

Technological Strategies for Postgraduate Success¹

Today, approximately 40 to 45% of US students entering universities for some form of doctoral degree failed to complete within six years². The statistics change according to the general class of the institution. As an example, students attending an Ivy League university have an 85 to 95% chance of completion³ while those at State run public universities more widely report 50% in five years⁴. Those concerned with special populations: minority students, the older, online, or working adults report statistics as low as 30%⁵. Behind these data are not only stories of disappointment and disillusionment but also loss of tax revenue⁶, increased costs overall of higher education (Gansemer-Topf & Schuh, 2006; Schneider & Yin, 2011)⁷, and loss of local community leadership that these people, as graduates, would have provided.

The promise of doctoral education holds a special place as the terminal degree, not only for the individual but also for their families, with as high as 70% of all newly minted doctors being the first in their family to achieve that level of intellectual and academic success (Kniffin, 2007). These graduates provide an entire family group more opportunities for the future.

Recent research shows that University orchestrated socialization is often the key to student retention and completion (Felder, Stevenson, & Gasman, 2014; Gardner, 2010; Gordon, 2014; Jazvac-Martek, 2009; McKinley, 2011; Pyhältö, Vekkailla, & Keskinen, 2012). Certainly the graduation statistics of the higher ranked universities bear this out. However, a full time student attending classes on college campus is no longer the norm it once was, and institutions must ask themselves: how can technology take up some of the slack in socialization created by the prevalence of online education?

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² Personal communication with Deans of Graduate Studies (2014). [Discussion of graduation rates].

³ Council of Graduate Schools. (2008). Ph.D. Completion and Attrition: Analysis of Baseline Demographic Data from the Ph.D. Completion Project Washington DC, USA: Council of Graduate Schools

⁴ Personal communication with

⁵ Universities, D. o. G. P. U. O. (2014). [Personal communication about completion and the difficulties encountered online due to older, students who work full time.].

⁶ US Census Bureau. (2014). Life earning estimates according to educational attainment. Washington DC: US Census Bureau.

⁷ American Psychological Association. (2008-2009). Table 27: Tuition for Doctoral Students in US and Canadian Departments of Psychology by Institution Type, 2008-09. Washington DC: APA.

Drawing on the latest research, this document identifies key strategies where technology enhanced learning options should be able to significantly improve socialization and therefore graduate completion rates. It offers specific examples, based on the latest evidence about the ways in which these ideas move higher education forward in meeting the needs of students and thereby retaining, and helping postgraduate students through to completion.

Using technology to provide targeted, specific, personalized, 24/7, on demand, and yet self-guided help allows the older, working, postgraduate student to have a constant orientation to the thesis or dissertation process whenever they need it. These students are the new face of postgraduate studies everywhere in the world. They cram thesis research into the nooks and crannies between work, family life, and complex adult environmental issues (Lahenius & Martinsuo, 2011; Vekkaila, Pyhältö, & Lonka, 2013). The right kind of technology, directed specifically at what they need when they need it, should prove to help universities raise their completion rates. This whitepaper looks at three promising practices and makes suggestion for future research.

Strategies for Employing Technology Aimed at Postgraduate Studies

It is widely acknowledged that postgraduate research, especially at the PhD or doctorate level, is a lonely and isolating path (Ali & Kohun, 2007; Gardner, 2010; Pyhältö et al., 2012). The student is not only completing individualized research, but often exists within an environment where no one else they know is currently pitting themselves against the challenges of the final dissertation or thesis (Cohen, 2009; Jazvac-Martek, 2009). Thesis work requires academic writing skills and also detailed and specific critical analysis consistently woven throughout a document that has subtle yet concrete requirements for each section.

The degree to which or at what level academic advisors or supervisors take on both the primary challenges: 1) guiding the student through their area content and yet also 2) teaching the best processes through which to efficiently complete the thesis, is inconsistent (Barnes, Williams, & Archer, 2010; Vekkaila, 2014). Clearly strategies that equalize the help offered to students when they need it as it socializes them to the requirements of an academic mindset should prove efficacious and fortunately three technologies have developed to fill these gaps.

Small Incremental Milestones Aid Efficient Progress

Doctoral students lag when they feel confused about what to do next, they have lost their motivation surrounding their topic, or they just don't feel up to the task (Abernathy et al., 2008; Barnes et al., 2010; McKinley, 2011). This challenge ends in students feeling overwhelmed but can be aided by the imposition of clear, small, strategically oriented milestones that act as a self-guided accountability system.

These milestones are then hooked to a variety of content, forming a GPS system which guides the student through the dissertation or thesis. Technology can be employed as a map to ask students questions about what they know about the process, and deliver content when they indicate that they do not have the full understanding they require. Further, because these are adult learners and take in information in different ways, technology allows a range of choice so that some students can learn via video while others read the work, with all content hyperlinked back to the GPS system and the milestones for achievement.

Doctoral students who work full-time frequently come up against outside forces which can derail forward thesis progress (Vekkaila et al., 2013). Personal accountability is enhanced as students check in regularly to either celebrate their successful completion of milestones, or, by doing so, call to awareness the fact that they have stalled (James, E. A., 2015).

Automate the Common Standardized Research Criteria

The research design process is both iterative and sometimes seemingly mysterious to the doctoral student. In the old-fashioned typical manner of learning, through multiple conversations with your supervisor or mentor, strategies would have been developed like this:

- students sees supervisor and discusses his or her new ideas
- supervisor points out two or three criteria that suggest areas in which these ideas need to be reworked
- student goes away, reworks the ideas and comes back for another discussion during which supervisor points out a few more considerations
- process continues through multiple iterations until the students ideas stacks up to all standard criteria

For an online or distance student, especially one who is working full time and approaching thesis writing only on weekends or after hours, the above strategy stretches out to go on for months, as both student and supervisor become frustrated in finding mutual times to meet.

The technological solution is to work out all the standard research oriented discussions and put them up in a self-guided strategy ending with all the criteria through which the student can self assess their ideas. This automation⁸ is also a neutral tool, devoid of personal interaction. This offers two advantages to the supervisor/student relationship: on the one hand the student seriously thinks about each criterion as a hurdle which must be considered, and because students go through these tools on their own they are thinking has matured by the time they show it to the supervisor. One software as a service (SaaS) company has developed this idea and anecdotal evidence attests to the fact that “automation©

⁸ Automations© is a copyrighted name for one such tool

tools helps the student both emotionally and logically” as they prepare for interactions with supervisors⁹

Push Notifications: The New Socialization

The traditional postgraduate student picked up much of his or her critical analysis skills through daily interactions with other students as well as faculty during casual encounters on campus. Late-night discussions and libraries, debriefing lectures over a beer in the local pub, meeting with a Professor casually over lunch in the cafeteria, all hone the student’s ear to understand academic language. During these casual interactions students also pick up a myriad of ideas, some of which may not have had direct bearing on their work at the moment, but which might prove interesting later. In short, the entire university environment socializes the student (Abernathy et al., 2008; Felder et al., 2014; Pyhältö et al., 2012; Quinn, 2004).

The modern online student has none of these advantages, so what stands in their place? Emails and smart phone SMS messages may become the replacement for what was previously overheard in the hallways. Each can be taken in or ignored depending on the person’s personal context and, as such, they substitute for the casual on campus interaction. Three edtech companies are currently working with these messages: PersistencePlus focuses on the undergraduate population and their early research correlates to retention and completion (Persistence+, 2015), DoctoralNet sends daily notifications to postgraduate students, and Osmosis, delivers flash cards to medical students.

Most personal and social interactions, whether live or through email/SMS, have socializing power and fall into one of three categories: 1) must be reacted or responded to, 2) interesting and will be scanned for consideration, or 3) can be ignored. Strategic emails and push notifications take time to develop through technology, but they allow the recipient to respond in one of those three ways, depending on their own personal environment. At the same time, they enhance person’s context and keep the PhD doctoral experience alive in the students’ life when they are at a distance from campus. Thus they meet the criteria for future education technology development in that they give the student free choice while simultaneously enriching their academic world (Siemens & Dawson, 2015).

The success of this type of notification can be seen in data from PhD students. For example, DoctoralNet’s push notification system of motivational messages to encourage socialization delivers a message 365 days a year and enjoys an open rate that hovers right around 50%¹⁰.

⁹ Personal communication with student (JOB, 2014). [Discussion of tools on site after use] DoctoralNet Ltd offices.

¹⁰ Personal communication with personnel at the company (MTM & KM 2015). [Discussion of tools on site after use] DoctoralNet Ltd offices.

Follow the Leading Indicators Through to Completion Success

There is only one goal in graduate education: for all students to successfully complete their independent dissertation or thesis and graduate. Still, since this is a multiyear task and leading indicators are needed for measurement in order to properly test whether technological improvements, such as those discussed here, are, in fact, helping the process of socialization and research thesis completion become more efficient. More research is needed to test whether and to what extent students who succeed correlate with those who periodically engage in what this author calls “technological GPS systems” or technology designed to be employed by students when they need it that run tangentially to the rest of the systems within the university program structure.

The questions relating to the technologies discussed here are:

1. Whether and to what extent are students completing milestones?
2. When common research discussions and criteria are automated, do students use them, and, if they do, do both the student and the supervisor believe they enhance the quality of their output?
3. Whether and to what extent do students who read and engage with push notifications report that they find motivation, injury, or satisfaction from this socialization effort?

Leading the Way to Technology Enhanced Learning for Postgraduate Studies

Three ideas for technology enhanced learning aimed specifically at postgraduate education have been discussed:

- (1) Breaking large academic tasks into small incremental milestones which are then assessed through technology.
- (2) Automating common standard research design decisions against criteria.
- (3) Developing new styles of socialization through the use of SMS and push notifications.

Each demands intensive pedagogical and technical resources in order to implement them across what is to the University a relatively small student population. This is probably the reason that few, if any, have produced these socialization tools for their students.

This author believes that no single University can both keep up with all the technological advances geared towards providing a variety of tools for online coaching and motivation, while at the same time, developing specific pedagogical content for their PhD student. There just are not enough students in any given University to justify that level of cost. This is where the beauty of SaaS comes in and we hope to see more examples of how educational leaders employ it to meet the needs of online learning and Higher Education.

Perhaps the time has come for universities to partner with edtech leaders and develop specialized environments to overcome common issues such as lower than desirable rates of completion in postgraduate studies.

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