

Understanding Our Adult, Undergraduate Learners: Designing Courses for Success

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Overwhelmingly, the collective body of research centered on online student learning is based upon one of two populations: traditional-age students enrolled in general education courses such as introductory psychology, and adult students enrolled in graduate-level courses. Unfortunately, the data gleaned from these populations cannot and should not be automatically used in the attempt to understand and serve adult students enrolled in undergraduate courses. This paper will share the highlights to date of a three-year, mixed-methods, research-to-practice loop centered on understanding and serving the broad learning needs of adult learners enrolled in online, undergraduate general chemistry courses. Key research findings related to the motivation and autonomy of adult, online students at the undergraduate level will be discussed. Ongoing course design improvements stemming from this research, which are relevant to educators in many disciplines, will be introduced.

Part I: Motivation Scale Development

Motivation as a construct is both divergently defined and domain specific. In its most succinct presentation, motivation can be defined as an energizing force that guides behavior in the direction of a goal (Karsenti & Thibert, 1995). Linguistically, the word “motivation” has a Latin root, originating from the word “motivus” meaning “a moving cause” (Ahl, 2006). Behaviorally, renowned psychologist Albert Bandura posits that motivation stems in part from cognitive engagement and is “primarily concerned with the activation and persistence of behavior” (1977, p. 193). Critically, Seibert (1985) argues pointedly that “there is no common concept either of human motivation, or of mutually agreed explanations” (p. 46).

Since the 1970s, motivation research has increasingly shifted its collective emphasis toward understanding internal factors such as perception and interpretation of specific situations (e.g., experiences with specific academic subjects or courses; Dweck, 1986). While a variety of motivational theories have been proposed, the two theories that are both highly interconnected *and* transferable to the academic motivation of adults are goal theory (Locke and Latham, 1990) and self-determination theory (Deci, Vallerand, Pelletier, and Ryan, 1991).

The intention of Part I of this project was to create a reliable and valid scale appropriate for measuring the academic motivation of online, undergraduate students. To date, a preliminary item and scale analysis based upon data obtained from 212 student volunteers has been completed. Two subscales were developed; the first was intended to measure strength of learning goals, in accordance with goal theory. The second was intended to measure self-determination, in accordance with self-determination theory.

Subscale 1

Goal theory posits that the types of goals students set for themselves are dependent upon both the students' self-efficacy and their learning environment (Seifert and O'Keefe, 2001). Students with high self-efficacy are most likely to set challenging learning goals (Bandura, 1991), which are assumed to reflect a higher and more sustainable level of student motivation than performance goals. The twelve preliminary items contained within Subscale 1, “Strength of Learning Goals,” were intended to measure the strength of adult students' learning goals, as well as their self-efficacy regarding those learning goals. Items on Subscale 1 included statements such as “my goals are very specific”, “I fully believe that I have

the ability to achieve my goals”, and “achieving my goals depends upon my own hard work more than anything else.”

The overall reliability of Subscale 1 ($\alpha = 0.865$) is relatively high, and is slightly higher than the reliability of the total scale ($\alpha = 0.722$). Means of Subscale 1 items range from 4.13 – 5.27 on a 1 – 6 scale, with standard deviations ranging from 0.839 – 1.781. It is favorable for reliability purposes for the mean of each item to be near the midpoint of the possible choices (in this case, using a 1-6 range, a mean of 3.5 would be ideal), and for the standard deviation of the responses to be high. Discrimination analyses of each item, representing the correlation between the item and the overall subscale, are favorable enough to warrant expansion of the initial pilot study. Discrimination values near zero would suggest that there is essentially no correlation between the item and the subscale; negative discrimination values suggest a troublesome inverse relationship between the item and the subscale. Favorably, 8 of the 12 items revealed high discrimination values ranging from 0.743 – 0.840.

Subscale 2

The most fundamental tenet of self-determination theory is that all behavior falls somewhere along the continuum of amotivation, extrinsic motivation, and intrinsic motivation. Intrinsic motivation is widely considered to reflect the highest level of motivation, as the locus of behavior is entirely internal. Intrinsic motivators include (but are not limited to) personal growth and healthy relationships, whereas extrinsic motivators include money and reputation in the eyes of people outside of our closest relationships.

The twelve items within Subscale 2, “Strength of Self-Determination,” were intended to measure the strength of adult learners’ intrinsic motivation. Items on Subscale 2 included statements such as “I value learning just for the sake of learning”, “mastering my coursework is very important to me”, and “more than anything else, my goal in this course is to increase my personal ability.”

The overall reliability of Subscale 2 ($\alpha = 0.541$) is lower than both the reliability of Subscale 1 and the total scale. This is not entirely surprising, given the variety of divergent and conflicting research findings related to self-determination theory in the literature. For example, while most research supports the hypothesis that intrinsic motivation represents the strongest, most sustainable form of academic motivation, there is corollary evidence to suggest that this is not necessarily true for certain populations, such as very high achieving students (Covington and Dray, 2002; Vallerand and Bissonette, 1992).

Means of Subscale 2 items range from 2.33 – 4.97 on a 1 – 6 scale, with standard deviations ranging from 0.869 – 1.910. Overall, both the means and standard deviations of items in Subscale 2 are more favorable than the means and standard deviations of items in Subscale 1, for reasons previously explained. Discrimination values for items in Subscale 2 ranged from 0.037 – 0.492, with only 6 items offering discrimination values higher than 0.2 and only 3 items offering discrimination values higher than 0.4. Clearly, correlations between the individual items and the overall subscale are less favorable within Subscale 2 than within Subscale 1.

Subscale 1, Strength of Learning Goals, appears to be the stronger subscale for measuring the construct of academic motivation. While several items in Subscale 1 are potentially problematic, the subscale overall is reliable according to preliminary analyses. Subscale 2, Strength of Self-Determination, appears more problematic at this point. A more comprehensive factor analysis, as well as descriptive statistics gleaned from the scale items, will be available at the conference information session.

Part II: Interviews

To understand the motivation and learning needs of adult, online students on a more personal and open-ended level, twelve former online chemistry students were interviewed using a two-step process of

autophotography and photoelicitation. This approach involved students taking symbolic photographs representing their motivation, goals, and experiences with online learning. These photographs were then used to guide semi-structured phone interviews lasting approximately one hour each.

While the findings gleaned from these interviews are complex overall, several straightforward patterns emerged. First among these patterns was the revelation that most of the interviewed students lacked autonomy in that their decision to pursue a degree was often forced by life circumstances. Similarly, interviews revealed the oft-stated belief that the option of completing coursework online was absolutely essential to fitting a college degree program into adult students' already busy lives.

Consider the experience of Pam, a single mother in her 40s, who explained

I am an LPN at the [local] hospital – I've worked there for almost 28 years. All of the LPNs found out one year ago that we would have to either go back to school or find another job. For most of us, the only choice we had was to return to school to get our RN – something we all should have done years ago... Life got in the way and I just never went back because of kids, work, and a non-supportive husband... As a single mom with a mortgage, car payment and just the everyday bills, I knew I needed to continue with the same amount of pay of I would never make it, so it wasn't an option to find something else.

The significance of having an online learning option became clear as her story unfolded:

Chemistry was one of the general education classes we needed to take for the nursing class... Due to working full time and not being able to "go" to classes, that were most of the time scheduled in the middle of the work day, we chose to go the online route... It was the only choice. With some luck and a LOT of hard work, I am planning on graduating in May... the same year my youngest daughter graduates from high school.

As she described her experiences both leading up to and completing her degree, Pam's inherent need to complete general chemistry in an online environment became strikingly clear. Similarly, her transformative realization of threatened job loss combined with her situational standpoint of being a single parent fed her tightly woven academic goals and motivation for completing online chemistry so organically that the distinction between these multiple variables was often difficult to identify. This was true for other participants as well.

Part III: Connecting Research to Practice

Toward fulfilling the research-to-practice loop, several course design improvements based upon preliminary findings are currently being implemented within the online chemistry course previously completed by research participants. First, course topics which former students view as irrelevant to their goals are being carefully reconsidered in collaboration with other faculty. To date, several topics have already been removed from or abbreviated within the course. Topics which were perceived as irrelevant but which must remain in the course will have their real-world importance carefully explained to current and future students.

Second, newly vacated space within the course curriculum is being replaced with open-ended project work designed to offer adult, undergraduate students a measure of control over their own learning that is more in line with the flexibility afforded by many graduate level courses. Examples include design-your-own laboratory experiences and select-your-own special topics to explore.

Third, as an acknowledgement of the lack of autonomy with which many adult, undergraduate students find themselves entering the online classroom, significantly enhanced flexibility with course pacing and due dates is being introduced. Preliminary feedback from students has been overwhelmingly positive. In a few short weeks, more comprehensive student feedback related to these course design changes will be available. Findings will be shared during the conference information session.

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About the Presenter

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