

Improving Undergraduate Psychology Students' Understanding of the Graduate School Application Process

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Abstract

Background: More students with a bachelor's degree in psychology are seeking graduate studies, though many lack knowledge about the admission process.

Objective: We created a brief educational presentation to increase student knowledge of the application process, positive outcome expectations for obtaining a master's degree in psychology, and intention to apply.

Method: We recruited N = 55 undergraduate psychology majors at a public university in Texas. We randomly assigned participants to either a 52-min written or video version of the educational presentation.

Results: Repeated measures analysis of variance revealed that participants increased their positive outcome expectations for a master's degree in psychology and increased their perceived knowledge of the application process. Our qualitative content analysis revealed improvements in participants' objective knowledge of what to include in a curriculum vitae and personal statement, who to ask for a letter of recommendation, and what resources exist for funding graduate school.

Conclusions: Professors could consider using evidence-based, brief educational presentations in mentoring undergraduate students on career goals including graduate study in psychology.

Teaching Implications: Additional training may be required to help educational professionals to incorporate evidence-based career planning during key stages of students' undergraduate psychology study.

Keywords

psychology, graduate school admissions, advising

Psychology is one of the most popular undergraduate majors in the United States (McFarland et al., 2018; Morgan, 1997). According to McFarland et al. (2018), the number of students earning bachelor's degrees in psychology has risen by over 58% in the past 20 years. Approximately 116,432 bachelor's degrees in psychology were conferred in the academic year 2017–2018 (American Psychological Association [APA], 2021).

Compared to those with other scientific degrees, students who graduate with a bachelor's degree in psychology have more difficulty finding jobs related to their field of study (Maragakis et al., 2020). Most individuals with a bachelor's degree in psychology find work in the general job market (APA, 2003) and many end up working in management, marketing, or sales positions (APA, 2021). Only 26% of individuals with a bachelor's degree in psychology report having jobs that are closely related to psychology (APA, 2021). Further, when compared with alumni from other degree programs that are more vocational focused (i.e., business, technology, etc.), psychology graduates more often report their current job does not require a college degree (Borden & Rajrecki, 2000). Graduates with a bachelor's degree in psychology also report lower income than graduates of other majors (Rajrecki & Borden, 2011), with a median annual income approximately \$12,000 lower than workers with a bachelor's degree in any other fields (Camevale et al., 2015).

Earning a graduate degree in psychology can provide students with more opportunities than an undergraduate degree alone (Stamm & Fowler, 2018). This may explain, in part, the

68% rise in the number of master's degrees and the 23% rise in the number of doctoral degrees in psychology that have been conferred in the past 20 years (McFarland et al., 2018). In the academic year 2017–2018, an estimated 6,275 students obtained a doctoral degree while an additional 27,841 students obtained a master's degree (McFarland et al., 2018).

Despite this increase, the number of students with a bachelor's degree in psychology still far outweighs the number of available positions in psychology graduate schools (Landrum, 2001). With this increasing competition for a limited number of graduate positions, undergraduates would benefit from guidance to prepare a competitive application for graduate school. This is especially true because only 37% of undergraduate psychology programs include formal career preparation in their curriculum (Ciarocco, 2017). Professors often report difficulty adequately informing students about career options or the process of applying to graduate school (Dodson et al., 1996). This lack of formal training for undergraduates can lead to inadequate preparation and unnecessary application errors, thereby diminishing students' probability of

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acceptance (Appleby & Appleby, 2006). Sanders and Landrum (2012) found that undergraduates reported issues related to letters of recommendation and gaining research experience, which further supports the need for universities to prepare students for the graduate school application process.

Some researchers have studied the impact of career courses on undergraduates' preparation for graduate school admissions (Conroy et al., 2020). Researchers found that a course designed specifically for juniors/seniors is effective for informing students about their career options in psychology, the requirements of graduate school, and the writing a curriculum vitae ([CV]; Dodson et al., 1996; Ware, 1981, 1985; Ware & Beischel, 1979). Recently, researchers have found that students who complete these preparation courses increase their knowledge and self-efficacy to apply to graduate school (Brucato & Neimeyer, 2011; Neimeyer et al., 2004). These findings are important because knowledge of and exposure to information about graduate study predict intentions to apply (Bocanegra et al., 2016, 2019). Career assistance also increases students' knowledge about their career choices and leads to higher levels of both career and degree satisfaction (Halonon & Dunn, 2018; Landrum, 2018).

Early studies on the effectiveness of graduate school preparation courses had methodological weaknesses, including a failure to measure changes in knowledge about the application process (Buskist, 1999; Dodson et al., 1996). Furthermore, Appleby (2017) found that few of these preparation courses reflect the large diversity of graduate degrees. Another practical limitation of these courses is the amount of time required by students and the cost of attendance. Thus, it is important to offer brief, cost-effective presentations in formats that are most likely to engage undergraduates. In the present study, the first three authors collaborated as assistant professors in the master's degree programs in the Schools of Clinical, School, and Forensic Psychology at the same university. We measured changes in student knowledge after being randomly assigned to either a video or written educational presentation about graduate school admissions in Clinical, School, and Forensic Psychology programs.

Method

Participants

Of the 106 students clicked on the survey link, 85 consented to participate. Following the consent document, 4 students did not answer any additional questions, leaving a total of 81 students who completed at least one item. Of those 81 participants, 64 continued to the random assignment to view either the video or written materials. A total of $N = 55$ participants completed all questionnaires, 30 who viewed the video presentation and 25 who read the written materials. All participants in the study were majoring in psychology. As seen in Table 1, most participants in both conditions were ethnically diverse, first-generation college students, nontraditional in terms of age ($M = 32.9$, $SD = 9.2$ in video presentation and $M = 32.1$, $SD = 10.4$ in written presentation), female, and in their junior or senior year. Half of students in both conditions had plans to attend graduate school in

Table 1. Demographic Characteristics of Students in Study.

	Video presentation		Written presentation	
	<i>n</i>	%	<i>n</i>	%
Age				
18–25	7	23	7	28
26–60	23	77	18	62
Gender				
Female	27	90	18	72
Male	3	10	6	24
Nonbinary	0	0	1	4
Year of study				
Freshman	0	0	1	4
Sophomore	0	0	1	4
Junior	7	23	10	36
Senior	22	73	12	48
Other ^a	1	3	1	4
Ethnicity				
Hispanic	9	30	8	32
Caucasian	6	20	8	32
African-American	9	30	5	20
Asian	0	0	1	4
Biracial or multiracial	5	17	2	8
None of the above ^b	1	3	1	4
First-generation college student				
Yes	17	57	10	40
No	13	43	15	56
Plans to attend Grad School in Psychology at baseline				
Yes	16	53	12	50
No	3	10	2	8
Undecided	11	37	11	44

Note. Percentages may not add up to 100% due to rounding. There were $n = 30$ students in the video presentation condition and $n = 25$ students in the written presentation condition.

^aExamples of other included students taking prerequisites for graduate school.

^bNone of the above included Middle Eastern and a student who did not indicate ethnicity.

psychology. These demographics are like much of the undergraduate student body at our university.

Procedure

With approval from our university's institutional review board, we sent an email to all psychology professors at our university. We included a brief description of the study and a link to an external survey website (i.e., Qualtrics) where students answered basic demographic information and baseline questionnaires. Next, participants were randomly assigned to either a video or written educational presentation about graduate school in Clinical, School, and Forensic Psychology.

The introduction of the presentation included a description of potential careers for those with a graduate degree in psychology, employment percentages, and salary data. Next, we described potential reasons for pursuing a graduate degree in psychology, the educational requirements for different licenses in the state, and how to research graduate programs and assess

fit with one's career goals and interests. We also detailed each aspect of the application process including the CV, personal statement, letters of recommendation, admissions exams, and financial aid. Finally, we included an overview of the specific master's degree programs in Clinical, School, and Forensic Psychology at our university. As part of that overview, we presented potential career outcomes following completion of those master's degree programs. To ensure that students in both conditions spent an equivalent amount of time reviewing the material, students could not progress with the postintervention questions until a 52-min timer was completed.

Measures

Graduate Psychology Outcome Expectations Scale. We modified the Engineering Degree Outcome Expectations Scale developed by Lent et al. (2003). As assistant professors in master's degree programs, we were particularly interested in participants' outcome expectations for obtaining a master's degree in psychology. Thus, we changed the item stem to read, "Obtaining a master's degree in psychology will likely allow me to..." We did not modify any wording of the other 10 items of the scale, though we did change the scale from a 10-point Likert scale to a 5-point Likert scale with the following anchors: 1 (*Strongly Disagree*), to 5 (*Strongly Agree*). In the present study, the internal consistency reliability was good at both baseline ($\alpha = 0.87$) and postpresentation ($\alpha = 0.90$).

Applying to Grad School Perceived Knowledge Questionnaire. We modified the Grad Prep Quiz developed by Neimeyer et al. (2004). First, we asked students if they planned to attend graduate school in psychology at baseline and postpresentation. Students who planned to attend graduate school in psychology or who were undecided were then asked five questions about their perceived knowledge of the application process. Specifically, students were asked dichotomous (*Yes* or *No*) questions about whether they knew what to include in a CV, who to ask for letters of recommendation, what information should be incorporated in a letter of recommendation, how to get to the interview stage, and how to assess fit with a graduate program. The Kuder-Richardson 20 internal consistency reliability of this 5-item perceived knowledge questionnaire was used because the data is dichotomous (Kuder & Richardson, 1937). This measure of internal consistency reliability was acceptable at both baseline ($KR20 = 0.7$) and postpresentation ($KR20 = 0.7$).

Applying to Grad School Objective Knowledge Measure. As a follow-up to the Applying to Grad School Perceived Knowledge Questionnaire, participants were asked to write two pieces of information to include in a CV; who they would ask for a letter of recommendation; two pieces of information to include in a personal statement; and two websites to find funding opportunities for graduate school in psychology.

Intention to Apply to Graduate School in Psychology. We created a one-item question to assess participants' intention to apply for

graduate school in psychology. Specifically, we asked, "Are you planning on attending graduate school in psychology?" with response options of 0 (*No*), 1 (*Yes*), and 2 (*Undecided*).

Data Analysis

For the quantitative data analysis, we first conducted 2 (time: baseline or postpresentation) \times 2 (condition: video presentation or written materials presentation) repeated measures analysis of variance (ANOVAs) with the dependent variables of outcome expectations and perceived knowledge. After finding neither significant interaction nor main effect of condition for the categorical intention outcome, we combined both conditions and initially found expected cell counts less than five if we included the *No* response option at baseline and postpresentations. Thus, we recoded the Intention to Apply to Graduate School in Psychology variable by only including the response options of *Yes* or *Undecided* at both baseline and postpresentations. Next, we conducted a chi-square test of independence to assess the change in intention to apply from baseline to postpresentations.

The second and third author also conducted a content analysis of participants' responses to the Applying to Grad School Objective Knowledge Measure. First, both the second and third authors independently identified codes that best described the responses. Next, the second and third authors met for a consensus meeting to choose the final codes. Finally, the second and third authors independently coded all responses, after which coding disagreements were discussed until consensus was reached for all codes at baseline and postpresentations.

Results

Changes in Graduate Psychology Outcome Expectations

We conducted a 2 (time) \times 2 (condition) repeated measures ANOVA using the Graduate Psychology Outcome Expectations questionnaire as the dependent variable. There was no significant time by condition interaction, $F(1, 51) = .03, p = .87, \eta^2 < .001$. There was a significant and large main effect of time, $F(1, 51) = 19.89, p < .001, \eta^2 = .28$, such that participants experienced an increase in their agreement that a master's degree in psychology would lead to positive outcomes from baseline ($M = 42.98, SD = 5.05$), to postpresentations ($M = 44.57, SD = 4.78$). There was no significant main effect of condition, $F(1, 51) = .59, p = .45, \eta^2 < .001$.

Changes in Perceived Knowledge of Graduate School Application Process

We conducted a 2 (time) \times 2 (condition) repeated measures ANOVA using the modified Applying to Grad School Perceived Knowledge questionnaire as the dependent variable. There was no significant time by condition interaction, $F(1, 46) = .99, p = .33, \eta^2 = .01$. There was a significant and large main

effect of time, $F(1, 46) = 50.63$, $p < .001$, $\eta^2 = .52$, such that participants reported a large improvement in their perceived knowledge from baseline ($M = 2.71$, $SD = 1.57$), to postpresentations ($M = 4.23$, $SD = 1.24$). There was no significant main effect of condition, $F(1, 46) = .31$, $p = .58$, $\eta^2 < .001$.

Intention to Apply to Psychology Graduate School

We conducted a chi-square test of independence to assess the change in intention to apply to graduate school from baseline to postintervention. A total of $n = 48$ participants answered this question at both baseline and postintervention. At baseline, 56% of participants intended to apply to graduate school whereas 44% were undecided. Following the presentations, 60% of participants intended to apply to graduate school whereas 40% were undecided. There was a significant and large association between intention to apply at baseline and at postintervention, $\chi^2(1) = 33.2$, $p < .001$, $\phi = .83$. Follow-up z-tests revealed that a significantly larger number of students maintained their initial intentions at postintervention. Although nonsignificant, one student who intended to apply at baseline changed to undecided postpresentation and three students who were undecided at baseline intended to apply at postpresentation.

Changes in Grad School Objective Knowledge Measure

We conducted a content analysis of participants' responses to the Applying to Grad School Objective Knowledge Measure at baseline and postpresentation. As seen in Table 2, we used multiple coding of responses and thus the number of coded responses exceeded the total number of participants. When

asked to identify two pieces of information in effective personal statements, there were more responses consistent with the codes Strengths/Uniqueness of Applicant, Personal Goals, and Reasons for Applying at postpresentation relative to baseline. There were fewer responses consistent with the codes Experience and Knowledge/Education from baseline to postpresentation.

Regarding the information to include in a CV, there were more responses for the codes Education and Personal Attributes at postpresentation relative to baseline. There were fewer responses for the theme Contact Information from baseline to postpresentation. When asked to identify who participants would ask to write a letter of recommendation, there were more responses for the code Teacher/Professor at postpresentation compared to baseline. There were fewer responses for the codes Employer, Supervisor, and Friend/Family Member from baseline to postpresentation. Finally, participants identified more websites to find out about funding options for graduate school at postpresentation relative to baseline.

Discussion

We randomly assigned participants to receive either a written or video presentation about the process of applying to graduate programs in Clinical, School, or Forensic Psychology. The type of presentation did not significantly impact participants' knowledge, outcome expectations, or intentions to apply to graduate school in psychology. There were significant changes from baseline to postpresentation for participants who received either presentation. Namely, participants experienced significant improvements in their perceived knowledge,

Table 2. Qualitative Data From the Applying to Grad School Objective Knowledge Measure at Baseline and Postpresentations.^a

Item	Baseline	<i>n</i>	Postpresentations	<i>n</i>
Identify two pieces of information that appear in effective personal statements	Strengths/ Uniqueness of Applicant	23	Strengths/Uniqueness of Applicant	29
	Personal Goals	12	Personal Goals	13
	Experience	9	Experience	1
	Knowledge/Education	7	Knowledge/Education	3
	Reasons for Applying	18	Reasons for Applying	30
Identify at least two pieces of information your CV should contain	Work Experience	30	Work Experience	30
	Education	31	Education	32
	Personal Attributes	11	Personal Attributes	13
	Contact Information	8	Contact Information	5
	Teacher/Professor	18	Teacher/Professor	22
Who would you ask to write you a letter of recommendation? Indicate that person's relation to you, not their name	Employer	16	Employer	7
	Supervisor	12	Supervisor	11
	Friend/Family member	2	Friend/Family member	1
	Therapist	1	Therapist	1
	Pastor	1	Pastor	1
Identify two websites or resources you could use to find out about funding options for graduate school	No website identified	44	No website identified	8
	One website identified	2	One website identified	2
	Two websites identified	19	Two websites identified	38

Note. Each response received multiple codes and thus we did not report percentages because they would not add up to 100%. Instead, we reported the frequency of responses or partial responses for each code.

outcome expectations, and objective knowledge about the process of applying to graduate school in psychology. These findings are consistent with prior research on the effectiveness of preparation courses for undergraduate students applying to graduate programs in psychology (Brucato & Neimeyer, 2011; Neimeyer et al., 2004). One important difference is the brief duration of our presentations relative to courses which comprise multiple modules delivered over an extended time. That said, the brevity of our presentations may also explain why there were no significant changes in intention to apply to graduate school in psychology from baseline to postpresentation in this study.

The improvements observed from baseline to postpresentation were consistent with the content of our presentations. For example, we discussed the important components to include in both a personal statement and CV. We also emphasized the importance of asking an appropriate person to write a letter of recommendation and where to find information about funding opportunities for graduate school. These areas of focus in our presentations were reflected in participants' increased identification of the importance of describing their personal goals and reasons for applying in their personal statements. Future researchers could further investigate whether this increase in knowledge leads students to compose higher quality personal statements with relevant information.

The content of our presentations was also reflected in participants' greater emphasis on educational experiences in their CVs at postpresentation. This latter finding is consistent with prior research that found graduate school preparation courses designed for junior and senior undergraduates lead to improvements in CV writing (Dodson et al., 1996; Ware, 1981, 1985; Ware & Beischel, 1979). Furthermore, these areas of focus in our presentation were observed in participants' greater ability to identify resources for funding options and greater identification of teachers or professors as good sources of letters of recommendation at postpresentation. These improvements in objective knowledge about the graduate school application process further support participants' ratings of increased perceived knowledge from baseline to postpresentation.

Limitations and Future Research Directions

Limitations of the present study include the small sample size which decreased the power to observe significant differences from baseline to postintervention. Also, the use of modified and newly created measures in this study may lead future researchers to receive different results given the lack of thorough psychometric analyses of these measures across different samples. Similarly, the use of a single item for our intention measure represents a limitation due to its lower reliability than a longer scale. In future research, scales measuring multiple aspects of intention could be developed and used. Another important limitation was the lack of follow-up to determine whether changes in knowledge led to changes in the quality of their application materials.

One important next step in this line of research will be to identify whether students follow through with their increased knowledge by seeking out professors to write letters of recommendation on their behalf. In addition, it may be necessary to broaden the audience of these presentations to include undergraduates so that students have sufficient time to develop professional collaborations with professors. Similarly, longitudinal studies are required to determine whether students ultimately follow through with their reported intentions to apply to graduate school in psychology. Any replications plus extensions of the present study should include the high methodological control of this study. Such control will allow researchers to systematically test which components of preparation for applications to graduate school in psychology are most effective in assisting undergraduate psychology majors.

Implications

Based on our research, educational professionals could use similar brief educational presentations to assist potential graduate degree seekers. Schatz and Ansborg (2020) found that there are many cost-effective resources available for undergraduate programs to add to their curriculum to help improve their advising programs. Mentoring is an often overlooked, but powerful way to help undergraduates establish professional relationships that prepare them for graduate programs. Providing undergraduates with the resources they need helps prepare them for the admissions process and advances their skills and career goals as mental health professionals.

Declaration of Conflicting Interests

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