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Adaptive Learning and Returning Adult Online Students

Andrea Gregg, PhD, and Lynne Johnson

Abstract: Many returning adults choose online education for its flexibility but sometimes require additional preparation. We will discuss an adaptive learning pilot to address academic remediation and share preliminary research findings.

Keywords: adaptive learning, online learning, adult learners

Introduction

Increasingly, more resident students take individual online and blended courses, and distance students enroll in entire online degrees (Allen, Seaman, Poulin, & Straut, 2016). Additionally, in the United States, there are many adults who started college but left without finishing their intended degree. This demographic is sometimes described as “some college, no degree” (Reed, 2015; Treaster, 2017) and adult learners are often a significant segment of the online learner audience (Ross-Gordon, 2011). A challenge for adult online learners can be difficulties performing within the requirements of formal academic environments. This is especially relevant for students who have been away from college and return with a sense of unpreparedness and a need to re-learn (or learn for the first time) core academic writing, science, and numeracy skills.

To meet the needs of these increasingly diverse learners, universities should invest in pedagogies and technologies that allow them to be successful. One of the solutions being evaluated at a number of universities is adaptive learning (Yarnall, Means, & Wetzel, 2016). In an ideal learning situation, instructors would be able to adapt course curriculum within the course environment to meet individual learner needs within the course environment (Colchester, Hagra, & Alghazzawi, 2017; Educause Learning Initiative, 2017). This is more feasible in smaller courses where an instructor has more capacity to learn about each student and attend to his or her needs individually. Another intervention that can potentially do more at scale to respond to students individually is adaptive learning (Freda, 2016; Howlin, 2014; Yarnall et al., 2016). Adaptive systems are software-based learning environments wherein automatic adjustments are made for learners based on their individualized learning needs. For example, a learner identified as struggling with sentence structure could be given more specific guidance in that area. Or a learner demonstrating a lack of core math skills might be linked to a separate module that either teaches, or refreshes, on those areas. Some adult learners will have attained many transferable skills in their years outside of formal education, and in these cases, the system could recognize already existing competencies and allow the learners to progress more rapidly.

Adaptive Learning Pilot

While the field of software-based adaptive learning is relatively new (Yarnall et al., 2016), we are very interested in researching how adaptive learning might benefit adult learners and traditional-aged online learners. We are, therefore, conducting a pilot that involves re-designing three existing fully online courses in order to offer them within an adaptive learning system. All three courses are lower-level undergraduate courses and are foundational areas in which students need to succeed in order to progress further in their programs. The course topics include finance, symbolic logic, and science. While the courses naturally differ, the

development process to make each course adaptive is the same. This process requires concretely mapping what students need to be able to do in order to demonstrate success in each of the discrete areas within the course. Faculty members work with instructional designers to create curriculum maps, align objectives with assessments and content, and construct learning paths.

In order to research this pilot, we are conducting mixed methods evaluation to assess the impact of the adaptive pedagogy and systems in a number of domains. We will conduct quantitative evaluations in order to identify any significant differences in student achievement when comparing adaptive to non-adaptive courses, this includes examining sub-groups such as returning adult learners compared to traditional aged students. Given the exploratory nature of this study, we will also be conducting qualitative research. We will do interviews, focus groups, and observations in order to investigate more deeply the instructors' and students' experiences teaching and taking courses within the adaptive system. We anticipate having approximately 90 students in the three courses that will run this summer and 90 students in the three courses that will run this fall. In this roundtable discussion, we will discuss adaptive learning, our pilot, study design, and preliminary findings regarding the system we are evaluating and the process to date.

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