Mid-Career Adult Learners in an Online Doctoral Program and the Drivers of Their Academic Self-Regulation: The Importance of Social Support and Parent Education Level

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Abstract

Adult professionals enroll in online graduate programs and rely on social support and on their ability to self-regulate to be successful. The literature on academic self-regulation among emerging adults (traditional college age) is ample, but we do not know how social support interacts with academic self-regulation among adult graduate students at mid-career, particularly among those students who are first generation college goers. This study addressed the following questions: (1) To what degree do parental education level and cohort progression predict academic self-regulation? and (2) What sources of social support – family, friends, loved one (significant other), and classmates – are predictive of academic self-regulation for adult students in an online doctoral program? Findings include evidence that the influence of parental educational level on academic self-regulation persists through midlife. Also, that perceived social support from family, friends, and peers predicts academic self-regulation. We conclude with implications for the design of online programs.

Keywords: academic self-regulation, adults, doctoral, online, first-generation, social support

Introduction

Increasing numbers of mid-career adults enroll in online or hybrid doctoral programs while remaining in their communities yet they often do not complete those programs in spite of the ease of access afforded by distributed (usually online) programs. Their family and work contexts can lend social support for their graduate studies and simultaneously be a source of competing demands and distractions. Adult students, to be successful in a demanding online academic program, must manage their complex social resources and obligations effectively. It is well established that social support is important for college students in early adulthood (ages 18-24), but we suggest that the sources of social support that contribute to academic self-regulation are sufficiently different for the adult working professional studying online and so are worthy of investigation.

Over the past 20 years, persistence in postsecondary online programs has been a research focus (Lee & Choi, 2011; Verdinelli & Kutner, 2016), and persistence in online doctoral programs has been the subject of a few studies (Ivankova & Stick, 2007; Rockinson-Szapkiw, Spaulding, & Spaulding, 2016). Several studies have identified factors that contribute to academic success including emotional support, hope (Holder, 2007), self-regulation, and motivation (Artino Jr. & Stephens, 2009; Rakes & Dunn, 2010). But the sources of social support (SS) for adult, online, graduate students have not been explored, and the relationship of SS with academic self-regulation among mid-career adults enrolled in an online graduate program is unknown. With online programs serving older students and being more accessible to students whose parents did not attend college (Williams & Hellman, 2004), understanding the different sources of social support for mid-career adults can help educators in distributed programs build the necessary scaffolding. The purpose of this study was to explore the interactions of perceived social support, parent education level, and academic self-regulation among mid-career adult students in an online doctoral program.

Theoretical Framework

Self-Regulation Theory (SRT; Bandura, 1986) and Social Support Theory (SST; House, 1981) frame our study. The ability to self-regulate to achieve learning goals is critical to student success (Schunk & Zimmerman, 1997; Zimmerman & Schunk, 2008) in all academic pursuits and particularly in online programs (Williams & Hellman, 2004). Schunk and Zimmerman describe self-regulation as

> planning and managing time; attending to and concentrating on instruction; organizing, rehearsing, and coding information strategically; establishing a productive work environment; and using social resources effectively... [and] motivational processes such as setting performance goals and outcomes; holding positive beliefs about one's capabilities; valuing learning and its anticipated outcomes; and experiencing positive affects (e.g., pride, satisfaction) with one's efforts. (p. 195)

Schunk and Zimmerman (1997) note that self-regulation is learned socially, and parents are the primary adult models and teachers of self-regulation in general. Parents' influence extends into early adulthood and college (Shannon, Barry, DeGrace, & DiDonato, 2016) impacting students' academic self-regulation even up to age 30, according to Williams and Hellman (2004). This suggests that parents' contribution is through modeling (and other modes of teaching) of self-regulation related behaviors and attitudes prior to college as much as through the support they provide during the students' college attendance. We sought to determine if this effect continued later in adulthood.

The role of parents is the link between self-regulation and social support theories. The multi-dimensional construct of SS includes different sources and types of social support. House (1981) described three types of social support: emotional, instrumental, and informational. These types of social support are woven together in the network of relationships that form the communities of belonging for adults and include online relationships (Olson, Liu, & Schultz, 2012). With SST, House suggested that an individual's well-being in the workplace is influenced by various types of support he/she receives from different sources (family, friends, loved one), through the moderation of workplace stress by social support. Some have applied SST to the academic success of emerging adults, establishing its importance for this group. With the stress that going back to school in an online graduate program causes professional adults as they juggle their various roles, time, and academic performance, an investigation into the role social support plays for them is needed. We framed our inquiry by extending SST to adult online graduate students, the sources of their social support, and how the support from those sources influences academic self-regulation.

Literature Review

The following section includes a brief review of research on academic self-regulation emphasizing online learning and a review of social support research as it pertains to our study.

Academic self-regulation. Andrade and Dugan's (2011) study on the validity of the Survey of Academic Self-Regulation (SASR) yielded the following factors: extrinsic motivation, intrinsic motivation, metacognition, personal relevance and control, self-efficacy, and self-regulation. It is not within the scope of this paper to do a complete review, but for a thorough treatment of self-regulated learning in higher education see the systematic review by de Bruijn-Smolders, Timmers, Gawke, Schoonman, and Born (2016). Specific to our purposes, academic self-regulation (ASR) for online learning is variously described and operationalized. In their study of first generation college students in an online undergraduate program, Williams and Hellman (2004) operationalized self-regulation for online learning to include the ability to (a) use electronic library resources; (b) remember information read online; (c) resolve computer and connectivity issues; and (d) participate in online discussions (discussion boards). They found that first generation students reported lower levels of self-regulation for online learning than their second-generation counterparts.

More recently, Broadbent and Poon (2015) conducted a meta-analysis of research over the previous 10 years on ASR in online higher education environments and found that

> online students who make good use of their time, are conscious of their learning behaviour (metacognition), are critical in their examination of content (critical thinking), and persevere in understanding the learning material despite challenges faced (effort regulation) are more likely to achieve higher academic grades in online settings. (p. 11)

Interestingly, Broadbent and Poon also noted that peer learning had the strongest effect size in relation to academic outcomes. They noted that the meta-analysis yielded nonsignificant results for peer learning due to the largest included study which used a measure of peer learning more appropriate for traditional learning settings. They recommended that peer learning be emphasized in online courses to include both passive and active participation in discussion boards.

Often, academic self-regulation correlates with students' perception of community within their online classroom and the adequacy of communication from professors (Dunn, Rakes & Rakes, 2014). Noting the importance of the social aspects of learning, Cho and Kim (2013) focused on self-regulation for online interaction in their study, arguing that there was sufficient evidence to support the relevance of online interaction to student outcomes including student satisfaction, perceived learning, and social presence (see also Richardson, Maeda, Lv, & Cascurlu, 2017). Cho and Kim used Moore's (1989) much-cited typology of interaction in distance education (student-content, student-instructor, and student-student interaction) to frame their inquiry into self-regulation for online interaction. Recognizing the importance of self-regulation of online interaction with both instructors and peers, they found that "instructor scaffolding for interaction with others" (Cho & Kim, 2013, p.73) was the strongest predictor of students' self-regulation for online interaction.

Academic self-regulation clearly has a basis in social learning beginning with parents. As such, parents' educational level has an influence on the academic self-regulation of young adult college students (Williams & Hellman, 2004). It is difficult to determine how many adult doctoral students in online programs are the first in their families to go to college, but according to the National Science Foundation (NSF; 2017) report on students in science and engineering doctoral programs, first-generation students made up 17.6% in 2016. While research on undergraduate first-generation students is plentiful (e.g., Pascarella, Peirson, Wolniak & Terenzini, 2004), there is little research on first-generation students participating in a terminal degree such as a Doctor of Education (Ivankova & Stick, 2007). Many students who are currently in a doctoral program and are first-generation experienced a lack of financial support as undergraduates, feelings of separation from the world of their parents even while not yet belonging to the world of the college educated, and they often take a longer time to complete their degree (Gardner, 2013). Rakes and Dunn (2010) found that online students often feel isolated from their peers and professors. This sense of isolation may be compounded for students who are first generation college students (1-GC) and are already experiencing emotional separation from their family of origin (London, 1992; London, 1996; Terenzini, Springer, Yeager, Pascarella & Nora, 1996). Furthermore, first-generation students may lack self-regulation skills important in pursuing a terminal degree, specifically in an online environment (Williams & Hellman, 2004). For adults, Williams and Hellman (2004) go on to suggest that social groups such as friends and family may have more influence than parents.

Social support. According to Lakey and Cohen (2000), social support from the social constructionist perspective contributes to individuals' ability to self-regulate. Extending this view of social support to online learning is appropriate given the constructed nature of the online environment itself and its mediation of relationships. Holder (2007) found that emotional support was one of a few variables that discriminated between adult online students who persisted and those who did not persist (along with self-efficacy, and time and study management). Chu (2010) studied the relationship of family support and internet self-efficacy among older adult learners (>50 years of age) and found that family support was critical, and emotional support was more important than tangible (informational) support.

Shannon, Barry, DeGrace, and DiDonato (2016) found that parents and peers were key sources of social support for the academic success of 18-24-year-old college undergraduates. These sources are likely different at mid-career as parents are no longer the primary source of social support, partially replaced by

family and significant other. Bird and Morgan (2003) and Holder (2007) found that adult online students relied on family support.

Peers in the program (classmates) are a source of support, but in an online program, classmate interaction is mediated by technology and often muted with online students reporting isolation from their peers and instructors (Rakes & Dunn, 2010). As a case in point, Bianchi-Laubusch (2016) found that many students (42%) in one large asynchronous online program did not have a chance to communicate with their peers. To counteract this isolation, online programs designed to keep cohorts of peers together over time have been designed based on the working theory that peer support will increase as relationships develop (Tisdell et al., 2004). With the many communication tools available, there is evidence that peer relationships can grow over time increasing the likelihood of peers being a source of social support (Berry, 2017). Tisdell et al.'s (2004) study found that students did indeed find support through the developing relationship, as did Berry's (2017) qualitative case study of online doctoral students.

Instructor support remains important due to the instructor-centric nature of academic programs. Perhaps not surprisingly, in an interview study of six adult students in an online program, Song and Hill (2009) found that adult students relied on classmate and instructor support.

The importance of social support and the sources for that support for traditional age college students are well established. However, adults' social networks evolve over the life span and the sources of social support, so important for academic success, have received little attention for adults at mid-life. The most obvious difference is the diminished support role that parents play at mid-career. On top of that change, many students experience online learning as more isolating from peers and instructor than face-to-face learning. This brief review of the literature leaves us with questions about where mid-career adult students in online programs get their social support and if parents' education level continues to influence academic self-regulation of the mid-career adult graduate student.

Research Questions

We found little research on 1-GC graduate students in online graduate programs and how their sources of social support interact with academic self-regulation. We were also interested in learning if the cohort model was enabling classmate social support for students as they progressed through the program. The purpose of this multiple regression study was to determine to what degree parental education level, cohort progression, and perceived social support (PSS) of adult students in an online Doctor of Education (EdD) program predicted academic self-regulation. We also wanted to determine to what degree perceived social support (PSS) and parental education level interacted with academic self-regulation. The study addressed these questions for adult, professional students in an online doctoral program:

1. To what degree do parental education level and cohort progression predict academic self-regulation?

2. What sources of perceived social support -- family, friends, loved one (significant other), and classmates -- are predictive of academic self-regulation for adult students in an online doctoral program?

Methodology

For this cross-sectional prediction study, we used multiple regression analysis of data from an online questionnaire delivered to doctoral students from one online EdD Organizational Leadership program.

Population and Sample

To answer the research questions, we administered an online questionnaire to all 186 students from an online Organizational Leadership EdD program within a non-profit, private, faith-based liberal arts university in the southwest. These 186 enrolled students (population) consisted of approximately 33% African American, 15.2% Hispanic/Latino, 66% female, and a significant number of first generation college students. Although we did not have data from students about parental educational level prior to this study, we had informal reports of many students being first generation college goers (1-GC).

Students were asked to complete the online survey one year after the program's Summer 2015 launch date. The online questionnaire distributed through SurveyMonkey to the 186 online doctoral students resulted in a 49% response rate (n = 91). Four participants submitted incomplete survey data reducing the useable sample to 87. Females represented 67% of the survey respondents. Ethnicity of participants were as follows: 47% White/Caucasian, 35% Black/African American, 13% Hispanic/Latino, and 7% other. The average age of the survey participants was 44 years (M = 43.6, SD = 10.4).

Instrumentation

To measure academic self-regulation (ASR) we used the following scales from the Motivated Strategies for Learning Questionnaire: Goal Orientation, Meta-Cognitive Self-Regulation, and Resource Management: Help Seeking (MSLQ; Pintrich, Smith, Garcia & McKeachie, 1991). To measure social support, we used the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet Dahlem, Zimet, & Farley, 1988) with its three subscales for different sources of support: family, friends, and loved ones. To address our interest in determining if the cohort model resulted in increasing levels of perceived social support (PSS) among peer students, we created a classmates subscale by modifying the friends subscale of the MSPSS. We based our measure of parent education level on Toutkoushian, Stollberg, and Slaton's (2018) discussion by using a scale measure from high school or less to doctoral degree rather than categorical first-generation and not-first-generation. We also gathered basic demographics to determine how representative our respondents were of the doctoral program's student population.

Results

Multiple regression analysis was used to measure to what degree the predictor variables of parental education levels (PEL), cohort progression and perceived social support predicted the criterion variable of perceived self-regulation. Thirty-one percent of respondents indicated neither parent had taken any post-secondary classes or training (see Table 1). This is the strictest measure of first generation college goers, according to Toutkoushian et al. (2018), and it exceeds the 17.6% of students in science and engineering Ph.D. programs in the United States who reported that neither parent had any post-secondary education (National Science Foundation [NSF], 2016). Table 1 highlights frequency information that pertains to the

highest education level achieved by one parent. It is worth noting that 40.2% of students' PEL is less than an associate degree (high school or less, some post-secondary training, and some college classes) while 32.2% of students have a parent with a graduate degree.

Table 1

Highest Education Level Achieved by One Parent

Parent education level	Frequency	Percentage
High school or less	27	31.0
Some post-secondary training	6	6.9
Some college classes	2	2.3
Associate degree	12	13.8
Bachelor degree	5	5.7
Master degree	17	19.5
Doctoral degree	11	12.6
N/A	7	8.0
Total	87	100.00

Students in the doctoral program enroll in one seven-week class at a time for a total of six classes (18 semester credit hours) per calendar year. With that in mind, we used the number of seven-week classes completed, which we called doctoral program cohort progression, as a measure of time with cohort peers with zero serving as the minimum and eight as the maximum values. Of the respondents, the greatest number (26%) had completed just one class (see Table 2). Forty-six percent (46%) of responding students had completed two or fewer classes while students completing six or more courses made up only 18.4% of respondents. The remaining 35.6% had completed three to five courses.

Table 2

Participant Doctoral Program Progression by Classes Completed

Classes completed	Frequency	Percentage
0	2	2.3
1	23	26.4
2	15	17.2
3	8	9.2
4	13	14.9
5	10	11.5
6	7	8.0
7	8	9.2
8	1	1.1
Total	87	100

Multiple regression analysis was used to determine if the number of doctoral program classes completed and highest education level of one parent predicted students' academic self-regulation. The overall model significantly predicted academic self-regulation; accounting for 26.5% of the variance, $R^2 = .265$, $R^2_{Adjusted} = .229$, $F(2, 82) = 4.25$, $p < .018$. The doctoral program cohort progression predictor variable did not

contribute to the model, as highlighted in Table 3. The assumptions of linearity and homogeneity of variance were met based upon data presented within the model's scatterplot of standardized residuals. The assumptions of independence (Durbin-Watson = 2.01) and collinearity (Highest Education Level of One Parent, Tolerance = .99, VIF = 1.001; Doctoral Program Progression, Tolerance = .99, VIF = 1.001) were also satisfied for this model. Shapiro Wilk test results of .457 in addition to the observation of the Normal Q-Q Plot addressed the assumption of normality for the criterion variable of academic self-regulation.

Table 3

Parent Education Level and Cohort Progression Standardized Coefficients

Model	Standardized coefficients beta	T	Significance
Parent education level (PEL)	-.263	-2.501	.014
Cohort progression	-.164	-1.555	.124

Note. Dependent variable: Academic self-regulation

To test how PSS from the various sources predicted academic self-regulation, we compared results from the MSLQ to the MSPSS. A multiple regression analysis revealed that PSS from doctoral students' classmates, friends, and family significantly predicted the students' academic-self regulation based upon the overall model, $R^2 = .264$, $R^2_{Adjusted} = .237$, $F(3, 81) = 9.699$, $p<.001$. Within this model, Classmates PSS served as a mediator variable to Friends PSS. Family PSS did not contribute to the model. An increase of one standard deviation unit within PSS Classmates resulted in a standard deviation unit increase of .467 within the criterion variable of academic self-regulation. Table 4 displays how Classmates PSS influenced doctoral students' academic self-regulation compared to Friends and Family PSS.

Table 4

PSS Family, Friends, and Classmates Standardized Coefficients

Model	Standardized coefficients beta	T	Significance
PSS Family	.022	.199	.843
PSS Friends	.073	.617	.539
PSS Classmates	.467	4.289	.000

Note. Dependent variable: Academic Self-Regulation

Data presented within the scatterplot of standardized residuals adhered to the linearity and homogeneity of variance assumptions for the PSS model. The assumption of independence was further met (Durbin-Watson = 2.229). Originally, a multiple regression analysis of four instead of three PSS predictor variables was used to predict academic self-regulation. The predictor variable, Significant Others PSS was removed from the model due to a collinearity violation with Family PSS. Table 5 shows the tolerance and variance inflation factor (VIF) figures that satisfied the assumption of collinearity for the three remaining PSS predictor variables; tolerance statistics being greater than .1 (Mertler & Vannatta, 2002) and VIF figures being less than 10 (Keith, 2006).

Table 5

PSS Family, Friends, and Family Collinearity Statistics

Model	Tolerance	VIF
PSS Family	.762	1.312
PSS Friends	.651	1.535
PSS Classmates	.765	1.307

Note. Dependent variable: Academic self-regulation

Discussion

The percentage (>30%) of students whose parents did not complete any education beyond high school did not surprise us, but it does stand in sharp contrast to the dropping percentage of first generation graduates of science and engineering doctoral programs (17%; NSF, 2017). This evidence supports the argument that the online doctoral degree is more accessible to underserved students than the traditional Ph.D. (in science and engineering).

The current findings provide evidence that the influence of parental educational level on academic self-regulation persists through midlife of adult children as argued by Kniffin (2007). One explanation is that the behaviors and attitudes that make up academic self-regulation are learned in early life and influenced by parents' education level through social learning in the home more than through social support while the student is in school (whether during emerging adulthood or at mid-life). This would explain why our findings (students' M age = 43.6) are similar to the findings of Williams and Hellman (2004) for students (M age = 29.64) who were first-generation college goers in an online undergraduate program. At mid-life, family, friends, and classmates are be more likely than parents to offer social support that would influence academic self-regulation, but the self-regulation behaviors learned early in life from the parents persist, apparently, even into mid-life.

The variable Friends PSS predicts academic self-regulation, but Family PSS does not. Our results are in line with those of Wilks and Spivey (2010) who found that friend social support moderated the negative relationship between academic stress and resilience for students in a social work academic program. The varying interpretations of family at midlife may contribute to the lack of differentiation in our results between family and significant other and to the PSS Family variable not contributing to the model. It is likely that family support would be limited to emotional support and instrumental support including helping the student manage time through caring for family obligations that the student might normally be responsible for.

Classmate social support is strongly predictive of academic self-regulation. This is not surprising given the shared experience of navigating a difficult, online, graduate program, but it highlights the importance of students working through the sense of isolation from peers that other researchers have reported (Rakes & Dunn, 2010). The support from classmates would encompass emotional, instrumental, and informational support specifically related to the content and logistics of the program. Program elements that enable peer classmate social support include a program orientation module, which has two discussion forums where

new students connect followed by weekly asynchronous discussions on the application of theories and research.

Students' willingness to seek out more peer interaction when feeling a need for support could be related to students' academic locus of control (ALOC). Lee, Choi, and Kim (2013) found that ALOC was a strong predictor of persistence and dropout among students in online courses. Students who consider the social isolation of an online program to be contingent on their own efforts to socially engage with others would be more likely to increase their efforts to interact with their peers. On the other hand, if they bring an external locus of control to the online learning environment and then experience social isolation, they may be more likely to attribute the lack of peer support to the environment itself.

Our results support Broadbent and Poon's (2015) interpretation that peer learning was important in spite of its non-significant relation to academic outcomes in their meta-analysis. We would add that as parental social support decreases in mid-career, the social support students receive from peers becomes even more important. Thus, in academic programs designed specifically for working adults, designing opportunities for such support to flourish is important. One of the default instructional approaches to accomplish peer interaction is through group projects; however, our anecdotal experience with such projects in online environments is inconsistent. Prospective adult students regularly indicate their dislike of group projects. This is in line with limited previous research on the attitudes of adult online learners towards group assignments (Favor, 2012; Favor & Harvey, 2016; Favor & Kulp, 2015). Group assignments and other instructional activities (with their implied grade related risks) that promote peer interaction should be undertaken with care. Favor and Harvey (2016) tested a structured planning approach including a team charter that had ambiguous results but showed some potential.

The finding that cohort progression (measured by number of courses taken) does not predict academic self-regulation was unexpected. We anticipated that students would learn to self-regulate more effectively as they moved through the program. It is possible that students early in the program overestimate their ability to self-regulate. This flawed self-assessment is in line with Dunning, Heath, and Suls' (2004) findings in a systematic literature review on the weaknesses of self-assessment. Self-regulation may be particularly susceptible to the weaknesses of self-reporting. One could argue that the cohort group's self-regulation scores would become less inflated as it progresses. The students who are more self-aware, more accurate in their assessment of their self-regulation, and so rate themselves lower at the beginning of the program persist at a higher rate (Carver & Scheier, 1981).

Another possible explanation of the lack of growth in ASR is that the sense of social exclusion online students experience inhibits growth in self-regulation skill development. Baumeister, DeWall, Ciarocco, and Twenge (2005) found that individuals who experienced social exclusion self-regulated less than before. They suggested this might be due to the reduced motivation to focus attention on one's self when the rewards for doing so – social connectedness and belonging – are withheld. If this is the perception, it would explain why some online students do not become more self-regulating over time. A solution would be to increase students' awareness of the opportunities to connect with peers and instructors online to belong to a community of inquiry. Students with more awareness of the opportunities to connect socially could see the link between self-regulating behaviors (regulating social interactions in particular) and increased social connection and belonging.

Conclusion

This study contributes to our understanding of the sources of social support for adult, online students and how much social support predicts their academic self-regulation. This study also provides evidence of online doctoral programs offering greater opportunity to first generation students and that their parents' education level still affects academic self-regulation even in adulthood. Limitations of this study are several. First, generalizing is problematic from the study sample from one private, non-profit, faith-based institution. Second, the measure of academic self-regulation, while widely used, was not designed for adults studying online. Future research is needed to explore how adult students describe the networks and patterns of social support, including sources of support, social support regulating behaviors, and types of social support. Another research opportunity would be to use the recently developed and validated self-regulated online learning questionnaire (Jansen et al., 2017) to explore the experiences of adult students in online programs. The present study, in spite of reasonable limitations, contributes key insights into the drivers of academic self-regulation in adult learners in online graduate programs.

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