

THE SUCCESS OF MARKETING DOCTORAL PROGRAMS: INPUTS FROM DOCTORAL STUDENTS' EVALUATIONS

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ABSTRACT

The purpose of this study is to understand how a doctoral student's experiences during a doctoral program influence the student's perceived (1) satisfaction and (2) perceived success. In addition, we also look at the role that burnout plays in these relationships. Results show that supervisor support and socialization are highly important factors in the overall satisfaction and success of doctoral students. We also look at more objective measures that can lead to satisfaction and success. The results show that the number of working papers is a stronger influence on satisfaction than the number of publications.

INTRODUCTION

The success of an educational institution and their doctoral programs depends heavily on the success of their doctoral students. Since a doctoral student's success is important to the degree granting institution, it is critical to understand the contributing factors to the success of a doctoral student. Also, understanding a student's satisfaction with the program is important because a more satisfied student will be likely to be more productive and represent the degree granting institution well. Conversely, doctoral students with low levels of satisfaction or success could withdraw from regular activities or even dropout of the program completely. Dropout rates from doctoral programs are historically relatively high, estimated at around 40 percent to 50 percent across programs (Golde 2005; Lovitts and Nelson 2000). Due in part to the high dropout rates, the Council of Graduate Schools (2006) is taking the initiative to set up a Ph.D. completion project to assess intervention strategies along with causes for the high dropout rates. Given the high dropout rates among doctoral students and the implications toward the degree granting institution it is important to understand what contributes to a student's success and satisfaction within a doctoral program.

Prior research has examined external influences and program inputs that influence the success of doctoral programs (Bearden, Scholder Ellen, and Netemeyer 2000). Another study has asked new faculty members to rate what factors during their doctoral program contributed to their success once they became a new faculty member (Conant, Smart, and Redkar 1998). A limited amount of research has been done to understand the relationship between doctoral students' graduate research experiences

and satisfaction levels with the program as well as students' perceived individual success.

One way to improve the quality and reputation of a Doctoral program is to create satisfied and successful doctoral students. We are interested in the doctoral students' experience while in the doctoral program. Therefore, the purpose of this study is to examine students' satisfaction with doctoral programs and students' perceived success in the doctoral programs. In addition, we also look at the role that burnout could play in these relationships. This paper will review some background on doctoral educational experience and will then pose hypotheses. Next, we will outline our methodology and review the results. Lastly, we will discuss our results and pose implications for marketing doctoral programs.

BACKGROUND

Doctoral programs are rigorous and expensive for both the student and the degree granting institution. Generally, doctoral students give up a substantial amount of time (typically four to five years) to pursue a doctoral degree and once they become junior faculty they have to continue to work very hard to attain tenure. The many years of hard work can often lead to burnout for quite a few within the profession. Also, doctoral granting institutions invest substantial resources to prepare doctoral students for a career within academia. The cost to fund a doctoral student is increasing, along with increased competition to find good candidates. However, despite the amount of resources dedicated to a doctoral program, dropout rates in doctoral programs are relatively high (Golde 2005; Lovitts and Nelson 2000).

There are many factors that contribute to the success

of a doctoral program (Bearden, Scholder Ellen, and Netemeyer 2000). There are recurring themes in the literature concerning the success of doctoral programs and doctoral students. These factors include: supervisor support, skill development, program environment, and program infrastructure. Combined these factors are part of what we will call the doctoral student research experience.

Supervisor support is one of the most mentioned themes when referring to success in doctoral programs. A supervisor could be considered a student's mentor or a supervisor could be the student's chairperson when it comes to dissertation time. Entire studies have been devoted to the supervisor/student relationship (Beatty 2001; Lindgreen et al. 2002). Mentoring has been found to be a top factor in the strength of a doctoral program because it can lead to research success for the student (Conant, Smart, and Redkar 1998). Not only is the student supervisor relationship important during the program, but the perception of this relationship is important for attracting students to the program. When potential students considered a doctoral program, marketing doctoral students reported that the faculty/student relationship was the most important factor when deciding on a marketing doctoral program to enter (Davis and McCarthy 2005). Based on the previous studies it appears that students have an expectation of having a strong student/faculty relationship and this is a highly important factor to success within a program.

In addition, socialization among doctoral students and faculty within the marketing discipline is also very important to the overall doctoral program experience (AMA Taskforce 1988). The lack of socialization in a student's doctoral program was one of the top weaknesses noted by new faculty members from their doctoral education (Conant, Smart, and Redkar 1998). Without the social networks and support from faculty and other doctoral students, interest in research areas, and teaching can diminish and possibly lead to increased feelings of dissatisfaction and burnout.

HYPOTHESES

According to the tenants of expectation-disconfirmation theory, expectations can be confirmed or disconfirmed (van Raaij 1991). Confirmation of expectations leads to satisfaction, and disconfirmation leads to dissatisfaction. If a doctoral student's expectations regarding the doctoral program are met, they should be satisfied with the program. However, if the expected outcomes regarding the doctoral program fall short, the student is likely to become dissatisfied. Other studies found that burnout is attributed to the disconfirmation of expectations (Friedman 2000). In addition dissatisfaction has been shown to be highly correlated with burnout (Gwede et al. 2005).

The level of satisfaction can also facilitate the overall perceived success of the individual.

According to Bem's (1972) self-perception theory, we come to know ourselves in the same way that we come to know others. For example, we monitor our own behaviors in a variety of situations and then we make attributions about our perceptions of our own behavior. These attributions made based on self-perceptions could be either positive or negative, which in effect impact the overall perceived success of the individual and the program. If a student sees their progress in the doctoral program as positive then they are likely to have positive perceived success along with positive satisfaction. A student's satisfaction with a doctoral program is highly important since a satisfied student will more likely be a productive member of the program, represent the school well, and be less likely to drop out of a doctoral program. In sum, a positive doctoral student research experience should lead to increased satisfactory with the program and increased feeling of success (H1). Based on this rationale and the tenants of both expectancy-disconfirmation and self-perception theory, we propose that:

H1: Doctoral student research experience is positively related to (a) overall satisfaction and (b) overall success with a doctoral program.

Burnout has been shown to negatively affect students' performance (Yang 2004). Burnout should have a negative effect on perceived success for students. Different levels of burnout are also expected to have a greater effect on people who have had more negative experiences in their programs than for people that have more positive ratings for their program. For H2 we propose that the feeling of burnout will affect students that have had less positive research experience more than it will affect students that have positive research experience.

H2: Doctoral student research experience is moderated by burnout and related to (a) overall satisfaction and (b) overall success with a doctoral program.

The success of the doctoral student is often gauged by the amount of active research and research produced (i.e., publications, conference papers, and working papers). There are also other factors that contribute to the success of a doctoral student, such as the quality of the research, the outlets for the research and job placements. Some studies have cited research produced as one of the most important measurements of doctoral program success (Bearden, Ellen, and Netemeyer 2000). As a doctoral student progresses through the program that student is more likely to have publications and will have more active research (i.e., working papers). Our study examines students at different years in their programs. There should be a positive relationship between the number of years in the program, the number of publications produced, and working papers.

According to Carver and Scheier's (1981) self-regulation model, individuals must become consciously aware of the discrepancy between current and desired self-states, and then consciously choose to engage in actions to minimize the discrepancy. Moreover, Carver and Scheier (1990) concluded that the meta-monitoring process functions as a feedback loop on the adequacy of the perceived rate of progress. Therefore, a person who has a large discrepancy within the action loop may have more positive affect than a person who has a smaller discrepancy. For example, as students move through the marketing doctoral program, early-staged students will have fewer publications compared to advanced-staged students. So, later stage doctoral students should feel more satisfied and successful once they start producing publications or conference papers. As one has more projects and acquires more publications throughout the doctoral program, the level of satisfaction and perceived success should increase based on students' goals. Based on tenants of Carver and Scheier's (1990) feedback-based viewpoint on self-regulation, we propose that:

H3: Self reported (a) overall satisfaction and (b) overall perceived success will be higher for students who have more publications.

H4: Self reported (a) overall satisfaction and (b) overall perceived success will be higher for students who have more working papers.

H5: Self reported (a) overall satisfaction and (b) overall perceived success will be higher for advanced-staged students in comparison to early-staged students.

H6: Stage in the program will moderate the relationship between number of publications and self reported (a) overall satisfaction and (b) overall perceived success.

H7: Stage in the program will moderate the relationship between number of working papers and self reported (a) overall satisfaction and (b) overall perceived success.

METHODOLOGY

Data Collection

We conducted a survey of doctoral marketing students enrolled at U.S. universities that have a marketing doctoral program. Emails were sent out to current doctoral students asking them to participate in a survey regarding the marketing doctoral student experience in their doctoral program. The survey was a web-based survey where respondents had to go to the website address given to them in the email to fill out the survey online. Respondents were not able to fill out duplicate surveys because the address given to them only allowed one survey to be submitted. Seventy-one students responded, 56 percent were male and 44 percent were female. The average age was 31 and

the average number of years in the doctoral program was three. Four (5.6%) respondents were in their first year of their doctoral program, eighteen students (25%) were in their second year, twenty-one (29.2%) students were in their third year, eighteen (25%) were in their fourth year, and eleven students (15.3%) were greater than their fourth year.

Measures

Doctoral Student Research Experience: The independent variable in our study was doctoral student research experience which is a scale modified from Marsh, Rowe, and Martin (2002). The scale has twenty total items on a seven-point "strongly disagree/strongly agree" scale. The scale has high reliability ($\alpha = .92$). The post graduate research experience scale has four lower order constructs, each containing five items. The first construct is supervisor ($\alpha = .93$) which consisted of questions such as "My supervisor's provided helpful feedback on my progress." The second construct is skill development ($\alpha = .93$) which consisted of questions such as "My research further developed my problem-solving skills." The third construct is climate ($\alpha = .88$) which consisted of questions such as "The department provided opportunities for me to be involved in the broader research culture." The fourth construct is infrastructure ($\alpha = .84$) which consisted of questions such as "I had good access to the technical support I needed." All constructs were created by taking the mean of all of the items related to the construct.

Burnout: We included a measure of burnout into our analysis to test our mediation hypothesis. Burnout was measured using a five-item scale rated on a seven-point "strongly disagree/strongly agree" scale. Items were modified from the Maslach Burnout Inventory (Maslach and Jackson 1980). The items used include "I feel emotionally drained from my work," "I feel used up at the end of the day," "I feel fatigued when I get up in the morning," "I feel burned out from my work," and "I feel frustrated at the end of the day." Burnout had high reliability ($\alpha = .90$).

Overall Satisfaction and Success: The dependent variables used to test our hypothesis were self reported measures of overall evaluation of the marketing doctoral program. A seven-point strongly disagree/strongly agree scale was used. The overall satisfaction question asked respondents "I am satisfied with my Ph.D. program." The other dependent variable of overall success asked respondents to respond to "I am satisfied with my success in the program given the stage of the program I am in." Since overall satisfaction is a self reported measure, we also included more objective questions regarding success, such as "How many publications do you have?" and "What year are you in the program?" Demographic and other variables describing the students' stage in their program were included in our survey.

RESULTS

To test H1 and H2, we ran separate hierarchical regressions. In the first step of the regression, we entered gender and year in the program as control variables. In the second step of the regression, we entered research experience, burnout, and the interaction between research experience and burnout. Following Aiken and West's (1991) procedures for creating interaction terms we mean-centered burnout and research experience and then multiplied the mean-centered terms together to create the interaction. For H1, we tested to see if doctoral student research experience is positively related to overall satisfaction (H1a) and overall success (H1b) with the doctoral program. In H2, we looked to see if burnout level moderated the relationship between overall satisfaction (H2a) and overall success (H2b).

Overall Satisfaction: The results, in Table 1, from step one indicate that year in the program was not significant; however, gender was approaching significance ($p < .10$) indicating that males may have higher satisfaction levels than females. H1 proposes that doctoral student research experience is positively related to overall satisfaction and overall success with the doctoral program.

Stage two of the regression analysis addresses H1. We found that doctoral student research experience was significant ($p < .01$) and positively related to overall satisfaction, thus supporting H1a. Burnout was not significant. Furthermore, the interaction term between doctoral student research experience and burnout on overall satisfaction was not significant ($p > .10$). Therefore H2, which posits that burnout will moderate the relationship between research experience and overall success, was not supported. The independent variables accounted for 64 percent of the variance in overall satisfaction.

Overall Success: Results, in Table 1, from the first step of the regression for overall success as the dependent variable indicates that the control variables, year in the program, and gender, are not significant. In the second step, doctoral student research experience is significant ($p < .01$) and positively related to overall success, supporting H1b. Burnout was marginally significant ($p < .10$) and was negatively related to overall success. The interaction term between doctoral student research experience and burnout on overall success was also marginally significant ($p < .10$); lending partial support to H2b that burnout acts as a moderator for the relationship between research experience and overall success. Figure 1 illus-

TABLE 1
EFFECT OF RESEARCH EXPERIENCE AND BURNOUT ON DOCTORAL
EDUCATION SATISFACTION AND SUCCESS
(N = 69)

Dependent Variables:	Overall Satisfaction		Overall Success	
STEP 1				
Year	-0.15	(-1.21)	-0.07	(-0.61)
Gender	-0.16	(-1.32)***	-0.07	(-0.56)
R ²	0.05		0.01	
STEP 2				
Year	-0.18	(-2.30)**	-0.09	(-1.22)
Gender	-0.04	(-0.46)	0.05	(0.16)
Research Experience (RE)	0.65	(5.74)*	0.38	(2.59)*
Burnout (BO)	-0.11	(-1.29)	-0.16	(-1.37)***
RE x BO	0.11	(1.07)	0.20	(1.47)***
R ²	0.64		0.38	
Notes: Numbers are standardized beta coefficients. Numbers in parentheses are t-values.				
* = significant at $p < .01$ for one-tailed test				
** = significant at $p < .05$ for one-tailed test				
*** = significant at $p < .10$ for one-tailed test				

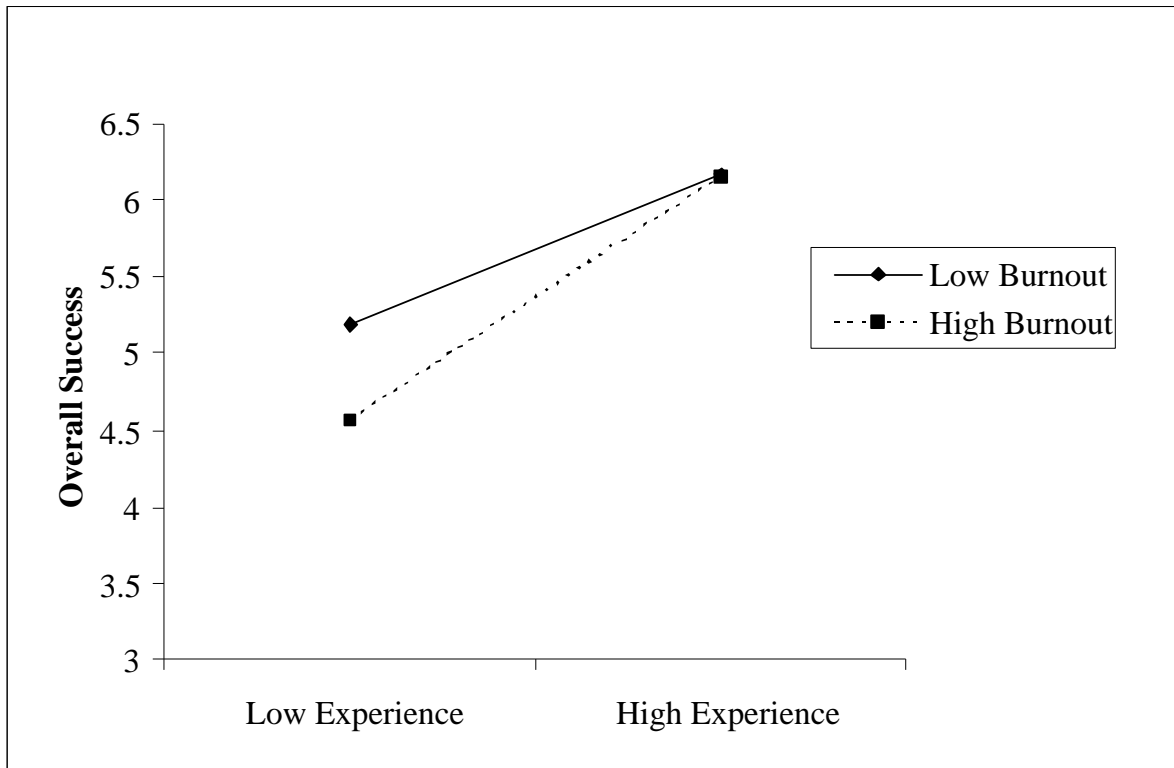
trates the interactions between experience in the program and burnout. The figure shows that for students who have had a less positive experience in their program are influenced more by burnout than students who have had a more positive evaluation of their research experience. For students who have had a less positive experience report lower levels of success when they have experienced higher levels of burnout compared to those who have reported lower levels of burnout. The model accounts for 38 percent of the variance in overall success.

In H3 through H7, we assessed the factors that contribute to overall success and satisfaction. To test these hypotheses, we also used hierarchical regression. To assess the students stage in the program students were divided into early-stage students (22 respondents), who are in their first or second year of their program, or advanced-staged students (48 respondents), who are in their third year of their program or greater. In the first step of the regression we entered number of publications, stage in the program, and number of working papers. In the second step of the regression we added an interaction between the number of publications and the stage in the program and the interaction between the number of working papers and the stage in the program. We followed the

same procedures for creating the interaction variables as in our first analysis.

Self-Reported Overall Satisfaction and Overall Success: In the first step of the analysis in Table 2, H3 was tested to see if the number of publications is related to overall satisfaction and success. The results for overall satisfaction were surprising in that the number of publications on overall satisfaction was negative and significant ($p < .05$). However, the number of publications was not significant for the self-reported overall success measure ($p > .20$) indicating that we do not have support for H3. H4 looked at the number of working papers and overall satisfaction and success. H4a and b were supported with the results indicating that the number of working papers was positive and significant for success ($p < .01$) and marginally significant for overall satisfaction ($p < .10$). For H5, we predicted that students later in their program would feel more success and satisfaction. We found results contrary to our prediction. The stage in the program was negative and significant for overall success ($p < .05$), but only marginally significant for overall satisfaction ($p < .10$). This indicates that early-staged students have higher levels of success and satisfaction than later-staged students.

FIGURE 1
THE EFFECT OF BURNOUT AND DOCTORAL PROGRAM EXPERIENCE
ON EVALUATIONS OF OVERALL SUCCESS



The second step of the regression tested hypotheses H6 and H7 which posit that stage in the program will act as a moderator for the number of publications and the number of working papers relationship on overall satisfaction and success. The interaction for the number of publications and stage in the program on overall satisfaction was significant ($p < .05$) while this interaction was not significant for overall success ($p > .10$) indicating that stage in the program did moderate the relationship between the number of publications and overall satisfaction but not for overall success. The pattern of results indicates that students in the early stages of their programs have higher feelings of satisfaction when they get publications. For students in the later stages of their programs, they do not perceive an increase in satisfaction given more publications. The interaction for the number of working papers and stage in the program was not significant for both overall satisfaction and success ($p > .10$).

Table 3 includes Pearson correlations, means, and standard deviations of the different constructs used in our analyses. The table also includes the subfactors of the student experience construct. Although the strength of the relationships were not specifically hypothesized, it is interesting to note that the correlations show that supervisor support (r 's = .64 and .86) and climate (r 's = .58 and

.74) had the strongest bivariate relationships with overall success and satisfaction.

DISCUSSION

Despite the amount of research done on doctoral programs, research on understanding the relationship between doctoral students' doctoral student experience while in their doctoral program influence on satisfaction levels with the program as well as students' perceived individual success has been sparse. We propose that looking at doctoral students' evaluation of their research experience in their doctoral program along with its link with individual satisfaction with the program and perceived individual success can be used not only to increase the chances of doctoral students becoming successful academics in the future, but also to help improve the success of the overall educating institution, as well as its marketing department.

The results suggest that a doctoral student's experience is positively related to self reported overall satisfaction and success levels. In our study, supervisor support, which is a dimension of doctoral student research experience, has the strongest correlation, compared to the other three dimensions, with overall satisfaction ($r = .86$) and

TABLE 2
DETERMINANTS OF OVERALL SATISFACTION AND SUCCESS
(N = 70)

Dependent Variables:	Overall Satisfaction		Overall Success	
STEP 1				
# Publications (Pub)	-0.20	(-1.76)***	-0.09	(-0.74)
Stage in program (SP)	-0.23	(-1.92)**	-0.19	(-1.61)***
# Working Papers (WP)	0.27	(2.29)**	0.35	(2.94)*
R ²	0.16		0.15	
STEP 2				
# Publications (Pub)	0.21	(0.77)	0.15	(0.54)
Stage in program (SP)	-0.27	(-2.22)**	-0.23	(-1.88)**
# Working Papers (WP)	0.34	(1.51)***	0.51	(2.22)**
Pub * SP	-0.46	(-1.74)**	-0.28	(-1.02)
WP * SP	-0.12	(-0.52)	-0.21	(-0.91)
R ²	0.20		0.17	
Notes: Numbers are standardized beta coefficients. Numbers in parentheses are t-values.				
* = significant at $p < .01$ for one-tailed test				
** = significant at $p < .05$ for one-tailed test				
*** = significant at $p < .10$ for one-tailed test				

TABLE 3
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1 Research Experience	5.51	1.05	1.00										
2 Supervisor Support	5.35	1.45	0.85	1.00									
3 Skill Development	5.91	1.00	0.72	0.51	1.00								
4 Climate	5.17	1.42	0.86	0.73	0.46	1.00							
5 Infrastructure	5.60	1.37	0.75	0.43	0.47	0.51	1.00						
6 Overall Satisfaction	5.39	1.59	0.79	0.86	0.49	0.74	0.39	1.00					
7 Overall Success	5.40	1.62	0.61	0.64	0.48	0.58	0.26	0.79	1.00				
8 Burnout	4.00	1.54	-0.52	-0.51	-0.31	-0.49	-0.35	-0.50	-0.43	1.00			
9 Stage in program	---	0.46	-0.05	-0.14	0.10	-0.16	0.09	-0.20	-0.12	0.00	1.00		
10 # Publications	0.55	0.87	-0.04	-0.19	0.16	-0.09	0.04	-0.27	-0.14	0.19	0.14	1.00	
11 # Working papers	2.49	1.70	0.17	0.22	0.18	0.12	0.04	0.23	0.31	-0.26	0.24	-0.11	1.00

Note: All correlations greater than .30 $p < .01$. All correlations less than .30 and greater than .23 $p < .05$.

overall success ($r = .64$) in a doctoral program. Moreover, multiple studies have mentioned supervisor support or mentoring as an important factor for success (Bearden, Ellen, and Netemeyer 2000; Conant, Smart, and Redkar 1998; Smart and Conant 1990) and studies have highlighted the importance of the faculty-student relationships in doctoral programs (Davis and McCarthy 2005). Typically, at the start of a doctoral program, doctoral students are heavily dependent upon their advisor's guidance on how to do research. Thus, doctoral students are expecting a certain level of support throughout the marketing doctoral program, especially in the early stages of the program.

Another important dimension that is part of the doctoral student research experience is the research climate. Research climate (includes: opportunities for social interaction with other students, integration into departmental community, along with involvement in the broader research culture) was the second highest dimension that correlated factor with overall satisfaction ($r = .74$) and overall success ($r = .58$). The AMA Taskforce (1988) included socializing doctoral students as one of their recommendations for improving doctoral education. There is evidence that doctoral students that were not integrated into the departmental community, including having interaction with their fellow students, have a greater likelihood of leaving a program (Golde 2005; Lovitts 2000). Lack of interaction with the department, other students, and the academic community could lead a student to feel isolated since this does not allow them to share their ideas with other people – making it harder to progress in their research or to gain important skills. This feeling of isola-

tion and lack of progress would likely lead to lower levels of satisfaction and success. Integration and socialization are important aspects of doctoral programs.

It would be expected that the level of burnout a student has would influence their satisfaction with their doctoral program and their perception of success. In our regression results, burnout was only a marginal influence on overall success; however in the correlation matrix, the level of burnout was significantly negatively correlated with overall satisfaction ($r = -.50$) and success ($r = -.43$). Burnout might not have come out as a strong moderator of doctoral research experience because of its correlation with the student research experience construct. Students who have lower levels of burnout more likely enjoy what they do, thus, are likely to be more productive in the long run.

More interestingly, our results show that self-reported overall satisfaction is higher for doctoral students in the earlier stages of the marketing doctoral program compared to students in the advanced stages of the program. Also, we found the same pattern of results for self-reported overall success, although the results for overall success were only marginally significant. A possible rationale for these results is that expectations may be met but not exceeded as the marketing doctoral program progresses. For example, when students enter the program, they are generally very optimistic and excited to be in the program. This could be a possible reason for the higher levels of satisfaction early on in the program. As the program progresses, students might have become accustomed to the progress of the program and have more

realistic expectations, thus they might feel less satisfaction and success.

Another possible reason why early stage students have higher satisfaction and success levels is because in the early stages of the program students tend to focus more on coursework; whereas in the later stages of the program, students focus more so on research. In the early stages, students are more heavily evaluated on their progress on their coursework and the students get concrete feedback on how they are doing (i.e., grades). When students turn their focus to research in the later stages of the program, success is harder for them to measure because there is not as much concrete feedback on how they are doing – which could possibly lead to lower levels of satisfaction and lower perceptions of success later in the program. Also, as students progress through the program, they may be dissatisfied with how slow the process is for collecting results and getting papers published. Research by nature is a slow process. An unrealistic expectation on how quickly goals can be achieved could lead students later in the program to have lower levels of satisfaction.

The results showed a negative relationship between the number of publications and the level of satisfaction, but there was no relationship between the number of publications and self-reported levels of success. Our findings indicate that success for the doctoral student does not just boil down to how many publications they have, which is a common metric people tend to look at when determining academic success levels. Only 46 percent of respondents who are in their fourth year or higher of their program have one or more publications, indicating that a publication can be relatively hard to come by for a doctoral student. It can be a long process to get a high quality publication, so perhaps measuring success by the number of publications is not the best metric to use. We did find a positive relationship between the number of working papers and success and satisfaction. Perhaps this indicates that productivity is one of the keys to satisfaction and success and should be used as a measure of actual success.

IMPLICATIONS

This research is important to administrators of doctoral programs. Based on our results, there is a strong relationship between satisfaction and a student's doctoral program experience. Supervisor support was one of the dimensions of students' doctoral program experience that

was of particular importance, indicating that administrators of a doctoral program should focus some of their efforts on the overall doctoral student advisors' relationship. It has been shown in previous studies that potential marketing doctoral students rate the faculty-student relationship as the top factor when choosing a doctoral program (Davis and McCarthy 2005). Clearly, the student-faculty relationship should be a highly important factor to focus on for doctoral programs. The less exposure doctoral students have to negative experiences and the more positive the relationship between the advisor and the doctoral student along with realistic expectations of the research process, the higher the satisfaction levels.

Other studies have also shown that networking is an important decision criterion when selecting a doctoral program (Engelland and Zirkle 2003). A school that has a doctoral program that is known for its mentoring and networking of doctoral students may be able to attract the most qualified students and keep the students it has satisfied and be able to achieve success. In addition, strong mentoring, and networking/socialization could help to keep the drop out rate down.

LIMITATIONS

Participation in our survey was voluntary, so one possible limitation is non-response bias. It would be expected that there might be a higher inclination for those who are unhappy with their doctoral programs to respond; but in fact, our data showed fairly positive evaluations of students' doctoral program experience overall. Also, our sample was limited to current doctoral students. Future research could expand this sample by looking at new PhDs and assistant professors. This would give a larger perspective from people that have gone all the way through their PhD programs rather than current students who have not completed their programs. Future research might explore if there are differences in students satisfaction and success based on their research interest. Other studies might compare the students self evaluation of success and see how they succeed as a faculty member.

Structural equation modeling (SEM) would be a good method to use to further evaluate the framework set out in this paper. SEM was not used due to the limited sample size of the respondents. Perhaps a more extensive study could use SEM to examine the relationships presented in this study.

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