10-25-2013

Bumps in the Road: An Investigation of Students' Decisions Regarding Graduate School

Samantha Wendler
Educational Testing Service, Swendler@ets.org

Bumps in the Road: An Investigation of Students' Decisions Regarding Graduate School

Samantha Wendler

Educational Testing Service

Paper presented at the annual meeting of the Northeastern Educational Research Association,

Rocky Hill, CT, October 2013.

Abstract

The value of higher education, including graduate education, has been a recent subject of debate. However, economic benefits of advanced degrees have been shown, including higher salary and lower unemployment rates. In general, the benefit of a graduate education seems to outweigh the costs. Despite these benefits, some otherwise prepared individuals choose not to attend graduate school. Others who enroll never complete their degree. We examined characteristics of these groups, including the value they place on graduate education, compared to those who still plan on attending, currently attend, or completed their degree.

The value of higher education, including graduate education, has been a recent subject of debate. Economic benefits of advanced degrees have been shown, including higher annual salaries, greater life-long earnings, and lower unemployment. Studies have shown that advanced degrees are correlated positively with higher salaries and those with advanced degrees earn up to 38% more than those with just a bachelor's degree, irrespective of the field they are in (Carnevale, Rose, & Cheah, 2011; Carnevale, Strohl, & Melton, 2011). In addition, the unemployment rate historically is lower for individuals with an advanced degree compared to those with a bachelor's degree or less (Bureau of Labor Statistics [BLS], 2011).

In addition to economic benefits, professional and career benefits of a graduate degree exist. For example, while currently only about 9% of the population holds a master's or a doctorate degree (National Center for Education Statistics, 2011), jobs requiring a graduate degree are predicted to increase over the next 10 years. Specifically, jobs requiring a master's degree are expected to increase 22% and those requiring a doctorate or professional degree are estimated to rise 20% (BLS, 2012).

Graduate education requires considerable financial and personal commitment for students. A report by the Council of Graduate Schools (2008) revealed that, for many students, the time commitment is long. For example, less than 25% of students enrolled in doctoral programs in the humanities, mathematics, physical sciences, social sciences, and life sciences reported they completed their degree within 5 years. It takes even longer to reach the 50% completion mark; even in the best case—engineering programs—only 57% of students complete their degree within 7 years.

In addition, one of the largest problems facing graduate education is the failure to complete a degree. Some estimates indicate that the drop-out rate in doctoral programs is

between 40% and 50% (Nettles & Millett, 2006). Nevill and Chen (2007) indicated that the main reason students reported leaving graduate school was "a change in family status" (30%), followed by "conflict with job or military" (17%). Two financial indicators were also identified: "need to work" (14%) and "other financial reasons" (12%). This indicates that students who do not receive adequate financial support may find it more difficult to stay in a graduate program.

In general, however, it seems that the benefits of a graduate education outweigh the costs associated with it. Given this, why do so many well-qualified individuals decide not to go? Specifically, why do college graduates who do the necessary preparation work, such as taking the *GRE*® assessment or other graduate admissions tests, gathering recommendations, and applying to graduate school, ultimately decide not to go? Furthermore, why would already invested graduate students decide to not complete their degree?

Feeling a connection to their institution or program may encourage students to complete. Students who held teaching assistantships were found to be more likely to advance to candidacy compared to those students who only held fellowships (Attiyeh, 1999). This indicates, in addition to receiving financial support, those students who had an additional connection to their graduate program through their teaching may be more motivated to finish their degree.

Career aspirations and job expectations also seem to play an important role in retention of graduate students. Students who aspire to more prestigious jobs are more likely to attain higher levels of education (Sewell, Haller, & Ohlendorf, 1970) and educational plans are often shaped by the jobs that students want (Xie & Goyette, 2003).

Finally, research has shown that beliefs and attitudes are important in predicting future academic behavior. A meta-analysis conducted by Multon, Brown, and Lent (1991) suggested that self-efficacy beliefs account for about 14% of the variance in students' academic

performance and approximately 12% of the variance in academic persistence. In addition, individuals who see a connection between their goals and their self-concept persist longer at tasks (Markus & Nurius, 1986). For example, self-reported academic self-concept was negatively related to burnout behaviors for graduate students in education (Gold & Michael, 1985).

An extensive meta-analysis of Crede and Kuncel (2008) indicated that attitudes, study habits, and study skills were related to college GPA and grades in individual classes. Ackerman, Kanfer, and Beier (2013) found that various cognitive, affective, and conative traits predicted academic grades and attrition rates at the college level. Finally, a number of studies have shown that noncognitive and attitudinal variables are considered by graduate faculty and administrators as highly important to success and completion in graduate education (Enright & Gitomer, 1989; Reeve & Hakel, 2001; Walpole, Burton, Kanyi, & Jackenthal, 2002).

Data Source and Sample

The data used in this study come from a larger project that examined the pathways through graduate school into the workplace from the perspective of students, graduate deans, and employers (Wendler et al., 2012). Among other things, the study reported on a student survey that was conducted to obtain information on students' knowledge and attitudes about graduate school and careers (Wendler, Cline, Kotloff, & Mageean, 2013).

The student survey was administered to students who were at different points in their school-to-career path: (a) those who did not plan to enroll in graduate school (N = 106), (b) those who planned to but had not yet enrolled in graduate school (N = 694), (c) those who were currently enrolled in graduate school (N = 2,683), (d) those who had been enrolled but did not complete their degree (N = 133), and (e) those who had been enrolled and had completed their

degree (N = 2,140). Students who took the GRE between 2002 and 2011 were invited to respond to the survey using an Internet link. While over 5,700 individuals voluntarily responded to the survey, it is acknowledged that this sample may not be a representative sample of all GRE test takers. Refer to Wendler (2013) for additional details on the data source.

In the current study, we examined the perceived value of graduate school across all five student groups. Reasons as to why students who were enrolled did not complete their degree were also explored. Finally, campus-related activities for those students who completed their degree and those who did not were compared. While this data source does not capture all individuals who attended or planned to attend graduate school and thus may not generalize to all graduate students, it does provide access to a large number of students from a variety of demographic groups, fields of study, and institution types. Note that this report provides results in the form of descriptive statistics only. While responses to the survey provide some insight into important issues related to the decision to attend and stay in graduate school, additional research is needed to thoroughly understand these issues.

Results

In order to determine if the groups were of similar academic ability, GRE scores were compared across all groups (see Table 1). Mean scores by group were similar, indicating that students were performing at about the same level and that the groups were comparable in level of academic ability regardless of students' statuses at the time of the survey. However, it is important to consider that all of these students had taken the GRE as one of the steps in applying to graduate school. This indicates that they might already be predisposed to considering a

graduate education. For this reason, we are focusing only on the students in this study and not comparing them to the graduate population as a whole.

Table 1

GRE Mean Scores by Group

Group	Verbal		Quantitative		Analytical Writing	
	Mean	*N*	Mean	*N*	Mean	*N*
Completed graduate degree	519.40 [116.86]	2,133	623.00 [133.28]	2,132	4.41 [0.85]	1,976
Currently enrolled	527.47 [17.58]	2,663	643.23 [128.37]	2,657	4.261 [0.86]	2,622
Previously enrolled but did not complete degree	523.86 [112.28]	132	587.50 [137.31]	132	4.15 [0.93]	119
Not enrolled but plan to enroll	500.33 [120.07]	639	621.21 [145.07]	638	3.89 [0.88]	678
Not enrolled and do not plan to enroll	505.81 [91.63]	105	612.38 [137.50]	105	4.247 [0.87]	99

Note. Numbers in brackets are standard deviations. GRE Verbal and Quantitative scores are reported on the old 200–800 scale.

Perceived Value of Graduate School

Four survey questions that asked students about their perceptions as to the value or benefit of obtaining a graduate degree were first examined. Table 2 presents these four survey questions. Students responded to each question using a 5-point Likert scale: Strongly Disagree = 1, Disagree = 2, Neither Agree nor Disagree = 3, Agree = 4, and Strongly Agree = 5.

Table 2

Survey Questions on the Value of Graduate School

Question 1:	A graduate degree provides me with better career opportunities.
Question 2:	The benefit of a graduate education outweighs the cost.
Question 3:	A graduate degree will increase my income potential.
Question 4:	In my career, attending graduate school is more important than work experience.

Results showed that, in general, students who express an interest in graduate school rated the value of an advanced degree highly (see Table 3). This does not come as a surprise, given the personal investment required in graduate education. Further review of the data, however, revealed some differences in ratings across groups. Responses from all five groups were compared: students who were currently enrolled in graduate school, those who were not enrolled but planned on enrolling, those who were not enrolled and did not plan on enrolling, those who were enrolled but did not complete, and those who completed their degree.

For those who responded, students who left school without completing their degree or who said they did not plan on enrolling in graduate school assigned less value to graduate school than students from other groups. These students did not feel a graduate degree provided them with better career opportunities, felt that the benefit of graduate education did not outweigh the cost, and did not feel that a graduate degree would increase their income potential.

Table 3

Perceived Value of Graduate Education by Group

Group	Question 1		Question 2		Question 3		Question 4	
	Mean	*N*	Mean	*N*	Mean	*N*	Mean	*N*
Completed graduate degree	4.20 [0.97]	2,139	3.70 [1.09]	2,132	3.94 [1.03]	2,131	3.06 [1.16]	2,131
Currently enrolled	4.38 [0.83]	2,682	3.93 [0.97]	2,676	4.10 [0.96]	2,667	3.43 [1.12]	2,674
Previously enrolled but did not complete degree	3.63 [1.08]	133	2.92 [1.07]	133	3.50 [1.13]	133	2.55 [1.13]	132
Not enrolled but plan to enroll	4.32 [0.81]	693	3.75 [0.92]	690	4.11 [0.81]	690	3.14 [1.07]	692
Not enrolled and do not plan to enroll	3.44 [1.11]	106	2.72 [1.07]	106	3.27 [1.08]	106	2.12 [1.14]	106
Total	4.27 [0.91]	5,753	3.78 [1.04]	5,737	4.01 [0.99]	5,727	3.21 [1.16]	5,735

Note. Numbers in brackets are standard deviations.

Responses by students who had completed their degree, were currently enrolled in graduate school, or who planned on enrolling indicated that they placed a higher value on graduate education. They felt that a graduate degree provided them with better career

opportunities, felt the benefit of graduate education outweighed the cost, and felt that a graduate degree would increase their income potential. For example, students who had completed their degree felt that a graduate degree provided them with better career opportunities more than those students who left school without completing their degree ($x\bar{}$ = 4.20 and 3.64, respectively), felt the benefit of graduate education outweighed the cost ($x\bar{}$ = 3.70 and 2.92, respectively), and felt that a graduate degree would increase their income potential ($x\bar{}$ = 3.94 and 3.50, respectively).

When asked if attending graduate school was more important than work experience, those who indicated they did not plan to attend graduate school rated the importance lower than those students who indicated they did plan on enrolling in the future and those students who were currently enrolled ($x\bar{}$ = 2.12, 3.14, and 3.43, respectively). Comparatively, those students who completed their degree rated the value of graduate school higher than those students who dropped out ($x\bar{}$ = 3.06 and 2.55, respectively). These differences in value ratings are reflected in the course of action taken by the students.

On all four questions, students who were planning on enrolling gave, on average, higher value ratings than those students who did not plan on enrolling. Most notably, a point difference greater than one was seen for two of the questions. Students who planned on enrolling felt that the benefit of a graduate education would outweigh the cost compared to those who did not plan on enrolling ($x\bar{}$ = 3.75 and 2.72, respectively). In addition, students who planned on enrolling felt that a graduate degree was more important than work experience compared to students who did not plan on enrolling ($x\bar{}$ = 3.14 and 2.12, respectively).

Interestingly, those students who were currently enrolled in graduate school gave the highest ratings on 3 out of the 4 questions compared to other students. (Students who were not enrolled but were planning to enroll had the highest rating on the other question that asked about

income potential with a graduate degree [$x\square = 4.11$]). This is not unexpected, because cognitive dissonance theory suggests that individuals attempt to hold attitudes and beliefs in harmony with behaviors (Festinger, 1957): "I'm in graduate school; therefore, I must value it."

Comparing the students who dropped out with those who finished, we see, as expected, higher value ratings given by those students who completed their degree. However, the differences are not as large as between those students who indicated they do not plan to apply compared to those students who do plan to apply. The largest difference in value rating is on the benefit of a degree outweighing the cost. Students who completed their degree rated it higher ($x\square = 3.70$) than those who did not complete ($x\square = 2.92$). These results are in line with prior research that indicates that self-efficacy beliefs are related to academic persistence (Multon et al., 1991).

Graduate School Attrition

Students who were enrolled but did not complete their degree were asked what factors led to their leaving graduate school. As seen in Figure 1, almost 40% of those who responded to the question indicated that they were dissatisfied with their graduate program. The next most stated reasons were "personal issues" (37%) and "other financial reasons (35%)."

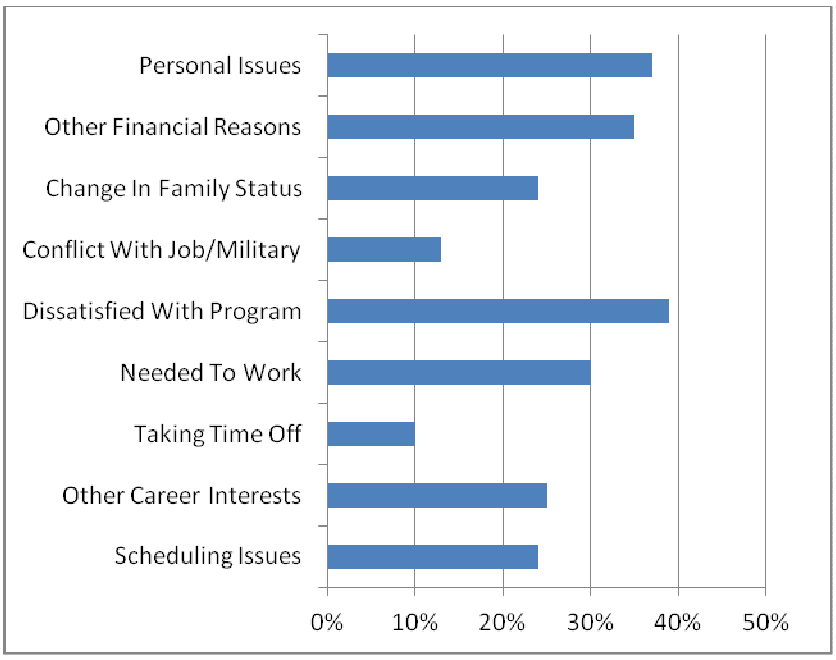

Figure 1. Reasons for leaving graduate school.

Many students reported leaving graduate school for a nonpersonal reason: They were dissatisfied with the program. However, this situation may have potentially been changed had the program or institution intervened. As previously stated, a graduate degree is a major financial and time commitment. Students put off other life goals when going for a graduate degree and if students do not feel satisfied with the program, their likelihood of staying decreases.

Aside from personal issues, the financial burden of a graduate degree has been shown to be a major factor that contributes to students' ability to finish the graduate program (Nevill & Chen, 2007). Two of the reasons provided by students in our survey reflect this financial need: "other financial reasons" (35%) and "needed to work" (30%).

Another factor related to the financial burden may be the accessibility and prevalence of assistantships and other such positions on campus. Students who completed their degree and those who did not complete were asked to indicate which, if any, positions were held by them while they were in graduate school (see Figure 2).

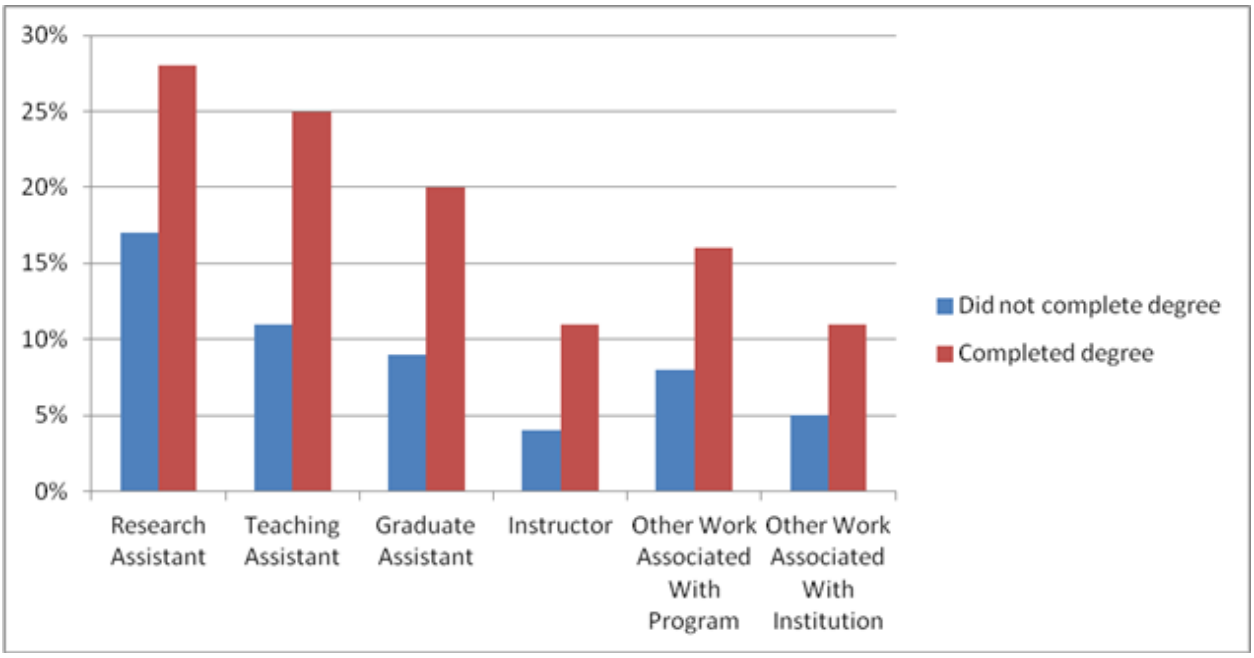

Figure 2. Positions held during graduate school.

Results showed that more students (69%) who completed their degree were involved with institution and program work activities compared to those who did not complete (40%). In particular, 28% of those students who completed their degree indicated they were a research assistant, while only 17% of those students who did not complete said they were. Only 11% of students who did not complete graduate school indicated being a teaching assistant while 25% of completers indicated they were teaching assistants. Also, only 9% of noncompleters were graduate assistants compared to 20% of completers.

Overall, students who completed their degree were more likely to indicate they were involved in a campus-related work activity. Also, many of these activities come with a stipend and provide financial support to students. It is possible that engaging in campus-related work activities influenced students' decisions to complete their graduate degree for two reasons: They had a closer connection to the university and were financially supported.

Discussion

It is with these results that graduate schools can begin to consider why some individuals are not applying to graduate school or finishing their graduate degree. However, because this study reports only descriptive statistics, additional research is required to investigate thoroughly and understand the issues raised by the study. Armed with the knowledge of these road bumps, schools can shift their focus toward these factors in an attempt to enrich the school's campus and the lives of these students. These issues affect not only the individual school and program, but the graduate school community as a whole.

While these results cannot separate whether students' attitudes drive their behavior (e.g., because they do not value graduate school, they leave) or if their behavior drives their attitudes (e.g., because they left, they no longer value graduate school), the results provide some insight into possible reasons students fail to complete their degree or decide not to enroll in graduate school.

Students who dropped out or do not plan to enroll in graduate school have lower ratings on statements related to the perceived value and benefit of graduate education. On some of the questions that asked about the value of graduate school, students who did not complete or did not plan to enroll rated the value of graduate school lower by nearly 1 point or more on a 5-point scale compared to other students. Connecting degree levels and career opportunities may be a way to convince these students to consider going to or staying in graduate school.

The bigger loss, however, may be for those students who enroll in graduate school but never complete their degree. For those students who dropped out of their programs, the top three reasons provided were (a) dissatisfaction with the program, (b) financial reasons, and (c) the

need to work. The last two indicators are related to financial need and are similar to those found in previous studies (Nevill & Chen, 2007). These results are particularly important when it comes to the retention of graduate students in a program. Graduate schools should be aware of the possible financial reasons that students are leaving and provide adequate financial support for them.

Finally, those students who did not complete graduate school tended to be less involved in campus-related work activities compared to those who did complete. Again, this finding reflects previous research that indicates a closer connection to the university may lead to academic persistence at the graduate level (Attiyeh, 1999). Students who rated a graduate degree as less important than work experience might be willing to stay in graduate school if offered campus-related work that would provide them with relevant job experience as well as financial support.

For those students who enrolled but did not complete, those who eventually plan to enroll, and even those who do not plan to enroll (but have taken some preparatory steps such as taking the GRE), it is likely that they value graduate school more than the general population does. However, there may be a shift in attitudes based on the outcome of graduate school decisions. For example, the initial perceived value of graduate education may have been higher for those students who attended but did not finish their degree than was the perceived value during the survey becaise they perceived the value of graduate school to be high enough to enroll.

DeFleur and Westie (1958) tried to link specific attitudes to behavior and found that there were inconsistencies between the two. They found that attitudes are somewhat malleable, especially in the right social environment with preset social norms. This belief combined with

cognitive dissonance, leads to the assumption that students are not set in their behavior and attitudes, especially toward something as mentally and financially taxing as graduate school. This also implies that graduate schools and programs have the opportunity to modify student attitudes if they take the necessary steps.

Graduate schools should focus on the overall atmosphere that students enter when they come to graduate school, as graduate education has both personal and career consequences for the individual. It is likely that a combination of factors causes students' lack of interest in applying to graduate school or in staying in their program. Nevertheless, graduate schools must be aware of and respond to the needs of graduate students. Wendler et al. (2012) provided recommendations for graduate schools that include making early connections with students, providing career counseling for existing graduate students, and broadening the focus of graduate education to include the development of skills needed in the workplace. These actions, and others, could result in more students being interested in obtaining their graduate degree.

References

Ackerman, P. L., Kanfer, R., & Beier, M. E. (2013). Trait complex, cognitive ability, and domain knowledge predictors of baccalaureate success, STEM persistence, and gender differences. *Journal of Educational Psychology, 105*(3), 911–927. Retrieved from http://psychnet.apa.org/psychinfo/2013-14499-001

Attiyeh, G. (1999). *Determinants of persistence of graduate students in Ph.D. programs.* (GRE Board Research Report No. 95-18R). Princeton, NJ: Educational Testing Service.

Bureau of Labor Statistics. (2011). *College enrollment and work activity of 2010 high school graduates.* Washington, DC: Author.

Bureau of Labor Statistics. (2012). *Employment projections: 2010-2020.* Washington, DC: Author.

Carnevale, A. P., Rose, S. J., & Cheah, B. (2011). *The college payoff: Education, occupations, lifetime earnings.* Washington, DC: Georgetown University Center on Education and the Workforce.

Carnevale, A. P., Strohl, J., & Melton, M. (2011). *What's it worth? The economic value of college majors.* Retrieved from the Georgetown University Center on Education and the Workforce website: http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/whatsitworth-complete.pdf

Council of Graduate Schools. (2008). *PhD. completion and attrition: Analysis of baseline program data from the Ph.D. Completion Project.* Washington, DC: Author.

Crede, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, *3,* 425–453.

DeFleur, M. L., & Westie, F. R. (1958). Verbal attitudes and overt acts: An experiment on the salience of attitudes. *American Sociological Review*, *23*, 667–673.

Enright, M. K., & Gitomer, D. H. (1989). *Toward a description of successful graduate students* (GRE Board Research Report No. 85-17R). Princeton, NJ: Educational Testing Service.

Festinger, L. (1957). *A theory of cognitive dissonance.* Stanford, CA: Stanford University Press.

Gold, Y., & Michael, W. B. (1985). Academic self-concept correlates of potential burnout in a sample of first-semester elementary-school practice teachers: A concurrent validity study. *Educational and Psychological Measurement, 45,* 909–914.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist, 41,* 954–969.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology, 38*, 30–38.

National Center for Education Statistics. (2011). *Digest of education statistics: 2010, Table 9* [Data file]. Retrieved from http://nces.ed.gov/programs/digest/d10/tables_1.asp

Nettles, M. T., & Millett, C. M. (2006). *Three magic letters: Getting to Ph.D.* Baltimore, MD: Johns Hopkins University Press.

Nevill, S. C., & Chen, X. (2007). *The path through graduate school: A longitudinal examination 10 years after bachelor's degree* (Report No. 2007-162). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Reeve, C. L., & Hakel, M. D. (2001). *Criterion issues and practical considerations concerningnoncognitive assessment in graduate admissions.* Symposium conducted at the meeting of Noncognitive Assessments for Graduate Admissions, Graduate Record Examinations Board, Toronto, Canada.

Sewell, W. H., Haller, A. O., & Ohlendorf, G. W. (1970). The educational and early occupational status attainment process: Replication and revision. *American Sociological Review, 35,* 1014–1027.

Walpole, M. B., Burton, N. W., Kanyi, K., & Jackenthal, A. (2002). *Selecting successful graduate students: In-depth interviews with GRE users* (GRE Board Report No. 99-11R). Princeton, NJ: Educational Testing Service.

Wendler, C. (2013, October). Perceptions of graduate deans and graduate students about career knowledge and opportunities**.** In C. Wendler (Chair), *Why graduate school? Perceptions about the value of graduate education and career opportunities.* Symposium conducted at the meeting of the Northeastern Education Research Association, Rocky Hill, CT.

Wendler, C., Bridgeman, B., Markle, R., Cline, F., Bell, N., McAllister, P., & Kent, J. (2012). *Pathways through graduate school and into careers.* Princeton, NJ: Educational Testing Service.

Wendler, C., Cline, F., Kotloff, L., & Mageean, D. (2013). *Pathways through graduate school and into careers: Overall responses to the student survey, part A.* Princeton, NJ: Educational Testing Service.

Xie, Y., & Goyette, K. (2003). Social mobility and the educational choices of Asian Americans. *Social Science Research, 32*, 467–498.