

The Dissertation Institute:

Evaluation of a Doctoral Student Writing Workshop

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Abstract—This research to practice full paper describes an answer to a problem described in a study completed by the Council of Graduate Schools, where data showed that doctoral students in the United States are departing from their pursuit of the Ph.D. at high rates. Additionally, the study showed that the departure rates for underrepresented minorities (URM) (i.e., African-American, Native American, Pacific Islander American, and Hispanic American) are higher, as they complete their Ph.D. at lesser rates than their majority peers. Previous research has suggested that lack of motivation during the dissertation phase is one of the leading factors for students' decision to depart. This phase of the doctoral pursuit is often characterized as lonely and filled with uncertainty about the process towards degree completion.

To address this problem, we have created the Dissertation Institute. This NSF-funded research project consists of a one-week workshop for underrepresented minorities in the final phases of their Ph.D. in engineering. The goal of the workshop is to offer a practical and timely experience for doctoral students to help them progress through degree completion. The design of this workshop is grounded in research to address issues typical of the final phases of the Ph.D., help shorten students' time-to-degree and increase doctoral completion rates for URM. While similar programs already exist, the Institute differs by simultaneously collecting research data that will further the understanding of the success and value beliefs of its participants and help develop future workshops.

The purpose of this publication is to present a description of the Dissertation Institute as well as the evaluation results for its first implementation which took place in the summer of 2017. The evaluation plan consists of participant pre and post surveys, observations, and individual session assessments. Preliminary results show that the Dissertation Institute increased students' success beliefs and utility and cost-benefit value in academic writing. Results also showed that students appreciated having a safe space to communicate their academic concerns with session facilitators and fellow doctoral students. Students also expressed the individualized attention from the workshop facilitators aided in the transfer of the advice received throughout the multiple sessions to their specific pursuits. Findings from this evaluation will inform future development and implementations of the Institute and help inform the design of similar workshops.

Keywords—*motivation, underrepresented racial minorities, Ph.D. completion, dissertation.*

I. INTRODUCTION

Data show that underrepresented minority (URM) students complete the doctoral engineering degree at lesser rates than their majority peers (Council of Graduate Schools, 2007). Previous research has argued that this higher attrition can be due to isolation within the program (Gardner & Holley, 2011), a long time to degree (de Valero, 2001), and difficulties stemming from poor communication with the advisor (Zhao, Golde, & McCormick, 2007). While many potential causes to doctoral attrition have been posited, these studies have not been targeted to the specific case of URM students in engineering programs where underrepresentation of minority students has been a long-standing issue across all levels of study.

To further understand and address this issue, we have designed the Dissertation Institute. The Dissertation Institute is five-year project comprised of yearly one week workshops for URM students pursuing Ph.D.'s in engineering that are in the final phases of their Ph.D. (Hasbún, Matusovich, & Adams, 2016). The workshop is composed of both structured time for students to engage in writing, facilitated workshops on topics germane to the completion of the dissertation, focus groups for students to share their progress throughout the week, and individualized coaching for participants' needs. The primary purpose of the five-year project is to develop and offer a sustainable, practical, and a timely experience to help shorten participants' time-to-degree and increase degree completion rates for URM doctoral students in engineering. Details of this project are published elsewhere (Hasbún et al., 2016).

The goals of the five-year project are twofold: 1) to conduct research to understand the motivational factors that promote and detract from degree progress, and 2) to develop and offer the Dissertation Institute to provide underrepresented doctoral students in engineering with motivationally consistent, helpful strategies for avoiding pitfalls that prolong completion times, particularly those at the dissertation proposal preparation and dissertation completion. This paper will focus on the latter and describe the evaluation results for the first execution (i.e., the first iteration of the overall five-year Dissertation Institute project) of the Dissertation Institute. We will achieve this evaluation by answering the following question:

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What impact does the Dissertation Institute have on student success beliefs, value beliefs, and time-to-degree completion?

This paper will report the findings for the first offering of the Institute as interpreted by our evaluation team. The results discussed here were used to design the next iteration of the Dissertation Institute to be held in the summer of 2018.

II. THE DISSERTATION INSTITUTE 2017

The 2017 Dissertation Institute was the first execution of the workshop within the larger five-year project. This first iteration was held at the University of Maryland, Baltimore County. We invited URM graduate students from all geographic regions within the United States through multiple mailing lists aimed at this specific population. Our criteria for participation were to be enrolled in an engineering degree doctoral program, to be in the dissertation or proposal stage of said degree, and to be part of the URM population. To maximize student access, all participants who were accepted to the institute were fully funded for travel, lodging, meals, and materials.

To develop the initial iteration of the institute, we hosted a pilot data collection phase where we held faculty and student interviews as well as student focus groups. From this data collection, we uncovered what students and faculty described as the biggest needs of students in the doctoral pursuit and used this information to develop the schedule and list of facilitators for the first execution of the Institute. Details of this pilot data collection are published elsewhere (Hasbún et al., 2016).

Using this pilot information, the Institute was designed to alternate between half a day of workshops and half a day of structured writing time. For the workshops, students met in a large conference room where multiple facilitators were invited to provide a series of workshops and presentations that provided the participants with information and insights associated with the culture and rigors of the dissertation and the doctoral experience. The 2017 Institute provided ten (10) different workshops such as time management and procrastination, writing mechanics, preparing for the defense as well as more general topics such as life after the Ph.D., impostor syndrome, and mindfulness. For the structured writing time, the institute offered students a variety of spaces across campus, and for the duration of this period, students worked on their proposal or dissertation putting the advice received in the workshops into practice.

A particular finding from the pilot data is that students often believed they are alone in the struggle to complete the degree. Hence, the institute participants were divided into three groups where these smaller ‘writing clusters’ met before or after the structured writing sessions (alternating) to discuss how they were going to tackle the session or how the session had gone. These ‘writing clusters’ were developed to act as focus groups

where students could share their struggles and successes in a smaller setting with peers and a moderator that could help them mediate these experiences and identify potential solutions to common issues. Such time for sharing and communicating candidly with peers going through similar experiences aimed to increase students’ expectancy of success in the process of degree completion.

As this was the first execution of the institute, 36 students applied for being participants, 13 of them were rejected or declined the invitation because they did not meet the criteria for acceptance –especially the prove of permanent residence or US citizenship-. The total number of participants was 23 doctoral students. Participants traveled from diverse institutions across all regions of the US. Demographics were self-reported via the pre-survey and students were allowed to opt out of any question. Table 1 summarizes the demographics of all participants.

Table 1 PARTICIPANT DEMOGRAPHICS

Demographic	Percentage
Sex (N=23)	
Male	35%
Female	65%
Race (N=21)	
American Indian or Alaska Native	9%
Black or African American	68%
White	9%
Two or More Races	14%
Ethnicity (N=21)	
Hispanic and/or Latino	14%
Non-Hispanic and/or Latino	86%
Years in Doctoral Program (N=20)	
2 to 3	30%
4 to 5	55%
More than 5	15%
Next Graduate School Deliverable	
Proposal	36%
Dissertation	64%

III. FRAMEWORK

This project is guided by Eccles’ Expectancy-Value Theory (EVT) (Eccles, 1983, 2005). According to EVT (Eccles, 1983), the decision about a potential course of action is grounded in an interaction between expectancy of success (the degree to which the individual expects to succeed) and the expected value associated with the task. For this context, the task is completing a doctoral degree and more specifically the task of writing the proposal and subsequently the dissertation.

EVT posits that there are four kinds of values (interest, attainment, utility, and cost) (Eccles, 1983). For this project, Interest value is described as the enjoyment experienced when completing the dissertation or the individual interest on its content. Attainment is listed as the importance of doing well on

their dissertation. Utility value relates to the benefit or usefulness one ascribes to the dissertation in achieving future goals or rewards. Cost is the level of sacrifice involved in participating in the activities related to their dissertation. In its Expectancy construct, EVT model helps to predict achievement, effort, persistence and cognitive engagement on specific tasks, and in its Value constructs, EVT helps to predict the actual choices to engage in the behaviors that will lead to the completion of the dissertation (Schunk, Meece, & Pintrich, 2014). Based on this theory, we selected the instruments used to assess the first execution of the institute.

IV. INSTRUMENTS TO ASSESS THE IMPACT OF THE INSTITUTE

As one of the goals of the larger project is to develop research data on graduate student motivation, the evaluation materials were developed to both grant us that research data and provide insight on the success of the institute.

Table 2 summarizes the instruments used. We aimed to capture multiple student perceptions of the Institute and collect data through multiple sources from which we could triangulate the findings. We used multiple approaches of both qualitative and quantitative traditions.

This report will focus on discussing the results of the pre, post and follow-up survey, individual workshop evaluations, and writing cluster.

Table 2 DATA COLLECTION INSTRUMENTS

Instrument	Time of collection	N	# of quantitative items	# of Open-Ended Items
Pre-survey	At the beginning of the D.I.	22	45 Likert-Scale type 9 Demographic	None
Post-survey	At the end of the D.I.	23	25 Likert-Scale type	Four
Follow-up survey	Eight months after the D.I.	17	29 Likert-Scale type	None
Observation Guide	During each of the ten workshops and 15 writing cluster meetings	N/A	Four	Two
Writing Cluster Survey	Administered at the end of the last Writing Cluster Session	23	Nine questions with four sub-questions	Three
Follow-up interview	Nine months after the D.I.	5	none	Eleven

An external agency evaluated the Dissertation Institute during the workshop's week-long execution. Thus, by using an external evaluator, two people were dedicated to carrying out the evaluation activities full time through the duration of the institute. All evaluation materials were handled by the two full-time evaluators who ensured anonymity. An assigned assessment code allowed the longitudinal tracking of the results.

A. Surveys

We conducted five surveys: 1) the pre-survey was distributed and collected at the beginning of the Institute, 2) the post-survey was distributed and collected right after the finalization of the

Institute, 3) the follow up survey was distributed and collected 8 months after the Institute completion, 4) the workshop surveys were distributed and collected during the 10 workshop sessions and, 5) the Writing Clusters' survey was distributed and collected after the end of the last writing cluster session.

The *pre-survey* consisted of 45 items on a multi-point Likert-Scale. 20 items included in the survey were designed using the graduate student socialization by Weidman, Twale, and Stein (2001). These items were collected to understand the individual student's context in their doctoral program. The data on graduate student socialization is meant to inform research questions that are being addressed through the Dissertation Institute. The remaining 25 of these items are intended to measure student motivation towards the tasks of doctoral degree completion and academic writing towards completing the degree drawing on EVT.

Additional to the items intended to measure motivation, the *post-survey* also included 8 items on general satisfaction with the Institute sessions and perceived usefulness or helpfulness of the Institute. In addition, of the 25 items on the post-survey, 13 items were identical to the pre-survey for comparison purposes. Finally, there were four open-ended questions that asked about students' experiences, expectancies, and recommendations for the Dissertation Institute.

Similarly, the *follow-up* survey included the same 13 items to measure motivational factors and 7 items to measure perceived helpfulness of the institute general satisfaction. In addition, it has 9 items designed to better understand the participants' doctoral experience after the Institute.

The writing cluster survey consisted of four 5-point Likert scale of "Extremely Satisfied" (5) to "Not at all Satisfied" (1), where the participants rated the helpfulness, help with overcoming obstacles, and receiving helpful strategies to maintain healthy writing habits from the cluster. We also included 5 more questions to rate the Writing Cluster facilitator of the cluster and the participants' writing habits during the writing sessions.

| RESULTS

The assessment results of the first iteration of the Dissertation Institute were organized in the three constructs of our research question: Success Beliefs, Value Beliefs, and Time-to-Degree completion. Results are shown comparing pre-test, post-test and follow-up surveys

A. Success Beliefs

As noted, Success Beliefs, in this context, encompasses an individual's beliefs about whether or not he or she can be successful in completing a dissertation. The two subcategories of success beliefs that match the purpose of the institute are the beliefs on *Academic Writing* and on *Communicating with their Advisor*. We did not interpret the answers to the four items as a whole (i.e., to determine the success beliefs in general) because we were interested on the answers of the individual items to the two mentioned subcategories.

2017 Dissertation Institute Pre, Post and Follow-Up Means Success Beliefs

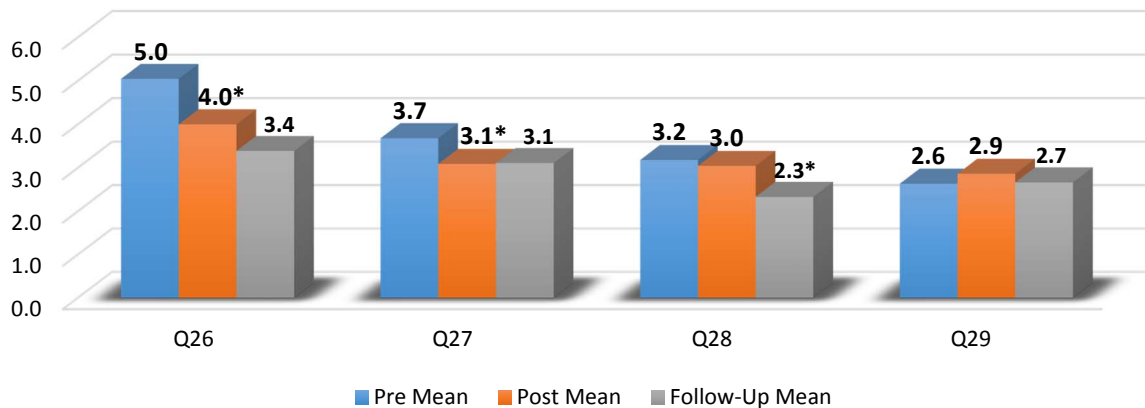


Figure 1 Mean of Success beliefs Survey Items. * $p < 0.05$
Scale for Q26 and Q27: Extremely easy (1) to Extremely difficult (7)
Scale for Q28 and Q29: Extremely good (1) to Extremely bad (7)

The results indicated that for all students there was a statistically significant improvement in the participants pre and post responses for the *perceived difficulty of writing and communicating with the advisor* items (questions Q26 and Q27 see **Error! Reference source not found.** and Table 3). As an example, the meaning of a decrease of 1 point in the mean score is that in average all people changed their consideration of academic writing as a slightly difficult activity -before the D.I.- to a neither easy nor difficult activity -after the D.I.-

Table 3 SUCCESS BELIEFS SURVEY ITEMS

Category	Survey Items
Success Beliefs	Q26: Academic Writing (Level of Difficulty)
	Q27: Communicating with my advisor (Level of Difficulty)
	Q28: Academic Writing (How good are you?)
	Q29: Communicating with my advisor (How good are you?)

Particularly, a paired sample t-test showed the decrease in the perceived difficulty of academic writing (Q26): there was a significant decrease in the average scores for Pre-test ($M=5.00$, $SD=1.414$) and Post-test ($M=4.05$, $SD=1.504$) responses; $t(19)=2.703$, $p < 0.05$. Similarly, a paired sample t-test Table 4 shows the survey items in this category.

corroborated the decrease in the perceived difficulty of communicating with the advisor (Q27): there was a significant decrease in the average scores for Pre-test ($M=3.85$, $SD=1.927$) and Post-test ($M=3.1$, $SD=1.744$) responses; $t(19)=2.608$, $p < 0.05$. On the other hand, the follow-up survey showed a significant improvement in the participants' responses for the self-perception of being good at academic writing (Q28). There was a significant decrease in the average scores for Post-test ($M=4.00$, $SD=1.167$) and the Follow-up test ($M=2.25$, $SD=0.683$) responses; $t(15)=4.038$, $p < 0.05$.

Other responses, like the self-perception of being good at communicating with the advisor (Q29), did not show appreciable changes between the three survey responses (Note: Due to a low n , interpreting the results should occur with caution).

B. Value Beliefs

This category of survey items provided insight into participants' value of being good at academic writing. Overall the value beliefs in the post-test showed a decrease in the cost value and an increase in the utility value to engage in academic writing. That is, right after the Institute, participants perceived that engaging in academic writing was more worthwhile and useful for their daily life.

Table 4 VALUE BELIEFS SURVEY ITEMS

Value Beliefs	Survey Items
Attainment	Q17: I feel that being good at academic writing is important
	Q18: It is important for me to be good at academic writing
	Q19: It is important to me to learn good academic writing skills
Interest	Q20: I like academic writing.
	Q21: In general, I find academic writing is interesting
Cost	Q22: The amount of effort it takes to engage in academic writing is worthwhile to me
	Q23: The amount of time I spend on academic writing keeps me from doing other things I would like to do
Utility	Q24: Academic writing is useful for my daily life
	Q25: Academic writing will be useful for what I want to do after I graduate

A paired sample t-test corroborated the variation in the cost value of the effort it takes to engage in academic writing (Q22); there was a significant decrease in the average scores for Pre-test (M=1.79, SD=0.713) and Post-test (M=1.37, SD=0.496) responses; $t(18)=2.388$, $p<0.05$. On the other hand, a paired sample t-test showed the increase in the utility value that academic writing has for the participants' daily life (Q24); there was a significant decrease in the average scores for Pre-test

(M=2.45, SD=1.432) and Posttest (M=1.85, SD=0.933) responses; $t(19)=2.349$, $p<0.05$.

Figure 2 details the mean results of the value belief responses in the three surveys.

C. Time to Degree Completion.

The final aspect of the evaluation questions included participants' perception of how well the Institute helped them to identify a plan of action that would support completing their doctoral program in a timely manner. Using a 4-point Likert scale of "strongly agree" to "strongly disagree", in the post-survey, 95% of the students strongly agreed that the Institute helped them to develop a plan of action to complete their doctoral program in a timely manner. However, in the follow-up survey only 59% strongly agreed with this statement and 12% strongly disagreed.

D. Writing Clusters

Regarding the writing clusters, all participants were extremely satisfied or very satisfied with the helpfulness of the sessions. Particularly they highly appreciated the benefit of the cluster to overcoming obstacles and the strategies to maintain healthy writing habits.

Furthermore, to gauge participants' use of time that was allocated for writing or working on their dissertations, the Institute allocated approximately 14 scheduled hours for writing practice. The 23 participants who completed the survey reported the following:

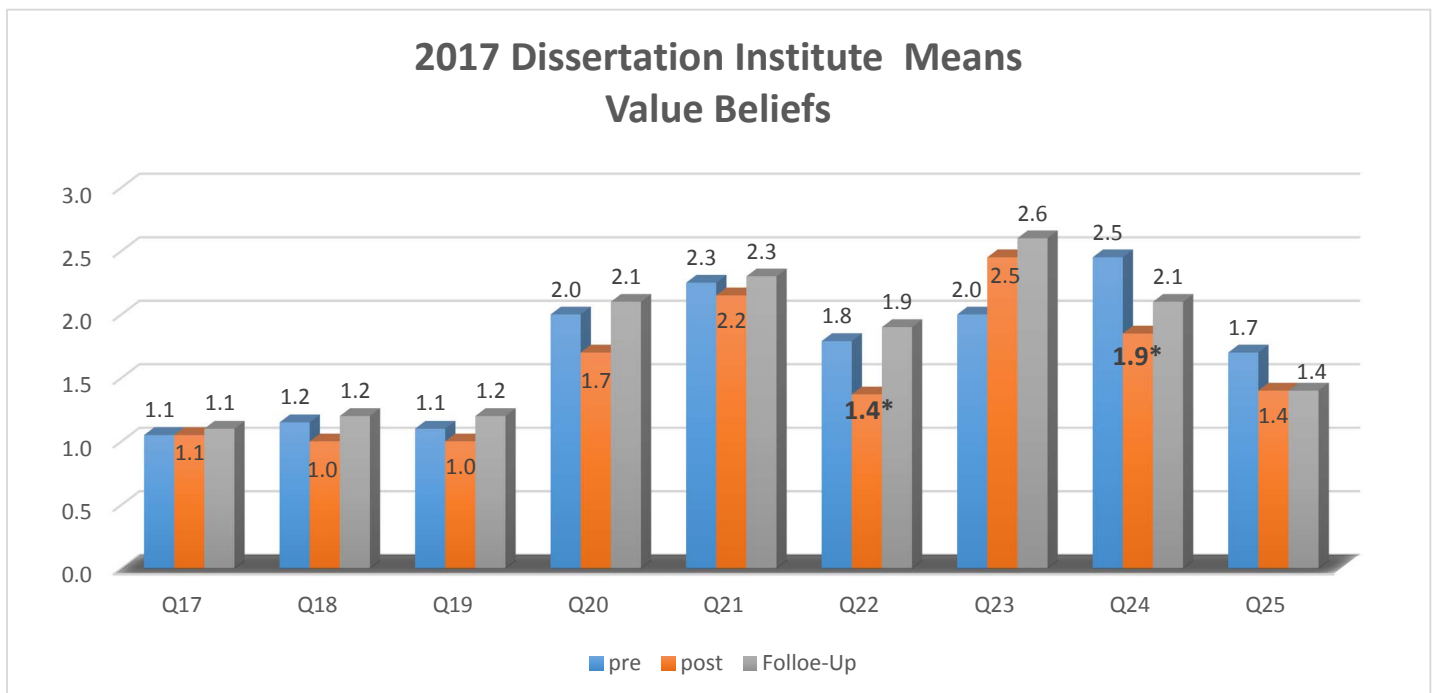


Figure 2. Mean of value beliefs Survey Items. * $p<0.05$

Scale: Definitely true (1) to Definitely false (5).

Except for Q23, a decrease in the mean refers to an increase in the value.

- 48% (n=11) spent 6 to 10 hours writing on their dissertation, whereas 30% (n=7) spent 1 to 5 hours.
- 52% (n=12) spent 1 to 5 hours writing other work (e.g., articles, conference proposals) whereas 26% (n=6) spent none.
- 61% (n=14) spent 1 to 5 hours reading articles associated with their dissertation/research whereas 22% (n=5) spent 6 to 10 hours.

In addition to the use of time and satisfaction with sessions, the participants were asked to identify the most helpful aspect of the writing cluster experience. Several comments included having an opportunity to hear other people's stories, discussing strategies to use upon returning to their respective schools, and realizing that they are not alone. Several commented on the specific helpfulness of their cluster facilitators and getting feedback on how to overcome challenges. Talking in small groups, being real about the students' day, and hearing strategies from other students and advisors were the most prominent comments.

Finally, participants were asked to provide an experience that could have been included in the writing cluster sessions and why. The suggestions were diverse and no common theme appeared to emerge. Participants suggested an opportunity to hear from other students and their similar experiences, doing activities in the sessions that are suggested by the facilitator, rotating cluster facilitators, having writing samples, and grant writing and source funding.

When asked to rate the overall quality of their respective facilitators, 91% rated their facilitator as "excellent" and the remain 9% rated their facilitator as "very good." All participants would recommend the writing cluster session for future Institutes.

DISCUSSION

Results from the Institute evaluation activities indicated that this initial iteration of the project is showing progress toward enhancing the motivational factors (i.e., success beliefs and value beliefs) that promote the degree progress and provide underrepresented minority students in engineering with helpful strategies to advance their doctoral progress in the proposal and dissertation stages. Furthermore, the participants' overall satisfaction of the Institute was notable as all participants indicated that the Institute helped them to accomplish their goals and they would recommend other doctoral students to participate.

Although the evaluation was conducted during the first Dissertation Institute, there is still a need to produce more robust and comprehensive data to understand the contextual differences that are relevant to the transferability and future sustainability of the Institute.

Although several students indicated that the Institute influenced their *Success Beliefs* and *Value Beliefs* for academic writing and communication with their advisor, more data is needed to assess the Institute's impact on the

time-to-degree completion. Following the timeline of our five-year project, other qualitative data gathering and analysis activities are being conducted at the moment of writing this article. Such data and conclusions are used to design the next iteration (e.g., second year) of the Dissertation Institute.

One of such conclusions is that beyond success beliefs and values associated with academic writing, the Dissertation Institute could have a bigger positive impact on the beliefs and values associated with the communication with the advisor. Although some of the workshops and discussions at the writing cluster sessions provided advice towards strengthening the skills associated with the relationship with participants' advisors, the Institute could address them more directly. Research suggests that the selection of the advisor and managing the relationship between advisor-advisee affects directly doctoral students' satisfaction, therefore reducing the likelihood of attrition (Zhao et al., 2007). It is expected, then, that such relationship also impacts the beliefs and values on academic writing and, in turn, finishing the dissertation.

Furthermore, the impact of the Institute on success, value beliefs and time to degree can also be reinforced by providing more opportunities for socialization (Weidman et al., 2001). Results from the writing clusters showed that most students considered that writing the dissertation is a lonely endeavor and tends to isolate them from the community. It is possible that after having the opportunity of sharing common stories, discussing strategies or even finding partners to have a writing group, participants changed their perception of writing and found ways to increase their sense of community while finishing their dissertation.

Based on the data gathered, the Dissertation Institute provided an initial great momentum for participants, especially in regards to accountability with writing partners and creating a plan. However, follow-up survey data suggested that this momentum wore off after a few months because participants did not maintain this emerging network or struggled implementing that plan. Ultimately, the Dissertation Institute helped the participants devise plans for completing their dissertation in a timely manner, but not necessarily how to maintain the momentum or guard against overcoming the challenges of implementing the plan.

Future iterations of the Institute will provide us more data to disaggregate the results based on gender, race or doctoral stage (i.e., proposal or dissertation stage). The expected number of participants in the five-year project is between 150 to 200 doctoral students, hence increasing the statistical power for other analysis (e.g., clusters analysis or ANOVA) and further disaggregation of the results on the URM population.

CONCLUSION

In summary, in response to the question: “What impact does the Dissertation Institute have on student success beliefs, value beliefs, and time-to-degree completion?” the following statements summarize the results.

A. Success Beliefs: Overall Findings right after the D.I.

- a) There was a significant decrease in the perceived difficulty of academic writing.
- b) There were no differences in the self-concept of being good at academic writing
- c) There was a significant decrease in the perceived difficulty of communicating with their advisor.
- d) There was a slight decrease in the self-concept of being good at communicating with the advisor.

B. Success Beliefs: Overall Findings 8 months after the D.I.

- a) There was a decrease in the perceived difficulty of academic writing
- b) There was an increase in the self-concept of being good at academic writing
- c) There were no differences in the self-concept of being good at communicating with the advisor
- d) There were no differences in perceived difficulty of communicating with the advisor

C. Value Beliefs: Overall Findings right after the D.I.

- a) There was a significant increase in the cost-benefit value of engaging in academic writing.
- b) There was a significant increase in the utility value of engaging in academic writing.
- c) There were no differences in the attainment value given to academic writing.

D. Value Beliefs: Overall Findings 8 months after the D.I.

- a) There was a decrease in the cost value of engaging in academic writing.
- b) There was a significant increase in the utility value of engaging in academic writing.
- c) There were no differences in the attainment value given to academic writing

E. Time to Degree: Overall Findings right after the D.I.

All participants considered that the D.I. helped them to develop a plan of action to complete their doctoral program.

F. Time to Degree: Overall Findings 8 months after the D.I.

88% of participants considered that the D.I. helped them to develop a plan of action to complete their doctoral program.

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