Synopsis of Report on Technology Adoption for Graduate Schools

By E. Alana James

What follows is a synopsis of a report by Frost and Sullivan (2016) *The Impact of IoT on Global Educational Technology*[1]. A disclaimer is necessary: this synopsis is built with Administrators of Graduate Schools in mind and is shared with the intention to provoke further forward movement in this sector by sharing what is known and surmised from a larger Higher Educational context. In the interest of brevity this synopsis is written in bullet points for each of the following three topic headings: drivers and restraints to adoption, forecasts, and trends and finishing with the technologies included and authors notes on the potential for graduate education.

Drivers and Restraints to Adoption

All data confirm that adoption of technologies is in a growth stage. This section outlines key drivers and constraints seen in the higher ed market in general, and graduate education specifically.

Drivers

- Technology allows students who are in some way out of the context of their expertise to view and absorb new ideas from media multiple times. This is especially important to the users who used to be outliers to the HE system. For example non-native English speakers, mature or working adults, etc.
- Changes in graduate populations as they become more digitally oriented and diverse favor 24/7 student services and multiple options for multi-media parsed and micro learning solutions. Students want it available, in short spurts so they can blend university demands with already complex lives.
- Graduates will be required in many instances to collaborate internationally; technologies allow for universities to branch to those experiences now.
- The multiplicity of devices and modes of contact lower the barriers to engagement, from professors as well as students. This is matched by a multiplicity of options for technologically driven support as part of everyday life – making the graduate student and professor more like to expect similar options in educational settings demanding, "a learning experience that is intuitive, easy to use, accessible, and efficient."
- Educators see an opportunity for real-time feedback to improve resources and efficiencies.
- Investment in technologies can provide at least a momentary market advantage in a competitive Graduate Education space. Many perceive an addition marketing/recruitment advantage to demonstrate improved teaching/ease of use or student experience through technological solutions.

Restraints

- Budget – technology solutions often need to be brought in across as scaffolded series of events, creating a need for solutions to work with administrators to bring in field tests, prove results and provide further implementation packages. "Experimental deployment and point solutions make return on investment (ROI) justification[1] difficult."
- IT support is a limited resource. Solutions either need to provide their end-user support or technical issues may cause "frustration and a drop in usage among students and faculty."
- Previous investments in legacy or home grown solutions may inhibit adoption of newer technologies.

E. Alana James, Ed.D. | 8 Castlepark, Kinsale | Co. Cork | Ireland
T: +353 (21) 470 6990 | *E:* alana@doctoralnet.com

- Bring Your Own Device (BYOD) requires technology to be seamless across a multiplicity of platforms.
- Increased pressure for advanced features is "slowly creating a growing fragmentation of the market, with point solutions adding to user confusion."

Forecasts and Trends

Three discussions follow megatrends, regulatory trends, and Frost & Sullivan's big three predictions.

Megatrends

1. Bricks and Mortar university life has been and continues to be redefined by technology: online classes, MOOCS, and flipped classrooms are just the start.
2. Ubiquitous connectivity is required now if not a year ago.
3. Entrepreneurial business streams and technology with a profitable ROI are emerging.

Regulatory trends

1. National and international regulators are collaborating on degree standardization.
2. The competitive landscape has changed and will continue to do so, dependent on political forces and regulatory standards as to certification, funding, etc.
3. Public and private sources of funding both change as education becomes more "demand led." These create opportunities for public/private partnerships as well as mega-corporation owned institutions.

Frost and Sullivan's "Big Three" Predictions

1. Metadata will grow deeper, moving beyond test to in-video voice and object recognition. This changes the world of search and improves user experience.
2. The overall restructuring of higher education will support the easier transfer of credits, eventually evolving into a' la carte degree options.
3. The adoption of interoperability standards will grow and will allow for HE to collect data across technologies as an effort to build a comprehensive understanding of institutional outcomes, ROI, and on-time actions.

Technology Considered (with author bias)

- LMS – probably needs no definition for most educators – the learning management system through which online students go to class, and their professors meet and teach them. (from Blackboard to Moodle for asynchronous learning with the inclusion of WebEx and ObiWorld for synchronous meetings these platforms appear to be inclusive of much of what face to face situations provided. Nevertheless, whether learning outcomes are as (some say more) robust is still a matter being researched and probably has much to do with the learning preferences of the users).[1]
- Big Data – the analytic programs that merge and analyze student interactions across HE contexts. (The companies putting together these packages claim to improve education through analysis of learning patterns and the ability to identify the moment of confusion" to identify students at risk. Implementation is too recent for the efficacy of these claims to be assured.)

Non Frost & Sullivan Summary (with author bias)

Several opportunities for increased student outcomes shine out of this report in our eyes each increasing the possibility for increased student user experience:

1. Mature, working, non-native, ethnically and racially diverse students should find that the gap between their experience and that of the traditional student closes as more intuitive, multi-use options become ubiquitous 24/7, 365 days a year.[1]
2. As digital opportunities for collaboration combine with the trends for US/EU initiatives and on-demand educational opportunities, new HE business models should emerge that will be driven by increased flexibility in the ways/means/types of student interactions.
3. As emergent HE business models develop so too should a much greater understanding of the student experience, its challenges and what on-demand graduate education might entail.

These seem, to this author to create some great opportunities for educational leadership and further improvements in higher education.

E. Alana James, Ed.D. | 8 Castlepark, Kinsale | Co. Cork | Ireland
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