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Defining the Graduate College Experience: What it "Should" versus "Does" Include

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Abstract

Gaps between expectations and actual educational experience may influence motivation, learning and performance. The graduate college experience (GCE) is shrouded in myth and legend that may create unrealistic expectations, while its reality includes elements of politics, economics and organizational psychology. This study examined 1,629 present and former graduate students' perceptions of what their graduate school experiences *should* and *did* include. The sample was analyzed as a whole and also divided and tested for subgroup differences by: degree types (masters and doctorate); at four different points along their degree paths (entrance, midpoint, exit, alumni); and by disciplinary subgroups (hard sciences, social sciences, arts, interdisciplinary). Statistically significant differences were found between subgroups on perceptions of what the GCE "should" and "does" include separately. Further, within-groups comparison of what the graduate college experience "should" and "does" include showed significant differences for the whole group and all subgroups. In addition, the differences between graduate students' expected and actual experience (should - does) negatively predicted overall satisfaction with their graduate experience. These contrasts of students' actual and expected graduate experiences present potential to explain some of graduate students' dissatisfaction and non-completion, and offer information to support program improvement and retention of graduate students.

Keywords: Graduate education, graduate school expectations, attrition, graduate student satisfaction, program improvement

Introduction

Any educational journey is a complex experience, unique to students, based on their prior knowledge and experience, and on the goals and expectations that they bring to it. Graduate education is more individualized than compulsory or undergraduate, because graduate students have different degrees of choice, are at different phases of life as well as education, go on to graduate education for different reasons, and bring different outcome expectations (many of which are implicit). Much can be learned about how different people experience graduate education from illuminating these expectations and how the actual experience either matched with or diverged from them.

To address these issues, this manuscript first reviews the existing research literature on the graduate experience. Second, it presents the study's purpose, research

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questions and methods. Third, it reports data from 1,629 current and former graduate students, the overall descriptive results as foundation, followed by comparative and predictive analyses. Comparative analyses address the significance of between-group differences of "should" and "does" perceptions separately, and then significance of within-group differences between "should" and "does" perceptions directly compared. Predictive analysis examines the degree to which these differences (should – does) predicts difference in students' overall satisfaction with their graduate experience. Finally, this manuscript discusses the importance of these findings and their potential role in the improvement of graduate programs.

Literature Review

Graduate programs in the U.S. alone account for 2.8 million students each year (National Center for Educational Statistics, 2013), and many times more globally. Even though some universities have more graduate students attending than undergraduates, much less research is conducted on graduates' educational experiences.

U.S. studies on various elements of graduate students' experiences have generally been localized to a discipline or program (e.g., Coulter, Goin & Gerard, 2004; Gardner & Barnes, 2007), while some international studies have combined disciplinary and institutional characteristics with culture (e.g., Kanan & Baker, 2005), both producing deeply contexualized findings primarily addressing local needs. More generalizable research is essential to inform the work of faculty and staff who teach, train, manage, mentor, plan and make policy to support graduate students (Nesheim, Guentzel, Gansemer-Topf, Ross, & Turrentine, 2006).

Graduate education involves major changes of context and experience for students, both those coming directly from undergraduate programs and those returning after time away from academe (Austin, Cameron, Glass, Kosko, Marsh, Abdelmagid, & Burge, 2009; Gardner, 2009). These dramatic changes require people to redirect their cognitive priorities and emotional energy, and reframe their perceptions of themselves and of others (Murray, 2009). Such demands and challenges can initiate identity development and transformation (Hall & Burns, 2009; Sweitzer, 2009). However, they may also trigger deep self-doubt and anxiety (Gansemer-Topf, Ross, & Johnson, 2004). Being back in academe after years away can be a tremendous adjustment. That adjustment is amplified when the return is to a different discipline and professional culture of expectations, demanding re-acculturation and socialization (Baker & Lattuca, 2010). It is clear why many students need substantial support to manage these shifts, in the face of academic demands combined with managing a family and outside job responsibilities (Hardré & Hackett, in press, 2014). In addition to the money, time and other resources that it requires of students, graduate education also takes significant commitment of time, funding and expertise from faculty and staff in academic departments and institutions (Smallwood, 2004). Yet attrition from graduate programs is estimated to be as high as 50% or more (Offstein, Larson, McNeill, & Mwale, 2004). This rate of attrition raises the question of how such a substantial resource loss might be reduced.

Most research on graduate students' experience has been largely academic (Golde, 2000), but academics only explain part of graduate students' success. Other huge contributions are made by motivation, personal and professional identity development, personal satisfaction, finances and support resources, social support, peer relationships and community, and overall well-being (Gansemer-Topf et al., 2004; Hardré & Chen, 2005, 2006; Offstein et al., 2004; Weidman, Twale, & Stein, 2001). These elements of the graduate experience are scarcely evident in the research literature, except in the work of a small group of researchers. Thus, it is unclear how the diverse elements of the graduate experience match the expectations of an increasingly diverse and ever-changing profile of the graduate student.

The Role of Perceptions and Motivation

To address these issues, research needs to provide insight into the current and authentic nature of the graduate college experience, illuminated through students' perceptions of their graduate journeys. Perceptions reflect the lived reality of novel experience, because the nature and impacts of experience depend less on the actual, measurable events than on the *participants' individual and collective perceptions of those events* (Hardré & Burris, 2011; Schlossberg, Waters, & Goodman, 1995). Perceptions of the experience are responsive to current, salient experiences and to metacognitive reflection (van Manen, 1990).

Among critical perceptions in a transitional experience like graduate school are goals, which impact how people work and learn (Kenner & Weinerman, 2011). People enter into experiences for personally-valued reasons, and they invest and persist for personally-valued outcomes (Latham, 2007). However, little systematic research has included the goals and expectations that graduate students bring into their educational experiences or how their experiences match those expectations. Teaching and mentoring by faculty and senior peers is a key factor in graduate students' motivation and success (Delaney, 2004; Fagen & Suedkamp Wells, 2004). Yet students may not all have the same expectations and experiences of those relationships (Tenenbaum, Crosby, & Gliner, 2001). Graduate students' identity development includes cognitive, social and psychosocial changes (Gardner, 2009). That identity development affects how students see their world, themselves and others (Harrison 2008). Students' initial expectations and developmental perceptions, interactions with others and overall satisfaction with their graduate experience, affect the quality of their academic work (Golde, 2000). These perceptions also influence their effort investment, and whether they complete their degrees or add to the attrition statistics (Lipschultz & Hilt, 1999; Lovitts, 2001). Thus, these perceptual and motivational characteristics have major implications for graduate education and understanding the graduate experience.

Study Purpose

The purpose of this study was to investigate how a diverse group of university graduate students and recent graduates defined the graduate experience. The measurement framework posited two perspectives, one ideal or expected (what it should include), and the other, actual or experiential (what it did include). Further analysis compared the two sets of perceptions for the same individuals and groups, and investigated their relationship to overall satisfaction with the graduate experience.

Research Questions

1. How do graduate students define the graduate experience? What characteristics do they believe it *should* include, and how do they rank the importance of these characteristics?
2. How do graduate students define their own graduate college experience? What characteristics do they believe it *does* include (or has included), and how do they rank the importance of these characteristics?
3. To what degree do graduate students' perceptions of what their own graduate experience *does* include differ significantly from what they believe it *should* include?
4. Do differences between students' expected and actual graduate college experience predict differences in their overall satisfaction with their graduate experience?

Methods

Study Design

To address these questions, the researchers administered a set of questionnaires assessing graduate students' perceptions of their expected and actual experiences as well as their overall satisfaction with their graduate experience. The instruments and procedures were designed to allow for both within-subjects and between-subjects analyses.

Procedure

All administration occurred in an asynchronous online survey administration system. The online administration method was used to maximize efficiency and optimize access to off-campus and distributed participants. Participants were recruited via email invitation, using lists of eligible students and recently-graduated alumni, provided by the university's graduate college. Participants were offered small individual incentives (tee-shirts) and entered into a drawing for a larger incentive (a popular digital device). To ensure anonymity and objectivity, participant identification was automatically separated from responses in the system. All study activities were consistent with institutional human subject requirements, with data de-identified and confidentiality maintained. Response rate for current students was 50%, and for alumni 10%.

Institutional Context

The research site was a large public university in the United States. As a public institution, it had a generally open recruitment and acceptance policy. The university was not highly selective, though additional requirements were set by academic departments and programs. The century-old graduate college enrolls more than 4,000 students annually. Doctoral and masters degrees and certificates are offered in nearly every academic program, from traditional to continuing and professional education. Some programs are highly-structured, while others allow students to progress at their own pace. Colleges and departments have autonomy to set program and curriculum requirements. The graduate college monitors progress and maintains accountability for established benchmarks and requisites. The graduate student body is comprised of about 70% U.S. students and 30% international students from over 40 nations. Graduate students are almost evenly divided by gender, and range in age from 21-90. About 60% of students attend school full-time, and 40% part-time. Many also work outside jobs, and have families.

Participants

Participants were 1,430 current masters and doctoral students and 199 recently-graduated alumni. They were invited to take one of four parallel forms of a questionnaire appropriate to their point-in-program: entry (516), midpoint (372), exit (542) or alumni (199). Table 1 shows summary participant demographics. Study participation was voluntary (as required by institutional human subjects committee), and group sizes (*N*) reflect actual voluntary participation. Even so, the participant group profile was demographically similar to the larger graduate student population on campus (within +/- 5%).

Table 1: Participant demographics

	All (N=1629)	Masters (N=1400)	PhD (N=229)
Gender			
Male	740	612	127
Female	880	779	100
Other Gendered	1	1	--
Ethnicity			
African American/Black	143	130	13
Asian American/Asian	116	87	29
Pacific Islander/Native Hawaiian	5	5	--
Hispanic/Latino	92	79	11
Native American/American Indian	75	67	8
White/Caucasian	1131	971	160
Other	61	54	7
Colleges			
Architecture	24	24	--
Arts & Sciences	556	455	101
Atmospheric & Geographic Sciences	32	26	6
Business	85	80	5
Earth & Energy	44	41	3
Education	189	150	37
Engineering	116	90	26
Fine Arts	43	30	13
Journalism and Mass Communication	31	24	7
International Studies	42	42	--
Liberal Studies	199	194	5
Dual Degree/Interdisciplinary	258	232	26

Measures

Defining the Graduate Experience

The "Defining the Graduate Experience" questionnaires, as well as the graduate satisfaction scale, were originally developed from graduate students' qualitative responses to the question: "What characterizes the graduate college experience?" Open responses were then distilled into standardized items, reviewed and endorsed by graduate faculty, and tested with interdisciplinary graduate students, demonstrating good reliability and validity evidence (for details see Hardré & Hackett, in press & online, 2014). Two parallel forms ("does" and "should") were developed, with identical items but different item stems. Both forms were administered to all participants, allowing within-subjects as well as between-subjects analyses. Participants could not see the second version while responding to the first, nor could they go back and change responses after leaving a section. In addition, students completed the assessment of their overall satisfaction with their graduate experience, which was developed through the same process (standardized items refined from generative statements provided by graduate students and endorsed by faculty).

Perceptions of the student's ideal or expected graduate experience ("should"). This section assessed what students thought the graduate experience should include (32 items; 8-point Likert-type; *alpha* = .97). The cluster was structured with an item stem, "To me, the graduate experience *should* include…" followed by a list of responses to endorse. Sample item: "an environment to study and grow intellectually".

Perceived nature of the student's *actual* graduate experience ("does"). This section assessed what students perceived their own graduate experience to include (32 items; 8-point Likert-type; *alpha* = .98). The cluster was structured with an item stem, "For me, the graduate experience *does* include…" followed by a list of responses to endorse, matched to those in the previous scale. Sample item: "being part of an academic community".

Satisfaction with the graduate experience. This scale assessed students' overall satisfaction with their graduate experience (12 items; Likert-type; *alpha* = .90). It presented individual statements to endorse. Sample items: "I enjoy being a graduate student" and "At this time, I am satisfied with my overall graduate experience."

Analysis

The scales demonstrated high internal consistency (Cronbach's *alphas* of .90-.98 for all subgroups), supporting their use as coherent to represent this set of perceptions for analyses (Cook & Beckman, 2006; DeVellis, 2013). First, participant responses were compared, descriptively and statistically, for mean score differences, by whole group and by the three sets of subgroups, within each of the parallel scales (comparing different groups' perceptions of "should" and "does" separately). Second, the whole group and subgroups' mean scores were compared across the scales (comparing within-groups "should" to "does"). Third, the difference scores (between "should" and "does") were tested for relationship with students' overall satisfaction with their graduate experience. All parallel scale comparison analyses were conducted using the t-test, because it is an appropriate statistical analysis method to compare between-groups' responses on the same measures (independent-samples t-test), and responses from same-subject groups on independent (not repeated) measures (dependent or paired-samples t-test) (Newton & Rudestam, 2013; Salkind, 2014). ANOVA was used for the analyses that included more than two comparison groups, such as point-in-program and disciplinary subgroups. The tests of predictive relationship between the difference score on overall satisfaction with the GCE were conducted using simple linear regression, which is appropriate for predicting response on one variable from responses on a different variable (Salkind, 2014; Vik, 2014). Given the lack of precedent for these investigations, the level of significance was set at $p<.05$.

Degree type subgroups (masters and doctoral) were identified by the graduate college records and confirmed by students' self-reported demographics. Point-in-progress subgroups (entrance, midpoint, exit & alumni) were identified by the graduate college records, based on credit hours and major degree benchmarks completed. Disciplinary subgroups were determined by clustering the major programs into four groups based on similarities in their domain skills and professional competencies: hard sciences (e.g., Mathematics, Biology, Meteorology, Chemistry, Physics, Geology, Engineering); social sciences (e.g., Communication, Anthropology, Psychology, Social Work, Political Science, Business, Education); arts (e.g., Literature, Languages, Fine Arts, Drama, Dance); and interdisciplinary (e.g., International Relations, Interdisciplinary Studies, Liberal Studies).

Results

Should Include—Whole and Subgroups

The first research question, regarding what students believed the graduate experience *should* be was as follows: How do graduate students define the graduate experience? What characteristics do they believe it *should* include and how do they rank the importance of these characteristics? To address this question, the researchers analyzed mean scores on the first parallel form of the "Defining" scale by whole group, then by degree type subgroups, then by point-in-progress subgroups, and finally by disciplinary subgroups. Table 2 shows item and scale means responses for the whole group and degree-type subgroups (masters and doctoral).

For the whole group of graduate students, based on highest mean scores, the three most important aspects the graduate experience should include are: "clear guidelines as to what is expected and required to complete the degree;" "an environment to study and grow intellectually;" and "opportunities to increase my scholarly understanding." The least important aspect the graduate experience should include is: "more of the same as in undergraduate."

Results showed a significant difference between masters ($M = 6.61$, $SD = 0.96$) and doctoral ($M = 6.75$, $SD = 0.82$) students [$t(1627) = -2.19$, $p = .029$]. In general, doctoral students endorsed more strongly that their graduate experience *should* contain the scale items than did masters students. However, masters students' means were significantly higher than doctoral students' for just four characteristics: "authentic, applied experiences linked to real work expectations" [$t(1617) = 2.20$, $p = .028$]; "value-added that makes the degree worth what it cost" [$t(1609) = 4.03$, $p = < .001$]; "taking on topics and issues that can make a difference in the world" [$t(1618) = 2.62$, $p = .032$]; and "more of the same as in undergraduate" [$t(1614) = 3.53$, $p < .001$].

Next the researchers compared mean scores for the whole scale and by items for subgroups by point-in-progress toward degree. Table 3 shows item and scale means for the "should" scale by point-in-progress subgroups (entry, midpoint, exit, alumni).

Results showed almost significant differences between Entrance ($M = 6.63$, $SD = 0.95$), Midpoint ($M = 6.55$, $SD = 1.06$), Exit ($M = 6.63$, $SD = 0.90$), and Alumni ($M = 6.76$, $SD = 0.73$) students [$F(3, 1626) = 2.28$, $p = .078$]. A post hoc Tukey test showed a significant difference between Midpoint and Alumni ($p = .045$), with alumni most strongly endorsing the scale characteristics. The general trend was endorsement of the characteristics as part of the actual graduate college experience increasing toward degree completion, after a drop at midpoint for some characteristics, as reflected in Table 3.

Finally the researchers compared what the graduate college experience "should" include by disciplinary subgroups. Table 4 compares mean scores for the disciplinary subgroups (hard sciences, social sciences, arts, and interdisciplinary).

Results showed a significant difference between Hard Sciences ($M = 6.69$, $SD = 0.93$), Social Sciences ($M = 6.63$, $SD = 0.93$), Arts ($M = 6.87$, $SD = 0.68$), and Interdisciplinary ($M = 6.53$, $SD = 0.99$) students, [$F(3, 1626) = 5.20$, $p = .001$]. A post hoc Tukey test showed Arts had a significantly higher mean than both Social Sciences ($p = .043$) and Interdisciplinary ($p = .002$). Students in the Arts believe more strongly than those in the Social Sciences and Interdisciplinary majors that the graduate experience should contain the items listed in the scale.

Table 2: Graduate experience "should include" by whole group and degree type

To me, the graduate experience should include...	**All** (N=1629)	**Masters** (N=1400)	**PhD** (N=229)
an environment to study and grow intellectually.	7.39	7.38	7.44
being a part of an academic community.	6.99	6.96	7.15
a high level of intellectual training.	7.31	7.29	7.42
opportunities to increase my scholarly understanding.	7.32	7.30	7.42
opportunities very different from undergraduate education.	6.59	6.58	6.62
having interactions with other students in my program and department.	6.94	6.92	7.05
interacting with students from other departments and colleges.	5.93	5.91	6.04
being focused on one program of content and skills.	5.97	6.01	5.77
a high level of stress and anxiety.	3.55	3.52	3.79
high expectations and exacting standards of performance.	6.65	6.64	6.74
developing close connections with faculty.	6.45	6.38	6.90
close mentoring.	6.52	6.45	6.90
developing true expertise in my field.	7.19	7.15	7.43
having the opportunity to be published.	5.71	5.51	6.93
presenting work at scholarly and professional conferences.	5.70	5.48	7.03
learning to be the best at what I do.	7.01	6.99	7.10
meeting and connecting with other graduate students.	6.45	6.44	6.49
more of the same as in undergraduate.	3.51	3.59	3.07
instruction by experts in the field.	7.15	7.14	7.22
solid, theoretical and research grounding.	6.83	6.76	7.23
links to authentic professional practice.	7.03	7.02	7.07
authentic, applied experiences linked to real work expectations.	7.07	7.10	6.90
integration of theory and authentic professional practice.	7.06	7.06	7.06
support for graduate students by the university.	7.08	7.07	7.17
feeling connected to others with similar goals and aspirations.	6.76	6.76	6.78
faculty members who really care whether all graduate students succeed.	7.18	7.17	7.23
value-added that makes the degree worth what it cost.	7.05	7.10	6.72
good communication between faculty and graduate students.	7.27	7.27	7.31
clear guidelines as to what is expected and required to complete the degree.	7.40	7.40	7.43
deeply meaningful learning opportunities.	7.22	7.22	7.21
taking on topics and issues that can make a difference in the world.	6.94	6.98	6.71
daring to dream big and actually achieving those dreams.	6.85	6.85	6.80
Scale means	**6.63**	**6.61**	**6.75**

Table 3: Graduate experience "should include" by point-in-progress

To me, the graduate experience should include...	**Entrance** (N=516)	**Midpoint** (N=372)	**Exit** (N=542)	**Alumni** (N=199)
an environment to study and grow intellectually.	7.35	7.35	7.39	7.53
being a part of an academic community.	6.94	7.00	6.97	7.13
a high level of intellectual training.	7.27	7.24	7.33	7.46
opportunities to increase my scholarly understanding.	7.31	7.27	7.32	7.42
opportunities very different from undergraduate education.	6.60	6.50	6.64	6.58
having interactions with other students in my program and department.	6.91	6.89	6.92	7.16
interacting with students from other departments and colleges.	5.91	5.80	5.97	6.09
being focused on one program of content and skills.	6.11	5.81	6.05	5.71
a high level of stress and anxiety.	3.57	3.48	3.62	3.46
high expectations and exacting standards of performance.	6.58	6.63	6.72	6.66
developing close connections with faculty.	6.38	6.39	6.47	6.69
close mentoring.	6.52	6.39	6.50	6.81
developing true expertise in my field.	7.17	7.11	7.19	7.38
having the opportunity to be published.	5.75	5.65	5.58	6.11
presenting work at scholarly and professional conferences.	5.77	5.60	5.57	6.10
learning to be the best at what I do.	7.03	6.88	7.02	7.15
meeting and connecting with other graduate students.	6.46	6.40	6.43	6.56
more of the same as in undergraduate.	3.78	3.35	3.51	3.17
instruction by experts in the field.	7.04	7.17	7.18	7.30
solid, theoretical and research grounding.	6.78	6.86	6.77	7.05
links to authentic professional practice.	7.09	6.92	6.99	7.16
authentic, applied experiences linked to real work expectations.	7.12	6.92	7.10	7.16
integration of theory and authentic professional practice.	7.07	6.98	7.09	7.14
support for graduate students by the university.	7.10	7.02	7.04	7.25
feeling connected to others with similar goals and aspirations.	6.79	6.62	6.75	6.97
faculty members who really care whether all graduate students succeed.	7.16	7.10	7.18	7.36
value-added that makes the degree worth what it cost.	7.04	6.92	7.10	7.20
good communication between faculty and graduate students.	7.26	7.20	7.27	7.47
clear guidelines as to what is expected and required to complete the degree.	7.36	7.35	7.42	7.54
deeply meaningful learning opportunities.	7.16	7.04	7.32	7.44
taking on topics and issues that can make a difference in the world.	6.88	6.89	6.96	7.14
daring to dream big and actually achieving those dreams.	6.86	6.70	6.86	7.03
Scale means	**6.63**	**6.55**	**6.63**	**6.76**

Table 4: Graduate experience "should include" by disciplines

For me, the graduate experience should include...	**Hard Sciences** (N=281)	**Social Sciences** (N=693)	**Arts** (N=125)	**Inter-disciplinary** (N=532)
an environment to study and grow intellectually.	7.35	7.36	7.61	7.38
being a part of an academic community.	6.99	6.99	7.26	6.92
a high level of intellectual training.	7.33	7.27	7.43	7.31
opportunities to increase my scholarly understanding.	7.33	7.28	7.45	7.33
opportunities very different from undergraduate education.	6.51	6.65	6.79	6.50
having interactions with other students in my program and department.	6.97	7.00	7.24	6.77
interacting with students from other departments and colleges.	6.25	5.77	6.11	5.92
being focused on one program of content and skills.	5.91	5.95	5.93	6.04
a high level of stress and anxiety.	4.01	3.38	3.52	3.55
high expectations and exacting standards of performance.	6.48	6.59	7.01	6.72
developing close connections with faculty.	6.69	6.54	7.05	6.06
close mentoring.	6.63	6.60	7.18	6.18
developing true expertise in my field.	7.23	7.22	7.59	7.02
having the opportunity to be published.	6.72	5.50	6.56	5.26
presenting work at scholarly and professional conferences.	6.70	5.53	6.61	5.19
learning to be the best at what I do.	7.08	7.05	7.36	6.83
meeting and connecting with other graduate students.	6.54	6.51	6.71	6.25
more of the same as in undergraduate.	3.91	3.37	2.93	3.62
instruction by experts in the field.	6.98	7.17	7.37	7.17
solid, theoretical and research grounding.	6.90	6.77	7.02	6.82
links to authentic professional practice.	6.95	7.11	7.24	6.90
authentic, applied experiences linked to real work expectations.	6.94	7.18	7.14	6.99
integration of theory and authentic professional practice.	6.99	7.11	7.10	7.02
support for graduate students by the university.	7.04	7.14	7.47	6.94
feeling connected to others with similar goals and aspirations.	6.74	6.87	7.06	6.55
faculty members who really care whether all graduate students succeed.	7.10	7.23	7.56	7.06
value-added that makes the degree worth what it cost.	6.77	7.07	7.09	7.15
good communication between faculty and graduate students.	7.24	7.29	7.58	7.20
clear guidelines as to what is expected and required to complete the degree.	7.30	7.40	7.60	7.40
deeply meaningful learning opportunities.	7.09	7.30	7.39	7.15
taking on topics and issues that can make a difference in the world.	6.81	7.02	6.78	6.94
daring to dream big and actually achieving those dreams.	6.80	6.91	6.91	6.76
Scale means	**6.70**	**6.63**	**6.87**	**6.53**

Does Include—Whole Group and Subgroups

The second research question, regarding what students' perceived their own graduate experience *did* include was as follows: How do graduate students define their own graduate college experience? What characteristics do they believe it *does* include (or has included), and how do they rank the importance of these characteristics? To address this question, the researchers analyzed mean scores on the second (does) parallel form of the "Defining" scale for the whole group and same subgroups as for the first (should) form of the scale. Table 5 shows item-level and scale means for the whole group and degree type subgroups (masters and doctoral).

Table 5: Graduate experience "does include" whole group and degree types

For me, the graduate experience does include...	**All** (N=1629)	**Masters** (N=1400)	**PhD** (N=229)
an environment to study and grow intellectually.	6.90	6.88	7.04
being a part of an academic community.	6.55	6.51	6.75
a high level of intellectual training.	6.74	6.72	6.92
opportunities to increase my scholarly understanding.	6.93	6.90	7.07
opportunities very different from undergraduate education.	6.21	6.13	6.66
having interactions with other students in my program and department.	6.68	6.67	6.74
interacting with students from other departments and colleges.	4.85	4.85	4.89
being focused on one program of content and skills.	6.35	6.36	6.28
a high level of stress and anxiety.	5.33	5.25	5.84
high expectations and exacting standards of performance.	6.49	6.46	6.69
developing close connections with faculty.	5.78	5.71	6.22
close mentoring.	5.36	5.27	5.95
developing true expertise in my field.	6.18	6.12	6.53
having the opportunity to be published.	4.49	4.27	5.83
presenting work at scholarly and professional conferences.	4.45	4.21	5.94
learning to be the best at what I do.	6.19	6.16	6.35
meeting and connecting with other graduate students.	6.16	6.15	6.22
more of the same as in undergraduate.	4.01	4.15	3.18
instruction by experts in the field.	6.65	6.64	6.75
solid, theoretical and research grounding.	6.54	6.51	6.77
links to authentic professional practice.	6.14	6.15	6.07
authentic, applied experiences linked to real work expectations.	6.13	6.16	5.94
integration of theory and authentic professional practice.	6.24	6.27	6.04
support for graduate students by the university.	6.00	5.99	6.05
feeling connected to others with similar goals and aspirations.	6.14	6.16	6.04
faculty members who really care whether all graduate students succeed.	6.41	6.41	6.44
value-added that makes the degree worth what it cost.	6.11	6.14	5.92
good communication between faculty and graduate students.	6.16	6.20	5.96
clear guidelines as to what is expected and required to complete the degree.	6.34	6.38	6.07
deeply meaningful learning opportunities.	6.43	6.43	6.45
taking on topics and issues that can make a difference in the world.	6.25	6.28	6.07
daring to dream big and actually achieving those dreams.	6.18	6.19	6.13
Scale means	**6.05**	**6.03**	**6.19**

Results showed an almost significant difference between masters ($M = 6.03$, $SD = 1.26$) and doctoral ($M = 6.19$, $SD = 1.10$) students, [$t(1627) = -1.83$, $p = .068$]. Doctoral students feel more strongly that their graduate experience does (or did) contain the scale items than masters. Masters students reported statistically higher means than doctoral students for only two items on the "does" scale: "clear guidelines as to what is expected and required to complete the degree" [$t(1602) = 2.40$, $p = .017$] and "more of the same as in undergraduate" [$t(1602) = 5.90$, $p < .001$]. Table 6 compares means for responses on the "does" scale the same means for the point-in-progress subgroups (entry, midpoint, late).

Table 6: Graduate experience "does include" by point-in-progress"

For me, the graduate experience does include...	**Entrance** (N=516)	**Midpoint** (N=372)	**Exit** (N=542)	**Alumni** (N=199)
an environment to study and grow intellectually.	6.91	6.77	6.94	6.98
being a part of an academic community.	6.61	6.44	6.55	6.57
a high level of intellectual training.	6.78	6.71	6.75	6.69
opportunities to increase my scholarly understanding.	6.91	6.87	6.99	6.91
opportunities very different from undergraduate education.	6.15	6.24	6.25	6.16
having interactions with other students in my program and department.	6.72	6.70	6.61	6.73
interacting with students from other departments and colleges.	5.07	4.69	4.90	4.48
being focused on one program of content and skills.	6.46	6.32	6.37	6.03
a high level of stress and anxiety.	5.16	5.27	5.54	5.35
high expectations and exacting standards of performance.	6.59	6.37	6.51	6.39
developing close connections with faculty.	5.91	5.49	5.90	5.67
close mentoring.	5.57	5.10	5.41	5.18
developing true expertise in my field.	6.27	6.06	6.23	6.02
having the opportunity to be published.	4.50	4.28	4.57	4.62
presenting work at scholarly and professional conferences.	4.46	4.20	4.48	4.83
learning to be the best at what I do.	6.34	6.01	6.26	5.91
meeting and connecting with other graduate students.	6.18	6.13	6.12	6.24
more of the same as in undergraduate.	4.19	3.83	3.97	4.00
instruction by experts in the field.	6.71	6.69	6.59	6.63
solid, theoretical and research grounding.	6.57	6.57	6.49	6.55
links to authentic professional practice.	6.26	6.01	6.15	5.99
authentic, applied experiences linked to real work expectations.	6.28	6.02	6.16	5.84
integration of theory and authentic professional practice.	6.39	6.17	6.23	6.01
support for graduate students by the university.	6.17	5.87	6.02	5.75
feeling connected to others with similar goals and aspirations.	6.29	6.05	6.15	5.90
faculty members who really care whether all graduate students succeed.	6.65	6.28	6.37	6.15
value-added that makes the degree worth what it cost.	6.26	5.97	6.12	5.91
good communication between faculty and graduate students.	6.48	5.98	6.06	5.95
clear guidelines as to what is expected and required to complete the degree.	6.53	6.20	6.32	6.15
deeply meaningful learning opportunities.	6.46	6.34	6.48	6.38

For me, the graduate experience does include...	**Entrance** (N=516)	**Midpoint** (N=372)	**Exit** (N=542)	**Alumni** (N=199)
taking on topics and issues that can make a difference in the world.	6.30	6.22	6.23	6.19
daring to dream big and actually achieving those dreams.	6.27	6.10	6.21	6.01
Scale means	**6.14**	**5.95**	**6.06**	**5.97**

Results showed no significant difference between Entrance (M = 6.14, SD = 1.23), Midpoint (M = 5.95, SD = 1.24), Exit (M = 6.06, SD = 1.26), and Alumni (M = 5.97, SD = 1.18) students, [$F(3, 1626) = 1.97$, $p = .117$]. Table 7 compares disciplinary subgroup responses (hard sciences, social sciences, arts, and interdisciplinary).

Table 7: Graduate experience "does include" by disciplines

To me, the graduate experience does include...	**Hard Sciences** (N=281)	**Social Sciences** (N=693)	**Arts** (N=125)	**Inter-disciplinary** (N=532)
an environment to study and grow intellectually.	6.97	6.94	7.02	6.77
being a part of an academic community.	6.71	6.57	6.83	6.37
a high level of intellectual training.	6.79	6.70	6.95	6.73
opportunities to increase my scholarly understanding.	6.92	6.88	7.14	6.93
opportunities very different from undergraduate education.	6.33	6.18	6.34	6.15
having interactions with other students in my program and department.	6.73	6.88	6.86	6.35
interacting with students from other departments and colleges.	5.45	4.64	4.58	4.89
being focused on one program of content and skills.	6.37	6.38	6.41	6.27
a high level of stress and anxiety.	5.96	5.27	5.98	4.94
high expectations and exacting standards of performance.	6.56	6.42	6.94	6.44
developing close connections with faculty.	6.36	5.71	6.35	5.44
close mentoring.	6.08	5.20	6.07	5.03
developing true expertise in my field.	6.32	6.17	6.52	6.03
having the opportunity to be published.	6.01	4.26	5.02	3.86
presenting work at scholarly and professional conferences.	5.70	4.30	5.35	3.78
learning to be the best at what I do.	6.43	6.18	6.55	5.98
meeting and connecting with other graduate students.	6.40	6.32	6.33	5.77
more of the same as in undergraduate.	4.75	3.91	3.34	3.91
instruction by experts in the field.	6.68	6.64	7.03	6.57
solid, theoretical and research grounding.	6.54	6.54	6.67	6.52
links to authentic professional practice.	6.16	6.22	6.25	5.99
authentic, applied experiences linked to real work expectations.	6.05	6.23	6.02	6.04
integration of theory and authentic professional practice.	6.12	6.31	6.26	6.20
support for graduate students by the university.	6.28	5.89	5.94	6.01
feeling connected to others with similar goals and aspirations.	6.16	6.29	6.21	5.92

To me, the graduate experience does include...	**Hard Sciences** (N=281)	**Social Sciences** (N=693)	**Arts** (N=125)	**Inter-disciplinary** (N=532)
faculty members who really care whether all graduate students succeed.	6.43	6.40	6.64	6.36
value-added that makes the degree worth what it cost.	6.12	6.05	5.84	6.24
good communication between faculty and graduate students.	6.24	6.09	6.11	6.22
clear guidelines as to what is expected and required to complete the degree.	6.35	6.26	6.30	6.45
deeply meaningful learning opportunities.	6.39	6.43	6.54	6.42
taking on topics and issues that can make a difference in the world.	6.20	6.31	5.82	6.29
daring to dream big and actually achieving those dreams.	6.19	6.14	6.12	6.24
Scale means	**6.27**	**6.03**	**6.20**	**5.92**

Results showed a significant difference between Hard Sciences ($M = 6.27$, $SD = 1.14$), Social Sciences ($M = 6.03$, $SD = 1.22$), Arts ($M = 6.20$, $SD = 1.14$), and Interdisciplinary ($M = 5.92$, $SD = 1.32$) students [$F(3, 1626) = 5.804$, $p = .001$]. Specifically, a post hoc Tukey test showed Hard Sciences had significantly higher means than Social Sciences ($p = .027$) and Interdisciplinary ($p = .001$). Students in Hard Science majors agree more strongly than those in Social Sciences and Interdisciplinary that the graduate experience does/did contain the items listed in the scale.

Should vs Does

The third research question, regarding contrasts between what students believed the graduate experience *should* be and what their own experiences *were*, was as follows: To what degree do graduate students' perceptions of what their own graduate experience *does* include differ significantly from what they believe it *should* include? To address this question, the researchers analyzed groups' mean scores on the two parallel forms of the "Defining" scale for significant differences. Table 8 shows the results of the t-tests for significant differences between "should" and "does" for each set of subgroups, along with means of subgroup differences and overall satisfaction.

Table 8: Graduate experience "should" vs "does" whole and subgroups

Group	**N**	**Should** M (*SD*)	**Does** M (*SD*)	***t***	***p***	**Cohen's *d***
All	1629	6.63 (*0.94)*	6.05 (*1.24*)	21.09	< .001	0.53
Degree Type						
Masters	1400	6.61 (*0.96*)	6.03 (*1.26*)	19.36	< .001	0.52
Doctoral	229	6.75 (*0.82*)	6.19 (*1.10*)	8.38	< .001	0.58
Point-In-Program						
Entrance	516	6.63 (*0.95*)	6.14 (*1.23*)	10.57	< .001	0.45
Midpoint	372	6.55 (*1.06*)	5.95 (*1.24*)	9.93	< .001	0.52
Exit	542	6.63 (*0.90*)	6.06 (*1.26*)	12.21	< .001	0.52
Alumni	199	6.76 (*0.73*)	5.97 (*1.18*)	9.57	< .001	0.81
Area of Study						
Hard Sciences	281	6.70 (*0.93*)	6.27 (*1.14*)	7.77	< .001	0.41
Social Sciences	693	6.63 (*0.93*)	6.03 (*1.22*)	13.70	< .001	0.55
Arts	125	6.87 (*0.68*)	6.20 (*1.14*)	7.05	< .001	0.71
Interdisciplinary	532	6.53 (*0.99*)	5.92 (*1.32*)	12.28	< .001	0.52

Paired samples t-tests showed significant differences between means of the "should" and "does" perceptions subscales for *the whole group and for all subgroups* (at p-values < .001). In all cases, their "does" scores are lower than "should", demonstrating that all of these students found their actual graduate experience significantly less defined by these characteristics than they believed it should be. By degree types, across point-in-progress groups, and among disciplinary subgroups, graduate students consistently evidenced this same pattern of significant difference between expectations and actual graduate experience.

Perceived Difference Predicting Satisfaction

The fourth question, regarding the relationship between the gap between expected and actual graduate experience and overall satisfaction with the graduate experience, was as follows: Do differences between students' expected and actual graduate college experience predict differences in their overall satisfaction with their graduate experience? To address this question, the researchers analyzed overall mean differences in the scores between the two parallel forms of the "Defining" scale as predictive of the same students' mean scores on the scale assessing overall satisfaction of their graduate experience. Table 9 shows the results of the regression analyses for the whole group and subgroups.

Table 9: "Should" vs "does" difference predicts satisfaction with GCE

Group	N	Should-Does Difference M (*SD*)	Satisfaction M (*SD*)	*B*	*SE*	*F*	*p*
All	1629	0.57 (*1.11)*	6.52 (*1.32*)	-0.48	0.02	770.26	< *.001*
Degree Type							
Masters	1400	0.58 (*1.12*)	6.54 (*1.32*)	-0.49	0.02	685.09	< *.001*
Doctoral	229	0.57 (*1.02*)	6.36 (*1.31*)	-0.41	0.04	89.24	< *.001*
Point-In-Program							
Entrance	516	0.49 (*1.05*)	6.63 (*1.25*)	-0.41	0.03	163.60	< *.001*
Midpoint	372	0.59 (*1.16*)	6.35 (*1.35*)	-0.48	0.04	163.30	< *.001*
Exit	542	0.57 (*1.08*)	6.50 (*1.39*)	-0.50	0.03	377.09	< *.001*
Alumni	199	0.79 (*1.17*)	6.60 (*1.21*)	-0.58	0.06	106.93	< *.001*
Area of Study							
Hard Sciences	281	0.42 (*0.91*)	6.44 (*1.24*)	-0.35	0.04	84.39	< *.001*
Social Sciences	693	0.60 (*1.15*)	6.51 (*1.34*)	-0.47	0.03	292.10	< *.001*
Arts	125	0.66 (*1.06*)	6.14 (*1.46*)	-0.48	0.05	100.39	< *.001*
Interdisciplinary	532	0.61 (*1.15*)	6.65 (*1.28*)	-0.56	0.03	338.55	< *.001*

The regression analysis showed that the difference between means of the "should" and "does" perceptions subscales negatively predicted overall satisfaction with the graduate college experience for *the whole group and for all subgroups* (at p-values < .001). The greater graduate students' perceived gap between their expectations of the graduate experience and their actual experience, the lower their satisfaction with their graduate college experience.

Discussion

Students enter graduate programs with specific goals linked to career and professional development and change (Gardner & Barnes, 2007; Ostrove, Stewart & Curtin, 2011). Their expectations of what graduate study will offer are linked to the new opportunities they want to embrace and the new identities they need to develop (Benishek & Chessler, 2005; Coulter et al., 2004). Disap-

pointment of expectations is related to graduate program attrition and students' lack of completion (Golde, 2009; Kanan & Baker, 2006), and understanding their needs and expectations enables faculty and staff to bridge gaps and meet needs to help them succeed (Pontius & Harper, 2006).

This study investigated characteristics that graduate students believed should be part of their graduate programs, and the degree to which their graduate experiences fulfilled those expectations. The research questions addressed what characteristics students felt should and did describe their graduate college experiences, for a diverse group of students and for subgroups by degree type, point-in-progress and disciplines.

The whole group and all subgroups reported positive and moderately strong endorsement of the listed characteristics as present in their graduate experiences (mean of 6.05 out of 8), along with positive and at least moderate overall satisfaction with their graduate experiences (mean of 6.52 out of 8). Even so, there were significant differences between their expected and actual graduate experiences, and those differences demonstrated significant influence on their satisfaction.

Among consistent findings were that the whole group and all subgroups demonstrated (within-groups) significant differences between their perceptions of what the graduate college experience "should" and "does" include. Further, the whole group and all subgroups (should-does) difference scores negatively predicted their overall satisfaction with their graduate experiences. While the magnitude of these differences varied some, based on response-group patterns and group size, all were highly significant (at $p<.001$). These two findings, first that there are consistent gaps between graduate students' expected and actual perceptions of the graduate experience; and second, that those differences consistently and negatively predict their satisfaction with their overall graduate experience; have not previously been demonstrated. Beyond these general findings, some differences specific to the various subgroups are discussed below.

Masters and doctoral students' responses were statistically different on perceptions of both what their graduate experience should include and what it did include. The degree type subgroups' responses were much more homogeneous on what their graduate experiences *did* include than on what they *should* include. This contrast demonstrates that doctoral and masters students expected their graduate experiences to be more unique than they actually experienced. On both "should" and "does", doctoral students' mean responses were higher, as they endorsed the characteristics more strongly than masters students overall. Masters students reported statistically significant higher means than doctoral student for only four items on the "should" scale and only one on the "does" scale. However, the ranking of their "should" characteristics differed, while their rankings (by relative magnitude of response) on "does" were identical. These findings underscore nuanced differences between masters and doctoral students' expectations and priorities for graduate education.

Point-in-progress subgroups were significantly different in what they perceived their graduate experiences should include, but not in what they did include. From the within-scale analyses, groups based on their progress toward degree completion showed more differences in both magnitude of mean scores and in ranking of characteristics, on the "should" scale characteristics than on the "does" scale. Generally, alumni reported somewhat higher (though nonsignificant) scores than current students on the "should" scale; however, since the alumni response rate was lower than current students, this in part may reflect a volunteer self-selection bias. Even so, the contrast of perceptions between current students and alumni present opportunity to benefit from the perspective of graduates who have tested their preparation in the workforce and can evaluate it from that viewpoint (see also Delaney, 2004). However, most notable for all point-in-progress groups is the between-groups differences in "should" scores and the within-groups differences between "should" and "does" scores.

The disciplinary subgroups demonstrated the most significant mean differences and the most varying ranking of characteristics, within both the "should" and "does" scales, as well as the most pronounced variability among their should-does differences. This pattern of findings supports the assertion that examining disciplinary differences on perceptions and assessments of graduate education could enrich understanding of how students evaluate their graduate college experiences, and thus support institution-level decision-making.

Research Contributions

This study introduces an innovative use of the parallel-form, perceptions questionnaire, to compare their actual to ideal or expected experiences. It includes the demonstration of nuanced differences in the degree to which characteristics often attributed broadly to graduate students' experiences, vary between subgroups by different degree types, at various points-in-progress toward degree completion, and between disciplines.

In addition this study demonstrates significant differences between graduate students' expected and actual educational experiences, which may lend insight into one possible cause of high attrition among graduate students. Given the resource commitment required of students, faculty, staff and institutions to engage and succeed in graduate studies, knowing students' needs and expectations, and understanding how actual program offerings align with those expectations, can help institutions use limited resources effectively and strategically.

While these findings may be anecdotally asserted and intuitively plausible, they have not previously been empirically demonstrated for these characteristics and groups. This study—like many other important studies—verifies with data and systematic design what graduate faculty and administrators may consider likely but lack data to demonstrate. It also parses out significant differences by particular groups and illuminates novel perspectives on the graduate experience and specific characteristics on which they differ.

These findings build on the previously-published research on graduate education and the graduate experience. Coulter et al. (2004) found that many graduate students lack adequate orientation to expectations, resources and information at entry to graduate education. This study illuminates a gap between their educational expectations and experience that endures much longer. Previous research has underscored the importance of graduate student involvement and socialization, both personal and professional (e.g., Gardner & Barnes, 2007), and this study ties it to other characteristics of the graduate experience. Many previous studies that attempt to address the complexity of the graduate experience are qualitative (e.g., Offstein et al., 2004). Though they illuminate rich elements of the graduate experience, they are difficult to replicate and extend. The present study offers methods and measures to support a systemic research agenda on these issues, leading to potential improvement in academic programs and centralized student services. The point made by previous researchers (e.g., Nesheim et al. 2006), that the best way to know what graduate students need is to ask them, is intuitively basic but technically challenging, unless institutions are equipped with systematic measurement tools.

Implications

These findings demonstrate fresh ways to examine the differential perceptions and perspectives of graduate students. Traditionally, perceptions have been parsed by conventional demographics such as gender and ethnicity, but not previously using experiential factors such as trajectory based on point-in-progress toward degree. In addition, the differences observed here between expectations and experience contrast by disciplines and also along the graduate trajectory. These findings invite a different, closer look in research and evaluation of the graduate experience. Profoundly, these data showed that contrast between expected and actual graduate experience was significant

for all groups. This finding reflects back on the importance of expectations that drive recruitment, adjustment and acculturation. In addition, the fact that those very differences predicted overall satisfaction with the graduate experience presents additional implications for achievement, retention and completion of graduate degree programs. Given these relationships, both convergent and divergent, a questionnaire of this kind and the data it yields can be used as a diagnostic tool to pinpoint areas in graduate programs that require attention to improve graduate student satisfaction.

As emphasized by Lipschultz and Hilt (1999), systematic organizational assessment can be a critical, positive force in educational improvement and reform, and institutions' needs for efficient and effective approaches to assessing and addressing the needs of graduate students are amplified by shrinking budgets. In addition to their potential for use in ongoing and future research, the products and processes used in this study can be used to evaluate and improve graduate programs. The instruments can be used in needs analysis, to better understand what programs *should offer* to this new generation of graduate students to meet their expectations, or what information may be needed to *address misconceptions* they may have. The comparison process and scales (should vs does) can be used to assess where programs are falling short of expectations for students already in graduate school, to promote retention and completion. Perceived gaps between ideal or expected and actual graduate experiences may be used to help explain why some students are more or less satisfied with their graduate experiences. Similar measures may be useful at the college and program levels, specific to disciplinary and unit goals, to identify and address more nuanced gaps.

Limitations and Future Directions

While the sample was gratifyingly large and diverse, the fact that the present study drew students from a single institution presents a limitation on its generalizability. That limitation was an appropriate control for extreme variance that may have resulted from a different design, such as a random sample from many different institutions. However, having demonstrated these patterns in one university, a next step in this research is multi-institutional extensions, to test how well these findings replicate across other universities and colleges. Recognizing the relationship between satisfaction and intent to persist, and the research that links dropout intentions to actual dropout (e.g., Hardré & Reeve, 2003), an additional future extension of this research, based on the link to overall satisfaction, is possible links to intentions to persist (versus drop out) of graduate school.

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Biographies

Dr Patricia L. Hardré is a Professor of Educational Psychology in the Jeannine Rainbolt College of Education at the University of Oklahoma. She holds an earned doctorate in Educational Psychology, majoring in Instructional Design and Technology, with emphases in Cognition and Instruction, and Motivation for Learning and Performance, as well as a minor in Educational Measurement and Evaluation. She has taught graduate courses for 13 years, and served as the college's Associate Dean for Graduate Programs and Research. Prior to her current position, she taught interdisciplinary undergraduate courses and provided faculty professional development and support for teaching and research. Dr Hardré has worked for over 20 years in educational research, instructional and program design, management, assessment and evaluation. Her work spans national and international educational programs and systems, in postsecondary education, faculty work and performance development, engineering education, medical education, elementary and secondary schools, and non-traditional and experiential learning environments, including community-based health and behavior. She has authored and co-authored more than 200 articles, books, book chapters and scholarly presentations, many of these in collaboration across disciplines and nations. She is the recipient of research awards including: the Henry Daniel Rinsland Memorial Award for a distinguished record of research (University of Oklahoma), the Stanley A. Brzezinski

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Shannon M. Hackett is in the final year of her PhD in Counseling Psychology at the University of Oklahoma. She holds a Master of Arts in Developmental Psychology from San Francisco State University and a Master of Education in Counseling Psychology at the University of Oklahoma. She has published four articles and conducted three meta-analyses on topics such as child adjustment to divorce and domestic violence victim interventions. She also worked as a statistician for three years at the College of Education's Center for Educational Development and Research. She is currently completing her internship at the University of California-Santa Barbara's Counseling and Psychological Services.