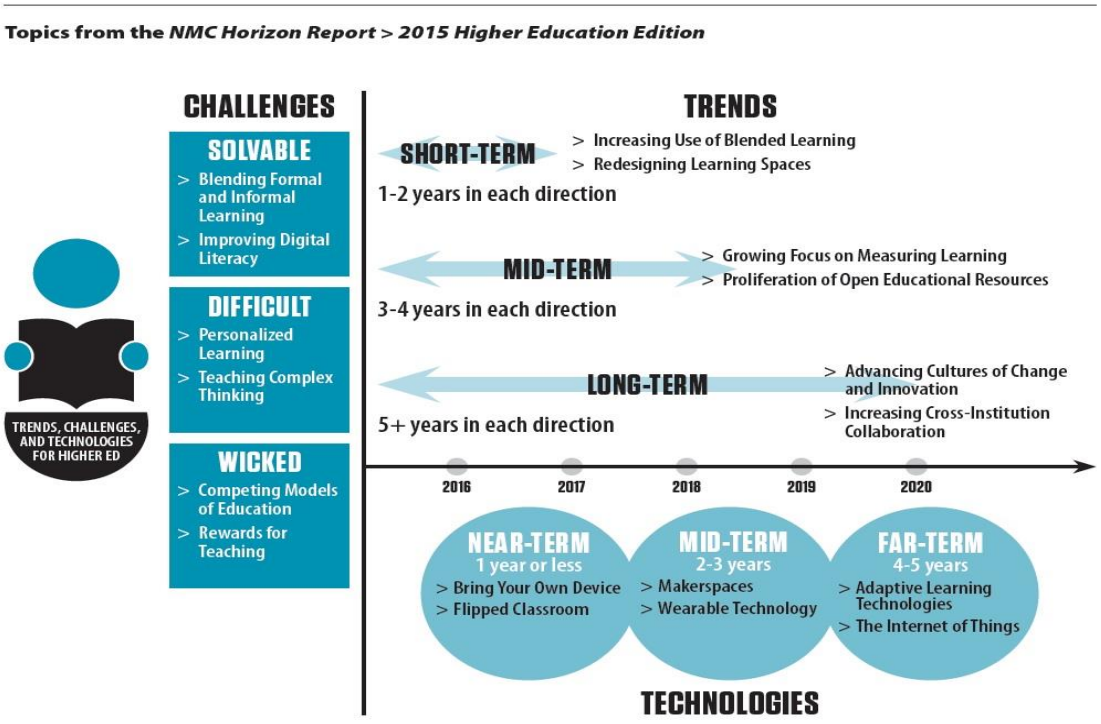

Figure 1: Challenges, trends, and technology in higher education (NMC, 2015).

- "Long-Term Trends: Driving Ed Tech adoption in higher education for 5+ years
    - Advancing Cultures of Change and Innovation

    - Increasing Cross-Institution Collaboration

- Mid-Term Trends: Driving Ed Tech adoption in higher education for 3-5 years
    - Growing Focus on Measuring Learning
    - Proliferation of Open Educational Resources
- Short-Term Trends: Driving Ed Tech adoption in higher education for the next 1-2 years
    - Increasing Use of Blended Learning
    - Redesigning Learning Spaces" (pg. 3).

The Educause Center for Applied Research (ECAR) study of university undergraduate student and faculty perceptions of and usage of technology reports are shown in figures 2-5 (Students & Faculty Technology, 2014).

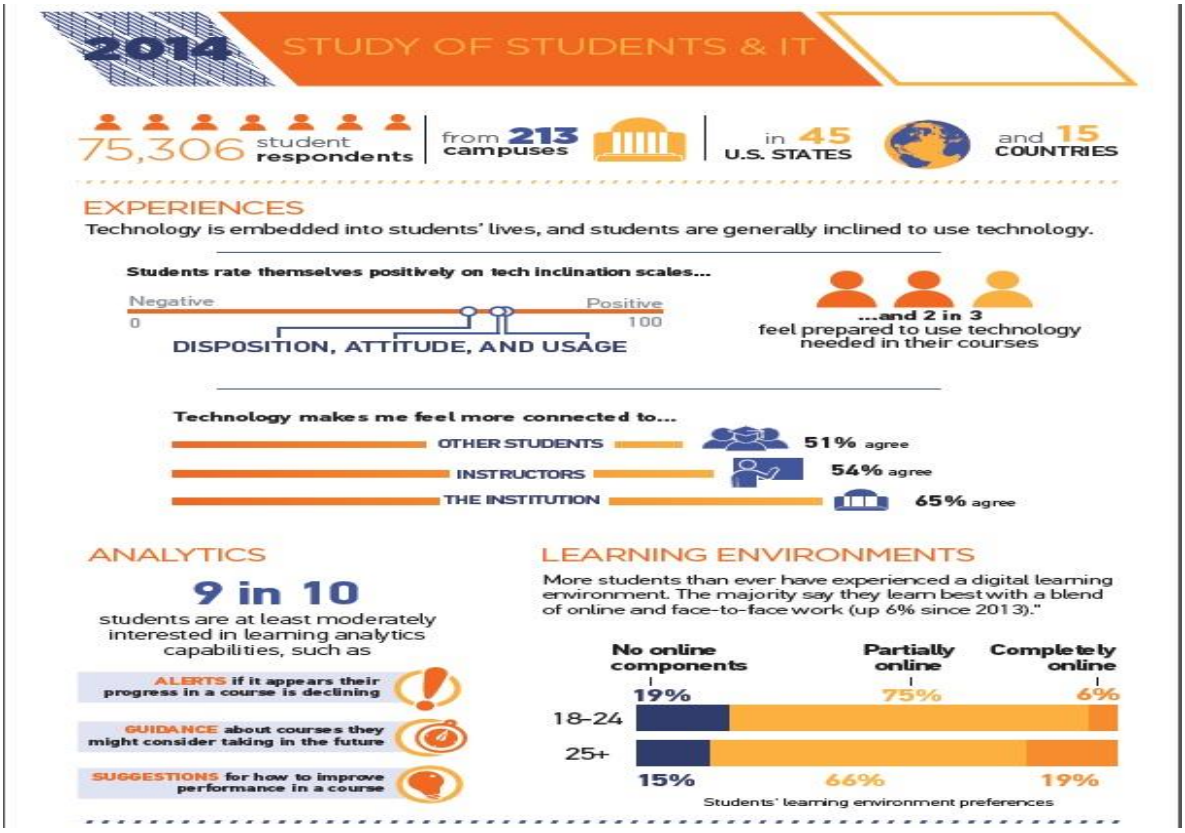

Figure 2: Student perceptions of technology use at universities (ECAR, 2014).

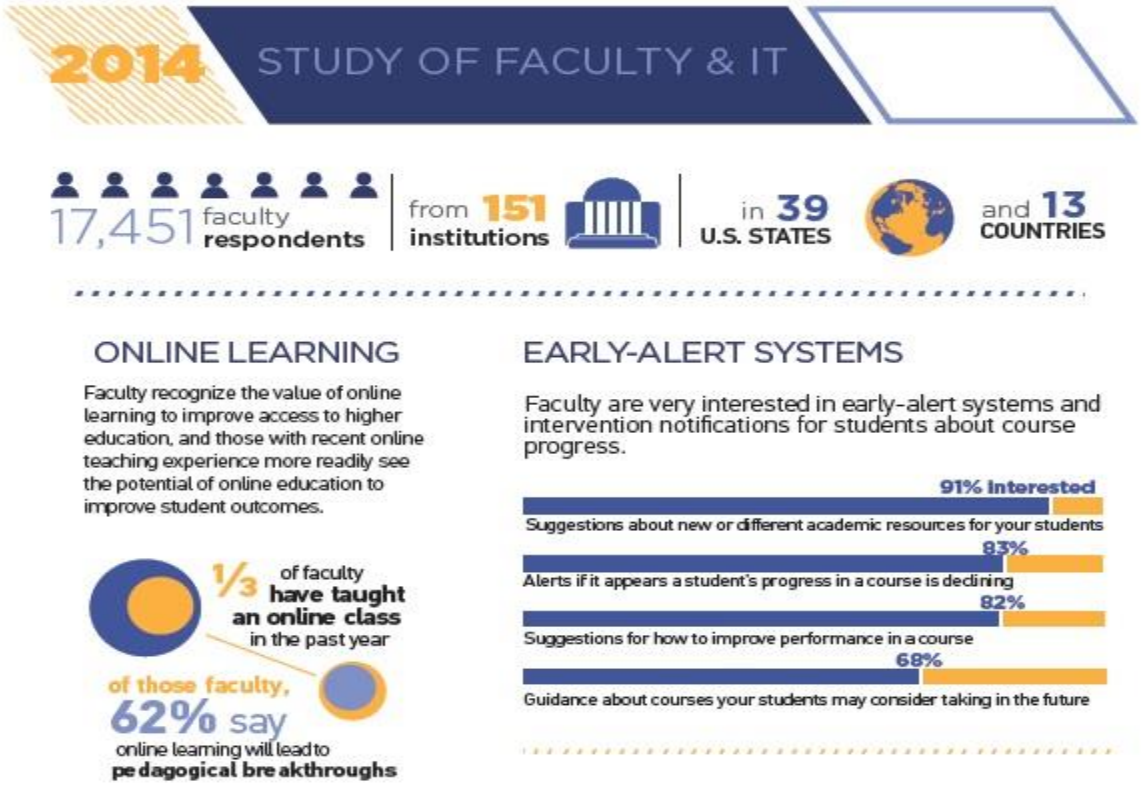

Figure 3: Faculty perceptions of technology use at universities (ECAR, 2014).

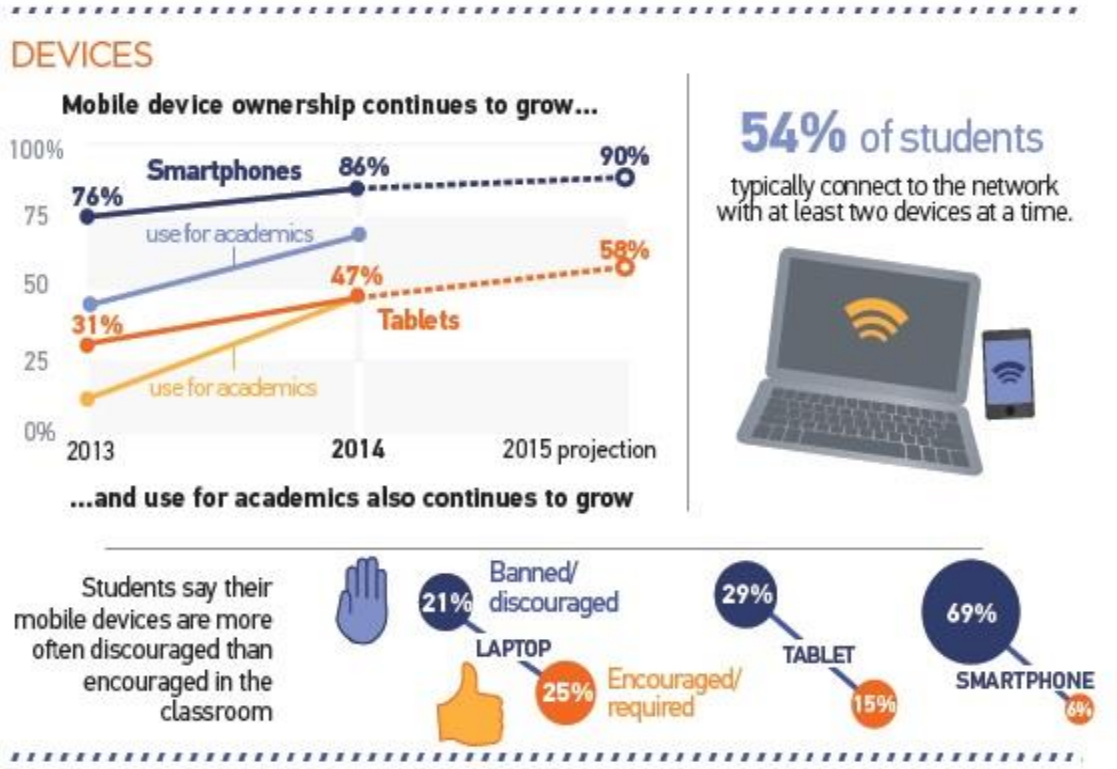

Figure 4: Student perceptions of hardware use at universities (ECAR, 2014).

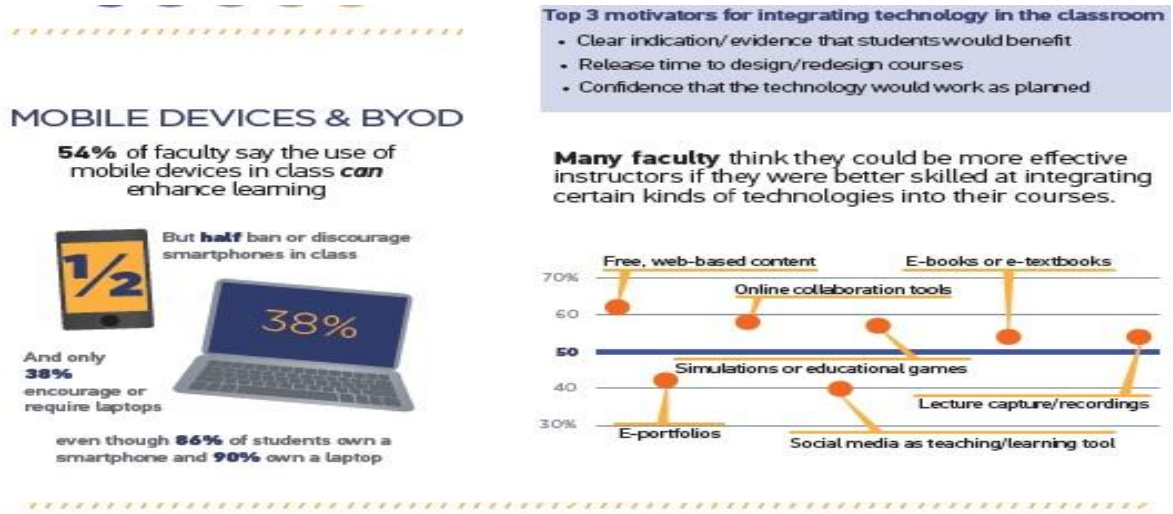

Figure 5: Faculty perceptions of hardware use at universities (ECAR, 2014).

Because students have diverse learning styles, online educators should identify the needs of the students when designing individually based curriculum for the online environment. With learning centered instruction, educators take the role of facilitators of information while guiding students towards solutions. If educators do not address the issue of preparing instructors by providing the proper tools, support and training needed to meet the needs of their students; the result may be the students of tomorrow will lack skills to be competitive in an ever-increasing technological world (Pew Research Center, 2012, p.29).

Importance of the Problem and Recommendations

It is essential for instructors to have the proper training and acquire the technological skills to utilize technology in their classrooms. Educational technology supports both the teaching and learning process and has increased student engagement toward learning (Forrer, Wyant, & Gordin, 2014; Schaffhauser, 2015; Horvitz, Beach, Anderson, & Xia, 2015; 2014). Educational technology in concert with innovative course design has provided quality educational opportunities possible. Integrated technology provides instructors effective ways to teach and customize the learning experience for their students. Student expectations have

changed over the past several years. Students see their educational futures built around the use of technology. They are not satisfied with traditional forms of learning in higher education and are eager to incorporate their own smart devices that have become a given in their lives into their education. Students entering college today want to design their own curricula and develop their own learning styles. Personalization and convenience are expected in most, if not all, aspects of their lives.

This higher education pedagogical shift overlaps with blended learning, inquiry-based learning, and other instructional approaches and tools that are meant to be flexible, active, and more engaging for students. According to the 2015 New Media Consortium (NMC) Horizon Report on Higher Education (Johnson, Adams-Becker, Estrada, & Freeman), the flipped classroom model allows for valuable class time to be devoted to higher cognitive, more active, project-based learning where students collaboratively solve challenges. This approach allows faculty to devote more time engaging with students and personalizing the learning experience for each individual.

The impact of preparing instructors to transition to online teaching will facilitate not only a positive learning experience for students, but it will also foster technological skills students will need as they transition from academia to the workforce. The 2012 Pew Research Center's Internet and American Life Project report on the Future of Higher Education stated 60% of 1,021 responses to their survey indicated higher education will be very different by the year 2020. Key components to the large shift in higher education by 2020 will include online education. Effective online instruction depends on learning experiences appropriately designed and facilitated by knowledgeable educators.

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