

# Using a Mixed-Methods Survey of Alumni for Program Evaluation and Improvement: A Case Study from a Doctoral Program in Education

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**Abstract:** *A growing focus on educational reform has prompted much debate over what constitutes high-quality educational research and how to best develop its practitioners (Levine, 2007). Differing opinions on how to prepare researchers at the doctoral level represents a major barrier to developing more effective programs. Part of the solution to this problem lies in systematic program evaluation capable of fostering individual program improvement while encouraging discourse about the qualities of effective programs (Lin, Wang, Spalding, Klecka, & Odell, 2011). The following case study describes a method for program evaluation in doctoral level education programs using a mixed-method survey of alumni to collect information about graduate success, satisfaction, and suggestions for program improvement.*

**Keywords:** *Program evaluation, educational research, alumni survey, mixed-methods, doctoral education*

According to the Association of American Universities (1998), the purpose of a doctoral program is to equip graduates with the tools to conduct original research that expands the existing knowledge base. In addition to producing competent researchers, Ph.D. programs must also produce capable educators (Walker, et al., 2008). Approximately half of doctoral degree recipients obtain positions in colleges or universities, where a significant amount of their time is spent on teaching (Walker et al., 2008).

In 2005, U.S. institutions awarded 6,229 doctoral degrees in the field of education, representing 14 % of all doctoral degrees granted for that year (Levine, 2007). While these individuals ultimately obtained the same type of degree, it is likely that their experiences pursuing that degree differed, perhaps dramatically. The sheer number and variety of graduate universities, coupled with the lack of well-defined, centralized standards and practices undoubtedly leads to variability in output, despite the clear objective of doctoral programs in education to produce high-quality researchers and educators (Leech, 2012).

## CURRENT ISSUES WITH DOCTORAL PROGRAMS IN EDUCATION

According to Leech (2012), there has been very little research on how to best educate skilled researchers. Levine (2007) argues that part of the reason for this dilemma is that researchers, policymakers, and practitioners are in disagreement about what constitutes

good research, and how to prepare educational researchers. Historically, there has been relatively little public interest in educational research, but a growing focus on educational reform is invigorating conversations about what constitutes high-quality educational research and how to best prepare these researchers (Levine, 2007; Lin, Wang, Spalding, Kelcka, & Odell, 2011).

**SATISFACTION.** In his survey of alumni who had received a doctoral degree from a school of education, Levine (2007) found that nearly half (47 %) acknowledged that their curriculum was not rigorous enough. In addition, more than one-third of these doctoral degree recipients agreed that schools of education do not adequately prepare their graduates. Further, the majority (71 %) ranked scholarship in schools and colleges of education as “fair” or “needs substantial improvement”, while only 24 % of faculty rated the scholarship as “excellent” or “good”.

**SUCCESS.** If the purpose of a doctoral degree program in education is to produce researchers capable of generating useful scholarship (Association of American Universities, 1998), it appears that this goal is not fully being met. Levine’s 2007 review of nine journals in the field of education indicated that the articles published therein were infrequently cited. On average, the articles were cited between 1 and 13 times, with a mode of 2 citations per article. Depending on the journal reviewed, between 6 and 62 % were never cited at all after their first publication. The impact rating of journals in education, which is a ratio of cited to published articles, is substantially lower in education than in other fields, such as medicine or law. It stands to reason that the low impact of educational research stems, at least in part, from the failure of doctoral programs to adequately prepare researchers capable of producing influential research.

Deans and faculty, even at highly ranked schools of education, consistently complain that their doctoral programs do not prepare students adequately for the dissertation (Levine, 2007). Professors surveyed routinely expressed a lack of enthusiasm for student knowledge of research methods, stating, “often they did not know how to interpret data” (p. 35), and “they have no idea what ‘empirical’ means” (p. 35). Again, this lack of satisfaction and success among doctoral students and faculty can be traced back to a lack of common, widely accepted standards, or as Levine (2007) puts it, “The real issue is that there is no agreement within the education school community about how to prepare doctoral level researchers” (p. 35). Perhaps the reason for this lack of agreement is as the former dean of the Harvard Graduate School of Education, Ellen Lagemann, states, “...education research has never developed a close-knit professional community, which is the prerequisite for the creation of regulatory structures that can protect both the welfare and safety of the public at large and the integrity of the profession” (as cited in Levine, 2007, p. 30).

#### QUALITIES OF SUCCESSFUL PROGRAMS

While the state of educational research as a whole may be disheartening, there are certainly many schools of education that are turning out productive scholars. Much can be learned from the study of effective programs. Through his study of schools of education across the country, Levine (2007) identified the following nine characteristics shared by superior programs :

1. *Purpose.* The purpose of the program is explicitly stated and focused on preparing successful researchers capable of producing high quality research. The qualities of a successful researcher are defined.

2. *Curricular Coherence*. The curriculum is rigorous and matches the program purpose.
3. *Curricular Balance*. Classroom study is balanced with apprenticeship. Theory and practice are integrated.
4. *Faculty Composition*. Faculty are productive scholars dedicated to preparing the next generation of researchers by modeling high standards and demonstrating expertise in teaching and advisement. Their research is well funded and they receive recognition for their work. The number of faculty is appropriate for the number of students in the program.
5. *Admissions*. The criteria for admissions attract highly motivated students that show promise for becoming successful researchers.
6. *Graduation and Degree Standards*. High standards are set for graduation and students emerge prepared to conduct research with the degree that matches their intended profession. Alumni are commonly employed by competitive universities and research organizations.
7. *Research*. The research carried out by faculty is well funded, of high quality, and driven by the needs of the field.
8. *Finances*. Resources are adequate to support faculty and students, as well as the necessary physical and intellectual infrastructure.
9. *Assessment*. The program engages in continual self-assessment in order to promote program improvement.

In addition to the importance of faculty composition, several studies have indicated the importance of faculty mentorship in doctoral student satisfaction (Luna & Cullen, 1998) and success (Paglis, Green, & Bauer, 2006). For example, Paglis and colleagues (2006) found that mentorship in the early years of a doctoral program predicted student research productivity four years later, and positively influenced research self-efficacy. These findings provide evidence that effective faculty mentorship has the ability to positively influence a student's knowledge of and competency in conducting research (Leech, 2012).

A discussion of doctoral program qualities that lead to satisfied, successful educational researchers also requires discussion of methodology training. Lin and colleagues (2011) argue that one of the goals of doctoral programs in education must be *educational research literacy*, meaning that students must be able to read, interpret, and evaluate a range of research; generate meaningful research questions; devise ways to collect and analyze data; and clearly articulate their findings to an audience. While clearly educational research literacy is essential to producing high quality research products and overcoming the criticisms of educational research as "weak" and "lacking in rigor" (Levine, 2007; Lin et al., 2011), it is unclear whether or not the current approach to training doctoral students is effective (Lin et al., 2011).

There is a great deal of diversity among schools of education in the United States, and the doctoral level training they offer. For example, in their review of 251 doctoral program requirements within 21 schools of education, Capraro and Thompson (2008) report that just over one-fourth (25.9 %) require neither quantitative nor qualitative methodology courses, the majority (72.1 %) require either a qualitative or quantitative course, and less than half (44.2 %) require students complete both a quantitative and qualitative course. The average number of required research methods courses was 2.6 (Capraro & Thompson, 2008). According to Levine (2007), 86% of doctoral alumni from

schools of education rated research methods courses as valuable, and 33% wished they had more methodology course work.

#### **THE NEED FOR DOCTORAL PROGRAM EVALUATION**

A review of the current literature in the field of educational research highlights several related issues: a) there is a lack of consensus among schools of education on how to train doctoral level researchers (Capraro & Thompson, 2008; Levine 2007; Leech, 2012, Lin et al., 2011), (b) faculty and students are often dissatisfied with the quality of their school of education (Levine, 2007), and (c) educational research is viewed as low impact, weak, and lacking in rigor (Levine, 2007; Lin et al., 2011).

Now that the criticisms have been shared, the question remains: How can schools of education address these identified problems? Lin and colleagues (2011) argue that in order to tackle the most pressing concerns over how to best prepare successful educational researchers, systematic analyses of doctoral programs are needed. Program evaluation can offer many benefits to individual doctoral programs and to others who prepare doctoral students. Further, public sharing of individual program evaluations within the educational community can encourage discourse about how to best prepare educational researchers (Capraro & Thompson, 2008; Levine 2007; Leech, 2012; Lin et al., 2011).

#### **THE USE OF ALUMNI IN DOCTORAL PROGRAM EVALUATION**

The quality of a doctoral program is typically measured by the scholarly productivity of its faculty (Brooks, 2005), however, this is not always a strong predictor of how doctoral students evaluate their own Ph.D. program (Morrison, Rudd, Zumeta, & Nerad, 2011). If it is agreed that “the overriding purpose of graduate education is and must always be the education of graduate students” (Association of American Universities, 1998, p. 17), recipients of doctoral education must have a voice in program evaluation.

While several doctoral program evaluations have employed a sample of current students (Protivnak & Foss, 2009; Roberts, Gentry, & Townsend, 2009; Wasburn-Moses, 2008), recent graduates may be able to offer a more comprehensive, less-biased evaluation. According to Morrison and colleagues (2011), “because recent alumni evaluate their education in light of career experiences, they offer important and underutilized perspectives on Ph.D. program quality” (p. 566) and in addition, they are “a highly credible group of program raters” (p. 536). In order for doctoral programs to benefit from alumni feedback, they must conduct the evaluations themselves and use the data generated to promote program improvement.

#### **THE USE OF SURVEYS TO COLLECT EVALUATION DATA**

Of the studies that have collected evaluation data from doctoral alumni, the survey appears to be the most frequently used data collection tool (Levine, 2007; Morrison, 2011). Although the alumni survey method has not frequently been employed to assess doctoral programs in education, it has been used to measure the outcomes of undergraduate education and promote program improvement (Borden, 2005; Cabrera, Weerts, & Zulick, 2005). Borden (2005) describes alumni surveys as a “potent but often inadequately used assessment and improvement tool” (p. 71). Most surveys used to collect data on current students and alumni utilize fixed-response type questions, such as Likert-type scales and yes/no items (i.e. Morrison et al., Levine, 2007), some use

purely qualitative inquiry (Roberts, Gentry, & Townsend, 2009; Protivnak & Foss, 2009), and fewer employ a mixed-methods approach (Atar, Eskimez, Aktas, Acaroglu, & Sendir, 2013; Wasburn-Moses, 2008). The authors were unable to locate any published studies that surveyed doctoral alumni from schools of education using a mixed-methods survey approach.

#### **THE ALUMNI SURVEY AT THE UNIVERSITY AT ALBANY**

Every three years, the Educational Psychology and Methodology division in the School of Education at the University at Albany surveys alumni who have recently completed the doctoral program. The survey features both fixed-response and open-ended questions and serves multiple purposes: (a) to collect data on the current employment status of recent graduates, (b) to track the types of research and scholarly activities that alumni are participating in, (c) to gather feedback from recent graduates about program components they view as useful and less useful, (d) to assess alumni satisfaction with the program, and (e) to collect alumni suggestions for program improvement and current students. After the survey data is collected and analyzed, it is shared with alumni, current students, faculty and the Dean of the school of education, as a way to initiate discussion of program improvement.

The current authors suggest that the public sharing of this case study of our 2012 alumni survey will; (a) provide a model for other doctoral programs to routinely self-assess their programs using alumni, and (b) to contribute to the much needed discourse on standards for preparing educational researchers by making our program requirements and alumni outcomes transparent to the school of education community. Before our case study is presented, a description of our program is provided.

#### **THE EDUCATIONAL PSYCHOLOGY & METHODOLOGY PROGRAM AT THE UNIVERSITY AT ALBANY**

The Doctor of Philosophy in Educational Psychology and Methodology at the University at Albany is described as a research-based program of study where students are trained to conceptualize research problems, design research strategies, and conduct studies within the broad framework of educational psychology. The program requires students to complete a minimum of 66 credits and a dissertation. In addition to a required quantitative statistics course, students must complete five courses at the 500/600 level and nine courses at the 600/700 level in five of the six following areas: Development, Learning, Individual Differences and Special Education, Research Methods, Measurement and Evaluation, and Statistics. Additionally, 18 credits of research are required, including 12 credits of research apprenticeship. A professional apprenticeship in teaching, a research tool, pre-dissertation research, and a comprehensive examination are also requirements for program completion.

The authors are four doctoral students currently enrolled in the Educational Psychology and Methodology Program at the University at Albany. We are all at different points in our program ranging from second-year student to doctoral candidate in the final stages of the dissertation.

#### **RESEARCH QUESTIONS**

1. What types quantitative information about student success and satisfaction with a doctoral program in Educational Psychology can be generated through a survey of alumni?

2. How can open-ended questions about the strengths and weaknesses of a doctoral program in educational psychology inform stakeholders of alumni perceptions beyond data generated by fixed-response items?

## METHOD

### PARTICIPANTS

The target sample for this study was all 16 alumni who graduated from the Educational Psychology and Methodology Program at the University at Albany between 2009 and 2011. This program granted two doctoral degrees in the 2008-2009 academic year to one male and one female. Seven doctoral degrees were granted in the 2009-2010 academic year to one male and six females. In 2010-2011, seven doctoral degrees were granted to 2 males and 5 females. In total, the Educational Psychology and Methodology Program granted 4 doctoral degrees to males between 2009 and 2011 and 12 degrees to females during this time period.

### MEASURES

The alumni survey was comprised of 14 items designed to measure alumni satisfaction, success, and suggestions for program improvement. Quantitative data was collected through 5 fixed-response items which asked participants to make ratings on Likert-type scales and respond to yes/no questions; several were multi-part. For example, Question 3 read, "Rate the following components of the doctoral program in terms of their usefulness in preparing you for a position after graduation. Select N/A for any that were not part of your doctoral program". Some of the components included were "Research Apprenticeship", "Comprehensive Exam", and "Dissertation". Response options ranged from "Very Useful" to "Not Useful". Five open-ended questions were used to collect qualitative data. For example, question 6. asked "Can you recommend any courses that should be added to the PhD program to prepare students for positions after graduation?". One question was designed to collect demographic data. ([http://www.albany.edu/educational\\_psychology/resources/alumni\\_survey.pdf](http://www.albany.edu/educational_psychology/resources/alumni_survey.pdf)).

### PROCEDURES

After obtaining appropriate approval from the University at Albany Institutional Review Board, the survey was distributed by mail to the 16 alumni. The mailing included a letter explaining the purpose of the survey, a paper copy of the survey, and a postage-paid return envelope for the completed survey. To maintain participant confidentiality, return envelopes were addressed to the division secretary who discarded the envelopes before passing the surveys on to the alumni survey team for analysis. An email reminder to complete and return the survey was sent to alumni one month later. A subsequent reminder was sent three weeks later, which included an electronic version of the survey that alumni could return via email.

### ANALYSIS

Due to the small size of the sample, only basic statistics were calculated. Qualitative data obtained from open-ended alumni survey items were entered into Microsoft Excel 2010. Data were analyzed using a content analysis approach. In the first round of analysis, emerging themes were coded by individual question, and then common themes were summarized. During the second round of analysis, participant responses

and initial codes were examined collectively. Specific quotations were extracted from participant responses and organized according to theme.

## RESULTS

Due in part to the small sample size of this study, our results present a model of the types of responses provided by alumni, and are not intended for making generalizations beyond our program. Of the 16 surveys distributed, eight were completed and returned (50 %). The majority of respondents were female (62.5 %) and were employed by either an academic or research institution (75%, combined). The respondent that selected “Other” indicated that she was a stay-at-home mother. Participant demographics and work environments are presented in Table 1.

*Table 1. Participant Demographics and Current Work Environment*

Gender/Work Environment	Number and Percentage of Participants*
Male	2 (25.0)
Female	5 (62.5)
University or 4-Year College	4 (50.0)
Research and Development	2 (25.0)
K-12 Education	1 (12.5)
Evaluation Setting	1 (12.5)
Government Agency	1 (12.5)
Other	1 (12.5)

*Note. The percentage scores were calculated based on 8 valid responses. One respondent did not indicate gender. Some respondents selected multiple categories for current work environment.*

### ALUMNI SUCCESS

Since completing their doctoral degrees in educational psychology, the majority of alumni have been actively involved in research (75 %) and have had articles accepted for publication (62.5%). Additional measures of alumni success are presented in Table 2.

### ALUMNI SATISFACTION

Of the alumni who responded to the survey, 100% reported they were either satisfied or very satisfied with their experience in the doctoral program. To obtain a more detailed perspective on alumni satisfaction, survey respondents were asked to rate 15 doctoral program components in terms of usefulness on a 5-point Likert-type scale from 5, Very Useful, to 1, Not Useful. Alumni responses were condensed into three categories: Agree, Neutral, and Disagree. These findings are presented in Table 3 below. Alumni rated research-related activities and coursework as among the most useful components of the program—doing research projects, the dissertation, and courses in research design, for example. The comprehensive exam was rated as least useful (See Table 3).

Table 2. Post-Doctoral Activities Associated with Success

Activity	Number and Percentage of Participants*
Activity involved with research	6 (75.0)
Attended a regional conference	6 (75.0)
Attended a national conference	5 (62.5)
Presented at a national conference	5 (62.5)
Submitted an article for publication	5 (62.5)
Had an article accepted for publication	5 (62.5)
Received promotion in job	5 (62.5)
Presented at a regional conference	4 (50.0)
Leadership positions in education	3 (37.5)
Attended an international conference	2 (25.0)
Presented at an international conference	2 (25.0)
Applied for grant funds	1 (12.5)

Note. The percentage scores were calculated based on 8 valid responses.

Table 3. Usefulness of Program Components\*

Program Component	Agree	Neutral	Disagree
Dissertation	100.0	0	0
Courses in measurement and assessment	100.0	0	0
Courses in research design	100.0	0	0
Pre-dissertation research	100.0	0	0
Doing research projects	100.0	0	0
Research tool	100.0	0	0
Professional apprenticeship	100.0	0	0
Preparing a paper for a conference or publication	87.5	0	0
Courses in individual differences and special education	75.0	12.5	0
Research apprenticeship	87.5	12.5	0
Courses in learning	87.5	12.5	0
Courses in statistics	87.5	12.5	0
Attending colloquia, brown bag presentations, etc.	87.5	12.5	0
Courses in human development	75.0	25.0	0
Comprehensive exam	62.5	37.5	0

Note: Number represents the percentage of participants who responded on a 5-point Likert scale. Agree includes those who responded 4 and 5; disagree includes those who responded 1 and 2; 3 is a neutral response. There were two N/A responses: one for "preparing a paper for publication," the other for "courses in individual differences and special education." Thus, the sum of these two rows results in a total percentage of 87.5%.

Survey respondents were also asked to rate their agreement with a list of statements about the relevance of the doctoral program in educational psychology to their current careers. Participants responded to items using a 5-point, Likert-type scale ranging from 5, Strongly Agree, to 1 Strongly Disagree. Their responses were condensed to three categories: Agree, Neutral, and Disagree. These findings are presented in Table 4 below.

Table 4. *Relevance of the Doctoral Program to Current Career*

Statement	Agree	Neutral	Disagree
Academic experience in the doctoral program is strongly related to current position	87.5	12.5	0
Prepared me to compete in the job market	87.5	12.5	0
Helped establish an important network with other professionals in my field	75.0	25.0	0
Apply scholarship in educational psychology to improve instruction in current position	62.5	12.5	25.0

*Note:* Number represents the percentage of participants who responded on a 5-point Likert scale. Agree includes those who responded 4 and 5; disagree includes those who responded 1 and 2; 3 is a neutral response.

One of the major strengths of using Likert-scale items in program evaluation is the ability to summarize findings numerically and rank program components. However, without opportunities for explanations and elaborations, these numbers are not very informative for program improvement, aside from perhaps, indicating which program components are weak. Therefore, the design of our survey also included space for participants to explain their quantitative responses, and respond to additional qualitative inquiries.

#### PROGRAM STRENGTHS

**SUPPORTIVE FACULTY.** Alumni respondents indicated that a major strength of the program was the “caring and dedicated faculty”. This was reiterated in numerous participant responses in multiple items on the survey. Recent graduates praised faculty as playing an influential role in creating satisfactory experiences for students. For example, one recent graduate noted, “You could meet [the faculty] any time at their office hours or appoint a time to meet with them.” Other participants wrote, “[The professors] are willing to help you and share their expertise with you,” “They provided all the convenient ways to help me succeed,” and “My academic advisor was extremely helpful in keeping me on track to meet milestones. She also helped me focus on my areas of interest when meeting each of the program requirements”. Furthermore, when participants were asked about specific program strengths that prepared them for their current position, participants again underscored the “dedication of the faculty” as a crucial feature.

**DISSERTATION, APPRENTICESHIP, AND COURSEWORK.** Other program components that were viewed as strengths by recent graduates, as revealed by their short responses, were the dissertation process, the professional apprenticeship in teaching and research, and coursework. For instance, when asked to elaborate on what was most satisfying about the program, one alumnus commented on the professional apprenticeship, stating that it provided him with the skills and confidence to pursue adjunct teaching positions after graduation, and that the dissertation process strengthened his research and communication skills. Apprenticeship also gave graduates an opportunity to work with professionals in the field. When asked to point to specific strengths of the program that prepared them for their current position, recent graduates identified their professional apprenticeship as one such strength. For example, one alumnus wrote, “practical knowledge gained through the professional apprenticeship continues to benefit me in my current teaching”.

In fixed-response questions, alumni indicated that courses in the content area of human development were most relevant to their current employment positions. Interestingly, in open-ended questions, alumni listed courses in measurement, research methods, and statistics as program strengths. Several alumni wrote that courses in statistics and research design helped them to “become better researchers”.

#### PROGRAM WEAKNESSES: LIMITED OPTIONS AND OPPORTUNITIES

In terms of program weaknesses, respondents mentioned limited opportunities for hands-on experience to develop important professional skills as a recurring weakness. For example, one participant wrote, “I do not believe there are a lot of varied options for students to choose from related to assistantships. Getting involved in real field work, grants, etc. is where I feel I obtained the majority of skills outside of coursework which prepared me for employment.” Other alumni wrote about the lack of hands-on opportunities to conduct data analysis, and limited internship and externship placements. A second theme regarding program limitations was related to course offerings. More specifically, several alumni indicated that there were not enough statistics and methodology courses offered. Another stated that there should be more courses to prepare students for the profession of teaching.

**RECOMMENDATIONS FOR THE PROGRAM.** Alumni were asked to make recommendations for courses that should be added to the doctoral program to better prepare students for careers in educational psychology. As displayed in Table 5, the courses they recommended were classified into four categories, those related to: (a) training in teaching and professionalism, (b) statistics and data analysis, (c) research, and (d) learning theories.

Table 5. Recommended Courses

	Training in...
Training in teaching and professionalism	<ul style="list-style-type: none"> <li>• Instruction to prepare for teaching positions</li> <li>• Professional communication both orally and in writing</li> <li>• Etiquette and professionalism</li> </ul>
Statistics and data analysis	<ul style="list-style-type: none"> <li>• Applied statistics courses (including hands on experience with quantitative and qualitative software)</li> <li>• Advanced statistics courses (e.g. SEM, IRT, HLM)</li> </ul>
	Courses focusing on...
Research	<ul style="list-style-type: none"> <li>• Action research</li> <li>• Research ethics, particularly in using electronic surveys and sources of information</li> </ul>
Learning Theories	<ul style="list-style-type: none"> <li>• With a focus on adult learning</li> </ul>

Participants were also asked how the program could be improved overall. Suggestions were coded into two categories: macro-level suggestions, and micro-level suggestions. Macro level suggestions related to the theme of creating partnerships and connections with other agencies, departments, professions, and organizations in order for students to gain knowledge and skills beyond what the program and its faculty are capable of providing. At a micro-level, alumni suggested that visiting faculty should be invited to teach specialized courses, and that the division should host more intra- and inter-department presentations.

## DISCUSSION

The field of education is divided over how to best prepare educational researchers (Leech, 2012; Levine, 2007; Lin et al., 2011). There are no agreed upon standards about what constitutes quality training and research, due at least in part to the lack of a professional education community (Levine, 2007; Lin et al., 2011). Part of the solution to this problem is program evaluation (Levine, 2007; Lin et al., 2011). Top performing doctoral programs in education routinely self-assess themselves and use the feedback they collect to foster program improvement (Levine, 2007). Continual, systematic program evaluation can benefit individual programs, and when assessment data is shared publicly, it can promote community and encourage discourse in the field about how to best prepare educational researchers. Alumni can evaluate a program from the unique perspective of their current careers (Morrison et al., 2011). A survey that uses both fixed- and open-ended items provides useful summative data about program effectiveness, as well as detailed, individualized information about how programs might be improved (Wasburn-Moses, 2008).

The 2012 alumni survey at the University at Albany provided useful information about graduate success, satisfaction, and suggestions for program improvement. Most alumni were employed in academic or research settings, which is consistent with other reports (Walker et al., 2008). One-hundred percent of the respondents reported that they were either satisfied or very satisfied with the doctoral program. This finding is higher than the statistics reported elsewhere, which indicate closer to 50 % satisfaction ratings among graduates (Levine, 2007). The qualitative responses provided some explanations for these high levels of satisfaction. Supportive faculty and high quality mentorship were consistently mentioned in alumni feedback. These explanations make sense, as the role of mentorship in alumni satisfaction and success have been consistently documented in the literature (Luna & Cullen, 1998; Paglis et al., 2006). More than half of the alumni respondents reported that they had an article accepted for publication in the three years since graduation. This measure of success may also be connected to mentorship, because faculty mentorship predicts student research productivity (Paglis et al., 2006).

Open-ended responses also indicated that alumni felt apprenticeship was connected to their success and satisfaction. In their 2011 paper discussing suggestions for strengthening doctoral programs in education, Lin and colleagues stress the importance of not just learning *about* research, but learning to *do* research. They go onto say that learning to do research is most commonly accomplished through the apprenticeship model. In the special education program at Vanderbilt University, one of most successful in the country, apprenticeship is described as the 'heart of the program' (Levine, 2007). The doctoral program at the University at Albany requires students take at least 15 credit hours of apprenticeship.

Alumni agreed with national survey respondents suggesting that courses in methodology are important, and that they wanted more such training. Specifically, alumni suggested adding more high-level statistics courses that featured hands-on experience analyzing data. Further, alumni suggested that fostering more partnerships with other departments, agencies, and organizations could strengthen the program. Alumni suggested inviting visiting faculty to teach specialized courses that were beyond the scope of those offered by the division.

In addition to providing detailed information about their levels of success, satisfaction, and suggestions for program improvement, alumni offered valuable advice to current students, including encouraging them to prepare for the dissertation in advance, take courses in statistics, and capitalize on any available opportunities to publish.

#### LIMITATIONS AND FUTURE DIRECTIONS

This study has a number of limitations including a small target population, low response rate, and lack of comparison data on respondents versus non-respondents. The small target sample of 16 alumni coupled with the 50 % rate yielded a relatively small final sample size. Thus, the results and conclusions are susceptible to bias. The absence of background information that would allow for comparison between respondents and non-respondents makes it difficult to discern whether or not alumni who completed the survey were different from those who chose not to respond. Future administrations of the alumni survey should consider strategies to increase both response rate and sample size to make the findings more representative. For example, some researchers suggest maintaining alumni databases to facilitate contact, and using internet-based survey tools to increase response rates (Ingram, Haynes, & Davidson-Shivers, 2005).

Nonetheless, the responses from the alumni who chose to complete the survey have been useful to faculty and current students in measuring alumni success and satisfaction, and strategizing approaches to program improvement. Furthermore, the model of evaluating a doctoral program in education using a mixed-methods survey makes a novel contribution to the field. Sharing our evaluation model and findings in a public forum is intended to ignite discussion of both the need for program self-assessment and standards for preparing qualified educational researchers.

The model for doctoral program evaluation in education presented in this case study can be used as a template for other programs seeking to improve their programs through the process of self-assessment and revision. Other programs in education are encouraged to share their program evaluation findings with the education community to encourage a dialogue about how to best prepare doctoral students for the important task of conducting rigorous and influential educational research.

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