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Adult Learning Communities: Does Self-Efficacy Pre-Determine Participation?

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Abstract: In a voluntary online community structure, Western Governors University seeks to find correlations between adult learners' self-efficacy, community participation and academic success. Based on surveys of 164 new Education students, self-efficacy was not correlated with either participation measures of interaction or academic measures of success.

Introduction

Western Governors University (WGU) is a competency based online university. In WGU's self-directed learning model, adult learners are responsible for their own academic success. WGU provides no structured courses through traditional instruction. Rather, learners engage in various types of resources in order to gain the knowledge needed to be competent in the content domains for their degree program. Adult learners must demonstrate competency by rigorous assessments for each learning domain. If learners are already competent, then they are able to accelerate by demonstrating competency without engaging in any learning resources.

Since the WGU model focuses on online self-directed learning, a key support component of this model includes a vibrant community. Communities must address adult learner's need to feel connected with other students and the University. When learners matriculate on the first of any month, they immediately have two communities: "Education without Boundaries" (EWB) community and their program community. EWB helps introduce new learners to the WGU model and online learning. Program communities for each degree provide a virtual space to connect with other learners through topics of professional development, enrichment and support. After beginning coursework, they are enrolled in learning communities related to the first term course work. WGU provides the structure and platform for these communities that are consistent with the model of supporting independent learners who are not required to participate in the community activities. The lack of required participation means that community building is more informal and voluntary on the part of adult learners.

Purpose and Problem Statement

The purpose of this pilot study was to determine effects of technology self-efficacy on participation in communities. This study is important to the university as we continue to explore new ways to encourage participation in the communities since current data show that only a third of learners voluntarily participate. If self-efficacy has an effect on participation, then WGU needs to provide more sources of self-efficacy influence for adult learners.

Literature Review

"Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bandura, 1994, ¶1). The concept of self-efficacy is grounded in the larger framework of social cognitive theory. Self-efficacy has the potential to influence academic motivation, learning and achievement. "Self-efficacy is not a measure of skill; rather, it reflects what individuals believe

they can do with the skills they possess” (Eastin & LaRose, 2000, Introduction, ¶3). Self-efficacy is developed through four sources of influence: mastery experiences, vicarious learning social persuasion, and inferences from somatic and emotional states (Bandura, 1994).

Predictor of Accomplishment

“Self-efficacy beliefs are strong determinants and predictors of the level of accomplishment that individuals attain” (Pajares, 1996, ¶ 5). Adults with high self efficacy look at tasks as challenges to be mastered. Their commitment and motivation is high. “Those who feel efficacious for learning or performing a task participate more readily, work harder, persist longer when they encounter difficulties, and achieve at a higher level” (Schunk & Pajares, 2002, p.2). Individuals with a low sense of self-efficacy will shy away and perceive new tasks as a threat and their commitment and motivation is low. If you expect less of yourself, you expend less effort. “Individuals with a weak sense of self-efficacy will be frustrated more easily by obstacles to their performance and will respond by lowering their perceptions of their capabilities” (Compeau & Higgins, 1995, p. 192). Since self-efficacy is a self-referent judgment concerning future functioning, it is an excellent predictor of behavior. “People engage in tasks in which they feel competent and confident and avoid those in which they do not” (Pajares, 1996, ¶ 5).

Technology & Self-efficacy

In computer usage, self-efficacy is the key for novices to tackle their difficulties and fears. Once an individual achieves a positive self-efficacy with computer skills, they need to build the efficacy in relation to the Internet. “The Internet requires development of a further set of skills that, to the novice user, at least, may be daunting” (Eastin & LaRose, 2000. Introduction, ¶ 4). Studies show Internet use, experience and outcome expectancies are positively correlated with Internet self-efficacy. Of the three, the strongest predictor is mastery experience. In an investigation of self-efficacy and performance in distance learning, it has also been determined that one of the key components of success in computer based learning and distance learning is basic computer self-efficacy. In using the Internet for learning, Nahl found “that those who have a less positive initial self-efficacy perception can be overwhelmed and end up dropping out ... while those who have a more positive initial self-efficacy perception maintain this perception throughout the program, all the way to success” (1996, ¶ 10). Those that achieve success maintain positive self-efficacy during the times of highest difficulty and uncertainty.

Research questions

Based on previous research in self-efficacy and adult learning, we anticipated that adult learners who scored high on technology self-efficacy would quickly engage in WGU communities. Through communities and higher perceived values of tools, learners would have greater academic success in the first eight weeks and then in first six-month term. Adult learners with low self-efficacy would be slow to make progress with assessments and would not engage fully in the learning communities and resources. The guiding research questions are: (a) Does technology self-efficacy and perceptions about learning tools affect voluntary participation in learning communities? (b) Does technology self-efficacy and perceptions about learning tools affect academic success during the first weeks in the program and at the end of the term?

Methodology

This pilot study was designed to give community leaders a snapshot to determine if a full study should be warranted. Teachers College students were given a survey before starting the Education Without Boundaries (EWB) introductory course. After two months, assessment progress and community participation quantitative data was collected and correlated with the survey results. At the end of the pilot study, a final survey will be distributed. Community and assessment data will be collected again to provide for a final evaluation of the pilot study.

Participants

The typical WGU Teachers College student is 35 years old. Self-reported demographic data indicates that the WGU Teachers College student body is 68% White, 7% African-American, 4% Hispanic, 1% American Indian or Native Alaskan and 1 % Asian or Pacific Islander, 2% Other with 17% declining to answer ethnicity. The female/male ratio is approximately 80/20. Geography demographics include 40% rural, 45% suburban and 15% are urban. WGU students tend to have some prior college experience; however, 40% are first generation college students in their families. Students must have some basic technology skills in order to find and apply to our online university. General motivations to join the Teachers College include a pursuit of licensure, family support of a lifelong dream, and a desire to “give back” to the education system through a career change.

All new Teachers College students (n=298) were invited to participate. With a 62.8% completion rate, 184 chose to complete the survey. This sample group closely matched the ethnicity, female/male ratio, geography demographics and first generation college student percentages of the full Teachers College in the same month. Therefore, the students invited to participate were an accurate reflection of the full college. For the mid-study survey, only respondents to the first survey were invited to participate. Forty-four percent of the first survey group participated in the second survey (n=80).

Data Collection and Means of Analysis

Quantitative data was collected through Likert scale surveys, community participation counts and assessment progress. Technology self-efficacy was measured through the Stages of Adoption (Christensen and Knezek, 1999). A tool perception survey (Smolka, 2002) was used to measure perceptions of learning tools. Learner’s progress was tracked by completed assessments. Community participation was measured through discussion threads read and messages posted. Pearson r was calculated between each data point for triangulation of data: self-efficacy score, assessment progress and community participation. A t-test for paired samples was used to measure changes between the different surveys.

Analysis of Results for the Pre & Mid Survey Data

Stages of Adoption Summary Analysis

The Stages of Adoption (Christensen and Knezek, 1999) identifies six stages of self-reported efficacy about technology skills: Stage 1: Awareness; Stage 2: Learning the process; Stage 3: Understanding and application of the process; Stage 4: Familiarity and confidence; Stage 5: Adaptation to other contexts; and Stage 6: Creative application to new contexts. Learners initially stated that they were either Stage 5 or Stage 6 at a rate of 78.8%. This is not surprising since they have decided to engage in a completely online technology-based educational program. Administrators should be aware of possible ways to support the 21.2% who aren’t as confident in

technology. Over the initial eight weeks in the program, students self-efficacy for technology did not change significantly (+.03).

Summary of Tool Perceptions

Learners were given nine tools that are integrated into the curriculum at WGU and asked to evaluate their perception of value to their learning on a scale of 1 (low) to 5 (high): Textbooks (A), Multimedia (B), One-to-One Synchronous Instruction (C), Course of Study (D), Online Discussion Boards (E), Small Group Collaboration (F), Performance Tasks (G), Assessment Rubrics (H), and Exams (I). Overall, learners valued Small Group Collaboration and Online Discussion Boards the least and Courses of Study, Performance Tasks and Assessment Rubrics the most. Table 1 includes the mode and percentages of high value for each tool.

Table 1. Tool Perceptions Frequencies and Modes Survey

		A	B	C	D	E	F	G	H	I
Pre	Mode	5	4	5	5	4	4	5	5	5
	% at 4+	90.9%	85.5%	82.4%	94%	60%	57%	94.5%	88.5%	89.7%
Mid	Mode	5	5	5	5	4	3	5	5	5
	% at 4+	93.5%	80.5%	79.3%	93.4%	51%	31.2%	96.1%	96.1%	87%

Analysis of Means for Pre and Mid Values of Learning

In a t-test of means, two tools had a statistically significant difference between the first survey and the second survey. After eight weeks at WGU, students’ value of Small Groups ($p < .01$) and One-to-One Learning ($p < .05$) decreased significantly. Facilitators of communities have been investigating how to effectively integrate small group and one-on-one learning into the curriculum. Therefore it is not surprising that after engaging in a self-directed learning model students found less of a value when they were given few opportunities to collaborate with other students or with individual instructors.

While not statistically significant results, there are trends that need to be considered. Only two of the tools had any increase to the value after eight weeks: Courses of Study and Assessment Rubrics. Based on educational experience and ongoing focus groups, we believe that adult learners do not appreciate the benefits of actively utilizing the WGU Courses of Study. Further, many students have never used a rubric as an evaluation tool before coming to WGU. On the summary survey in July, it will be interesting to see if these positive trends continue to improve the perception of value to an individual’s learning at a statistically significant level.

One negative difference that should be examined during the final analysis is the decreasing trend for Online Discussion Boards. These WGU results were similar to Smolka’s finding in the Technology Applications Certification Program (2002). TACP respondents anticipated a value to learning of the discussion boards. However after participation in the boards they did not place as high of a value. After 16 weeks, the TACP difference was statistically significant ($p = .001$). An explanation given for the drop in the TACP program was that the “facilitation and design of the asynchronous communication activities were not designed to properly impact the learning and those facilitating the discussions were not properly trained in the use of the tool” (Smolka, 2002, p. 44). During final analysis, it will need to be confirmed if there was a downward trend in perceptions of value for discussion boards to determine if there is a need to evaluate the design of the platform and the need for more training of facilitators.

Analysis of the Self-Efficacy Correlations

In order to calculate a total amount of community interaction, the count of posts and reads were summed. For a total perceived value of all learning tools, a mean was calculated. The initial values of self-efficacy as measured by the Stages of Adoption and a mean Tool Perception showed no correlation to either the total interaction or to any of the subsets of community counts. One tool, Discussion Boards, did have statistically significant mid-survey value correlation ($p < .05$) with the overall interaction total ($r = .237$). The existence of this correlation is not surprising. What is interesting about this correlation is that the pre-value of Online Discussion Boards did not correlate with Interaction ($r = .023$). Instead of a predictor of use, the correlation existed after use. Those who had used it more valued it more.

WGU measures academic success by Satisfactory Academic Progress (SAP) which is the percent of assessments passed each term against the total assessments enrolled in the term. Each term students complete proctored objective assessments and performance assessments. Each performance assessment contains several smaller tasks and by collecting tasks, WGU can measure progress towards completion. To measure SAP for the pilot study, assessments passed and tasks submitted were collected. The self-efficacy measure of Stages of Adoption did not correlate with any of the academic success indicators. Of the Tool Perception pre-values, there were no significant correlations. Similar to the use of the community correlating with the value after the fact, the assessment indicator of passing assessments statistically significantly ($p < .05$) correlated with the value placed on Exams at the mid-point survey ($r = .251$).

While the analysis did not provide the anticipated results, there were some unintended findings which support WGU's community efforts for academic success. When total community interaction was correlated with academic success, several statistically significant correlations were found. Learners' total interaction had a medium correlation ($r = .348$; $p = .000$) with the quantity of tasks submitted as a part of performance assessments. Furthermore, the total interaction correlated to Term SAP rate ($r = .254$; $p < .01$) and to Assessments Passed ($r = .194$; $p < .05$). WGU adult learners who interact more in the communities tend to submit more tasks and therefore increase their term SAP percentage.

Implications for Adult Education Theory and Practice at WGU

WGU's approach to education tends to favor those students that excel intrapersonally utilizing independent learning resources. WGU's adult learners are less likely than their traditional-college-age counterparts to be highly literate in the different types of technology used in our model. Therefore, we must determine the best way to bridge the gap between the technologies delivering education and the predictors of success of our student body. This pilot study's initial findings provide insight as administration focuses on a significant strategic initiative of web-enabling the Courses of Study. Currently, Courses of Study are PDF documents that are a study guide to pace students' studies and engage them with a variety of learning resources, including online communities. The web-enabled Course of Study will integrate the use of (a) learning resources including textbooks, (b) performance assignments that link to rubrics for feedback, (c) asynchronous methods of support including fully-searchable FAQs and (d) the ability to contact the mentor by email or phone. These design decisions parallel the findings of this study based on the tools with the highest perceived value.

Administration at WGU has been exploring the appropriate level of integration for message boards, synchronous chat, and collaborative tasks. The current plan is to mock up several versions of a web-enabled Course of Study and then gain input from learners through

additional focus groups. Although the initial findings indicate a devaluation of the discussion boards, those who are using them place a higher value on them. Therefore, the strategic placement of discussion boards in the Course of Study and the training of facilitators to pull students into the boards could demonstrate an increase in the value through an increase in use. Community administrators must review the design of the message boards and train our facilitators on techniques to engage students.

This study is important as we determine predictors of success within this unique learning environment that are specific to adult learners and the struggles that they face. The university can be better prepared to develop methods of positive self-efficacy influence through mastery experiences, vicarious learning, social persuasion and somatic and emotional support.

Areas for Future Research

Our original hypothesis that students who have high technology based self-efficacy would quickly engage in our online learning communities did not prove to be so which has led us to consider other possible indicators of community participation. Two possible indicators include the ease of use of the platform and the quality of the community facilitation.

For any level of self-efficacy, a community platform that is not intuitive to use will be devalued by students. Feedback from student focus groups not included in this study has indicated that some students dislike the current community platform. The program community leaders are currently investigating the use of different tool sets and platforms to spec out a new format for communities and one area of future research would be to determine how the intuitiveness and design of the platform determines participation.

Additionally, if there is limited activity evident in the community, there will be no hook for new participants or draw to return. It is incumbent upon the facilitators in each voluntary community to create a space that is safe and inviting to students. If quality of the facilitation is unacceptable, community activity will languish and participation will drop. A second area for potential future research would be to determine the areas needed for ongoing facilitator training.

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