Predictors of Online Doctoral Student Success: A Quantitative Study

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Abstract

Online doctoral education is expanding; however, there is a paucity of research on the predictors of student success in these programs. Institutional leaders struggle to provide the academic environment and interventions to help online doctoral students make continual progress and complete their doctoral research, especially in open enrollment environments. In this study, a primarily online doctoral-granting institution undertook significant financial and philosophical investments, in the form of modified processes and interventions, to support student success in completing their doctoral research. To better understand the impact of these investments, this study used student intervention and progress data to analyze which interventions were predictors of online doctoral student success as measured by accelerated progression. Specifically, both the shift from a dissertation to an applied research study and student participation in an intensive, research focused workshop supported student success. Future research should be conducted to determine if these results are generalizable to other programs and also to determine if an in-person or a virtual intensive workshop is more conducive to student success.

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In primarily doctoral-granting institutions, it is critical to have provisions to ensure high rates of student success to promote institutional viability (Shaw, Burrus, & Ferguson, 2016; Shaw, Thorne, Duffy, Fore, & Clowes, 2015). Non-traditional doctoral candidates present unique challenges including life constraints that hinder program completion (Yasmin, 2013), but also bring motivational characteristics that can increase program completion (Gonzales-Moreno, 2012). Non-traditional programs also present an opportunity to emphasize a key predictor in student completion; faculty-student engagement (Berry, 2018; Gonzales-Moreno, 2012). Researchers have explored reasons why students leave online education, including those enrolled in doctoral programs (Zepke & Leach, 2010; Shaw, Burrus, & Ferguson, 2016). Researchers have also presented solutions that encourage student retention and bolster academic quality through faculty engagement in online contexts (Zepke & Leach, 2010). More research is needed, however, on predictors of online doctoral student success so a multifold strategy can be adopted by institutions to better promote online doctoral student progress and completion.

Online doctoral education is rapidly growing; however, there is a paucity of research on the predictors of student success in these programs (Burrus, Bradley, Shaw, & Ferguson, 2017). At the same time, universities struggle to provide the academic environment and interventions to help online doctoral students make continual progress and complete their doctoral research, especially in open enrollment environments. While this issue was not unique to the online institution used in this research, the institution did undertake significant financial and philosophical investments to support student success. Following these investments, the institutional leaders identified a need to better understand doctoral student progression and completion. Based on institutional data used in an initial evaluation to identify supportive student strategies, the university found graduates struggled to complete the doctoral research phase of their program. Thus, a comprehensive plan to address this issue was developed and approved by the Provost in the Fall of 2017. This comprehensive plan included the following components:

1. Taking measures, including waiving tuition and fees, to encourage student participation in an optional in-person or virtual intensive workshop specifically designed to diagnose barriers to

progression and develop an academic plan designed to improve progression and path toward completion;

2. Providing an applied research study, or Applied Doctoral Project (ADP), option for doctor of psychology (PsyD) students instead of completing a dissertation;

3. Enhancing ADP courses to encourage progression by including weekly milestones;

4. Hiring and training new Chairs with focused experience with at-risk populations and reassigning students to these new faculty; and

5. Improving the Methodological Review process.

This current study examines whether and to what extent the components of three components of this initiative (e.g., participation in the intensive workshop, Chair reassignment, and moving to the ADP) facilitated progression and completion of the dissertation or Applied Doctoral Project. As such, the following research questions were asked:

RQ1. Which components of a doctoral completion intervention predict student progression?

RQ2. To what extent does participation in a doctoral completion intervention predict progression?

Literature Review

Researchers (Shaw, Thorne, Duffy, Fore, & Clowes, 2015) uncovered best practices that leverage strategies used by certain faculty to reduce student complaints, increase retention, and decrease time to completion rates. These approaches included situated doctoral research advising, especially suited for the doctoral research phase of a doctoral program. Such advising leads to Chair efficacy, higher quality mentoring skills, and more collaborative communication between the Chair and doctoral candidate. Collaborative communication extends to the committee, including the reviewer. An additional element to this advising model is deepening both faculty and student engagement. A side benefit to deeper student engagement is leveraging student motivation, which is a proven predictor of student success.

Shaw, Blyler, Bradley, Burrus, and Rodriguez (2016) found that the use of learning contracts for at-risk dissertation learners resulted in students completing their dissertation in an average of 316 days at a rate of 62% within the time to completion window. The same students, all of whom were at-risk for not completing their dissertation and being dismissed from their program, were also assessed for levels of satisfaction on learning contract, the review process, leadership support, their dissertation Chair, and committee and all areas were found to be satisfied at a statistically significant level. Moreover, student milestone completion and degree completion were tracked from 212 students over a two-year period and found that 80% of students engaged in a comprehensive situated advising model where the review process was transparent successfully completed their doctoral degrees (Throne, Shaw, Duffy, Fore, & Clowes, 2015).

Doctoral programs should provide substantive administrative support for students failing to make adequate progress, including close monitoring of the supervisor and supervisee relationship (Leijen, Lepp, & Remmik, 2016). Online doctoral students are less satisfied with their Chair than doctoral students in other programs and often feel isolated and abandoned (Erichsen, Bolliger, & Halupa, 2014). Inadequate support from students' primary advisors can negatively impact motivation and progress towards completion (Locke & Boyle, 2016). In addition, doctoral students need direct instruction to develop academic and professional competencies (Godskesen & Kobayashi, 2016). In person or virtual intensive residencies or workshops provide students with individualized instruction focused on the student's particular research project to support competencies needed for progression.

Finally, choosing a dissertation topic that holds intrinsic task value to the student predicts self-regulated learning needed for dissertation completion (Kelley & Salisbury-Glennon, 2015). Offering students in a practitioner-based doctoral program, such as PsyD, the option to conduct an Applied Doctoral Project instead of a traditional dissertation may increase the likelihood the student will find intrinsic value in the endeavor. While student interest provides an important touchstone for self-regulation, personalization seems to be equally important. Students showed greater levels of satisfaction with the instructor and performed better academically when they received personalized interactions from the instructor on assignments (Gallien & Oomen-Early, 2008).

Student perceptions of effective instructor engagement are an important consideration for institutions. Student satisfaction is positively correlated with instructor communication, responsiveness, encouragement, accessibility,

and professionalism (Bolliger, 2004; Kauffman, 2015). Students who report high satisfaction, defined in large part by their opinions of faculty teaching, tend to persist to graduation, which improves institutional outcomes and contributes to student satisfaction (Noel-Levitz, 2014).

Methodology

This quantitative correlational study required logistic regression analysis and paired sample t-tests to understand the predictors of student success in online doctoral programs and the extent of progress. This method and design were appropriate because quantitative data are needed to understand how the predictors (e.g., dependent variables or components of the intervention) relate to outcomes (e.g., independent variables). The population for this study included all students who participated in the intervention outlined by the university. Archival data were collected and evaluated. As such, the sampling occurred post-hoc. SPSS was used to draw the random sample and conduct the analysis. Data for this study were collected from the university student information system.

Variables included the following:

Participation in the ADP – This independent dichotomous variable was measured as yes if students migrated to the Applied Doctoral Project from the dissertation or no if they remained in the dissertation.

Participation in Chair Change – This independent dichotomous variable was measured as yes if the students migrated to a new chairperson hired specifically to support at-risk dissertation students or no if they remained with their previously assigned chairperson.

InRes – This independent dichotomous variable was measured as yes if the student participated in an in-person or virtual intensive workshop designed to support students who were at-risk for program dismissal or no if the student did not participate.

Progression – This dependent dichotomous variable was measured as yes if students demonstrated post intervention progress by moving past a subsequent research milestone and no if students did not.

Results

RQ1. Which components of a doctoral completion intervention predict student progression?

Prior to predictive model creation, the dataset was analyzed for missing and outlying data points, and there was none in this particular sample. Data were also analyzed for normality and were found to be normally distributed (See Table 1). Variables are defined as Participation in the ADP (Intervention: ADP, values 1=yes; 0=no); Participation in Chair Change (Intervention: Chair, values 1=yes; 0=no); Participation in the intensive workshop (Intervention: INRES, values 1=yes; 0=no); and Progression (values 1=yes; 0=no)

Table 1.
Descriptive Statistics.

Variable	N	Mean	Std. Deviation	Skewness	Kurtosis
Intervention: ADP	262	.35	.479	.610	-1.641
Intervention: CHAIR	262	.62	.486	-.507	-1.757
Intervention: INRES	262	.23	.419	1.323	-.251
Progression	262	.53	.50	-.92	-2.007
Valid N (listwise)	262				

As stated, the dependent variable, which measures whether students made any progress in doctoral research milestone achievement is dichotomous, measured “yes = 1” and “no=0.” Since the dependent variable is discrete, the ordinary least squares regression can be used to fit a linear probability model. However, since the linear probability model is heteroskedastic and may predict probability values beyond the (0,1) range, the logistic regression model was used to estimate the factors, which influence progression.

The results indicated that students who participated in the intensive workshop or changed to the Applied Doctoral Project (ADP) option from the dissertation were more likely to progress. The coefficient on the intensive workshop variable has a Wald statistic equal to 15.546, which was significant at the .01 level (99% confidence level) and ADP

has a Wald statistic of 6.406, which was significant at the .01 level (99% confidence level). The overall model was significant at the .01 level according to the Model chi-square statistic. The "odds ratio" for the intensive workshop coefficient was 4.68 with a 95% confidence interval and for ADP, the "odds ratio" was 2.39 with a 95% confidence level. This suggests that those who participated in the intensive workshop were more than four times more likely to progress to the next research milestone in the program and those who migrated to the ADP option were more than two times more likely to progress to the next research milestone (see Table 2).

Table 2.
Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	Intervention: ADP	.872	.345	6.406	1	.011	2.392
	Intervention: CHAIR	.332	.352	.888	1	.346	1.393
	Intervention: INRES	1.544	.392	15.546	1	.000	4.683
	Constant	-.744	.374	3.961	1	.047	.475

a Variable(s) entered on step 1: Intervention: ADP, Intervention: CHAIR, Intervention: INRES.

RQ2. To what extent does participation in a doctoral completion intervention predict progression?

Next, paired sample t-tests were conducted to demonstrate the time between milestone before and after participation in the three tested interventions. There was a significant difference in the scores for Chair Changes, $t(192) = 8.17$, $p=.000$; participation in the intensive workshop, $t(58) = 9.24$, $p = .000$, and moving to the ADP, $t(98) = 7.47$, $p = .000$. For all three interventions time between milestones was substantively reduced.

Table 3.

Paired Samples Statistics

		Mean	N	Std. Deviation
Pair 1	Weeks B4 Intervention: CHAIR	128	193	111
	Weeks After Intervention: CHAIR	46	193	64
Pair 2	Weeks B4 Intervention: ADP	146	93	144
	Weeks After Intervention: ADP	32	93	14
Pair 3	Weeks B4 Intervention: INRES	176	59	87
	Weeks After Intervention: INRES	50	59	33

Discussion and Conclusion

The results from this study indicated that a comprehensive approach to addressing the needs of students in non-traditional online doctoral programs may facilitate student progression toward completing their doctoral research. Specifically, increased faculty engagement through participation in specialized intensive workshops may predict progression and reduce time between research milestones. Moreover, when applied doctoral students are allowed to focus their research in a way that is aligned to the applied nature of their degree, progression is improved. While reassigning students to a dedicated Chair trained to support at-risk students did not reach statistical significance as a predictor of success, the odds of progress did increase and the time to milestone was decreased to a point that does reach statistical significance. The next step for future research includes examining whether participation in an "in-person" versus a "virtual" intensive workshop results in different outcomes.

Universities may want to build on this knowledge by including specialized programming or curriculum for students struggling to complete their online doctoral degrees. Leaders of doctoral programs may also want to consider how to acculturate, prepare, and support students to the doctoral research phase of the program through synchronous video teleconferences, methodologically focused webinars, a platform that encourages ongoing community building, and potentially "bundling" doctoral research students within one course with their Chair and other students. Overall, universities should build on these results and what is demonstrated as best practices in online doctoral education to further facilitate student success.

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