Do First-Year Seminars Improve College Grades and Retention? A Quantitative Review of Their Overall Effectiveness and an Examination of Moderators of Effectiveness

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We review the effectiveness of first-year seminars based on the widely used criteria of first-year grades and the 1-year retention rate. Meta-analytic results indicate that first-year seminars have a small average effect on both first-year grades ($k = 89, N = 52,406, \delta = 0.02$) and the 1-year retention rate ($k = 193, N = 169,666, \delta = 0.11$). We discuss the implications of these small effects and show how they are meaningful and have important consequences. Results also indicate that the effectiveness of first-year seminars for both criteria is substantially moderated by first-year seminar characteristics (e.g., type of seminar), institutional characteristics (e.g., 2-year or 4-year institution), and study characteristics (e.g., study design). We use these results to make recommendations about the design of first-year seminars that can maximize the positive effect on both the grades and retention of participants.

KEYWORDS: first-year seminar, orientation program, meta-analysis, effectiveness, retention, GPA, academic performance

Only 31% of first-time, full-time college students who enter a 2-year institution graduate within 3 years, whereas 59% of first-time, full-time students who enter a 4-year institution graduate within 6 years (Kena et al., 2014). The graduation rate is even lower for minority and part-time students (Lynch & Engle, 2010a, 2010b). These low completion rates represent a large misallocation of financial resources for educational institutions as well as lost time and a reduction in potential future earnings for many students (e.g., Day & Newburger, 2002). Raisman (2013) estimated that the total annual cost of attrition for the 1,669 colleges included in his study was almost $16.5 billion, with an estimated average of more...
in $13 million per annum for a public institution. The total annual cost of attrition is even higher than this estimate when considering the lost tuition paid by rents and students, the lost future earnings by students, and the lost subsidies applied by taxpayers.

Colleges and universities have attempted to increase student retention using a variety of strategies such as providing supplemental instruction, academic advising, and personal counseling (Habley & McClanahan, 2004; Noél-Levitz, 2013). A widely utilized retention tool is the first-year seminar—a course specifically designed to equip new students with the knowledge, skills, and abilities that are necessary to successfully meet the different transitional and developmental challenges that are faced in the first year of college. Barefoot (1992) defined a first-year seminar as

A course intended to enhance the academic and/or social integration of first-year students by introducing them (a) to a variety of specific topics, which vary by seminar type; (b) to essential skills for college success; and (c) to selected processes, the most common of which is the creation of a peer support group. (p. 49)

In addition to being a common retention strategy, first-year seminars are a popular method for improving grades (a proximal cause of attrition for many students; Ummel, Acton, Costello, & Pielow, 1999).

First-year seminars have been offered at American colleges and universities for over a hundred years (Fitts & Swift, 1928; Gordon, 1989) and are currently offered at almost 90% of institutions (Padgett & Keup, 2011). More than half of these institutions have reported that over 90% of their students enroll in these seminars (Young & Hopp, 2014). This widespread use of first-year seminars may stem, in part, from influential narrative reviews of the literature (e.g., Hunter & Inder, 2005; Pascarella & Terenzini, 2005) that suggest that first-year seminars are effective. For example, Pascarella and Terenzini (2005) concluded that the weight of evidence indicates that FYSE [first-year seminar participation has statistically significant and substantial, positive effects on a student’s successful transition to college and the likelihood of persistence into the second year as well as on academic performance while in college. (p. 403)

Despite the conclusions drawn in narrative reviews, the empirical evidence for the effectiveness of first-year seminars—at least as measured by their observed effect on retention and academic performance—is mixed. Some authors have reported large positive effects on grades and retention (e.g., Blackett, 2008; DeRoma, Bell, Zaremba, & Albac, 2005; Rodriguez, 2003; Weisgerber, 2005), but others have reported only very small effects or even negative effects (e.g., Rabbitt, 2007; Fry, 2006; Gaskins, 2009; Tebbe, 2007). Because of the lack of agreement on whether first-year seminars have the desired effect on these important outcomes and the accompanying lack of information about the characteristics of first-year seminars that maximize their effectiveness, this article aims to review and quantitatively summarize the existing literature on the effectiveness of first-year seminars.

A critical review of the empirical literature is also warranted when considering the costs associated with first-year seminars (e.g., staffing, training). Almost 75% of institutions offering a first-year seminar also employ a program director who is responsible for the design and implementation of the course (Padgett & Keup, 2011). Furthermore, in order to accommodate the increasing number of new students, colleges offer an average of 30 first-year seminar sections with an average compensation of $1,500 per section to instructors who are also often required to attend training (Padgett & Keup, 2011; Young & Hopp, 2014). The total cost of these courses is likely to run into the hundreds of millions of dollars when considering that most of the 17.7 million currently enrolled undergraduate students (Kena et al., 2014) have either attended or are now enrolled in a first-year seminar. This high cost of first-year seminars, in conjunction with the reduced level of state support faced by many institutions (Padgett & Keup, 2011), suggests that first-year seminar directors are likely confronted with growing budget deficits. Therefore, evidence regarding the effectiveness of first-year seminars is likely to be highly beneficial to administrators who are attempting to determine the appropriate level of funding for first-year seminars.

Our quantitative review therefore offers two broad benefits. First, it will help resolve disagreements among researchers regarding the effectiveness of first-year seminars by determining both the overall average effect of first-year seminars and the degree to which variability in effectiveness estimates across studies are simply a function of sampling error or other study artifacts. A finding that first-year seminars have low evidence effectiveness might suggest that the significant financial resources currently being invested may be better invested in alternative approaches to increasing retention that have been shown to be relatively effective (e.g., counseling programs; Turner & Berry, 2000). Second, a quantitative review will also help determine whether the most effective first-year seminars share common characteristics. This, in turn, could provide first-year seminar administrators with evidence-based guidelines for modifying existing seminars in a manner that would maximize their effectiveness.

Our review will be able to determine whether there is evidence for the effectiveness of first-year seminars, but it will be difficult to establish a clear causal relationship between first-year seminar participation and important criteria. Randomized experiments characterized by random assignment to study conditions are rare due to the practical and ethical problems associated with denying some students access to programs that are designed to help them succeed. We therefore rely primarily on the extensive literature based on nonexperimental designs to evaluate the effectiveness of first-year seminars. Nonexperimental designs have two primary defining attributes. Assumed independent variables are measured rather than manipulated, and participants are not randomly assigned to conditions because the researcher does not control their assignment (Stone-Romero, 2011). These attributes distinguish nonexperimental designs from other research designs with increased validity for casual inferences (i.e., quasi-experimental designs and randomized experiments).

The most common type of nonexperimental research design used in the assessment of first-year seminars is the ex post facto design. This type of research design examines, in retrospect, the effects of a treatment on an outcome variable (Mohr,
Choice of Criteria

First-year seminars are designed to provide new students with the knowledge, skills, and abilities that are necessary to overcome the different challenges of the first year of college. Goldstein and Ford (2002) defined training as the systematic acquisition of skills, concepts, or attitudes that result in improved performance in an environment. First-year seminars can therefore be considered a type of training program as they attempt to change the cognitions (i.e., amount of knowledge gained), affective responses (i.e., attitudes, beliefs, and values), and behaviors of participants (Fan, Buckley, & Litchfield, 2012; Kraiger, Ford, & Salas, 1993). Evaluations of training programs in organizational settings typically examine at least one of the four criteria of training effectiveness identified by Kirkpatrick (e.g., Kirkpatrick, 1959, 1994): (a) reaction criteria that reflect trainees' impressions and feelings about the training program, (b) learning criteria that reflect how much trainees learn while in the training program, (c) behavior criteria that reflect how much trainees' performance and behavior changes after completing the training program, and (d) results criteria that reflect the utility of the training program for the organization.

Our reading of the literature on the effectiveness of first-year seminars suggests that most program evaluations have used behavior and results criteria—specifically the first-year GPA (grade point average) and the 1-year retention rate. Here are many reasons for this high level of interest in academic performance and retention. Johns and Saks (2014) defined organizational socialization methods as techniques designed to facilitate the adjustment of newcomers and enable acquisition of necessary attitudes, behaviors, and knowledge. In educational institutions, socialization methods commonly involve some form of new student orientation (e.g., preterm orientation program, first-year seminar). The effectiveness of most organizational socialization efforts is evaluated according to the satisfaction, commitment, performance, and retention of organizational members (Bauer & Erdogan, 2011).

The 1-year retention rate is particularly important to institutions because the attrition rate is highest between the first and second years of enrollment (Ucraft, Gardner, & Barefoot, 2005). The significance of academic performance and retention to program evaluators is also evident when examining the objectives of first-year seminars. Developing academic skills (aimed at increasing academic performance) and developing a connection with the institution (aimed at increasing retention) are the two most frequently reported course objectives (Padgett & Leup, 2011). Colleges also focus on academic performance and retention due to their fiscal importance. Retaining students is more economical than recruiting new students to replace those who have dropped out (Schuh & Gansner-Toft, 2012), and students with high grades require far fewer support services such as tutoring and counseling. Because of the low graduation rates at many colleges and universities, these two criteria are also perhaps the most relevant. Therefore, we limit our examination of first-year seminars to the first-year GPA and the 1-year retention rate and define these criteria as the cumulative GPA at the end of the first academic year and the percentage of first-year students persisting to the second academic year, respectively.

Theoretical Frame

Entry Stress and Adjustment to College

Two distinct theoretical perspectives highlight the manner in which first-year seminars potentially affect academic performance and retention. The first of these perspectives takes the position that entry into college is an inherently stressful period with many transitional problems, in part because of the individuation and separation that occurs naturally in early adulthood (Chickering, 1969; Erikson, 1959; Wintre & Bowers, 2007) and in part because students are required to adjust to a novel environment. The transition of students from high school to college involves numerous adjustments to different academic and social challenges that extend beyond the greater academic demands that characterize higher education. For example, first-year college students are required to form new social contacts as they navigate a novel social environment and are expected to adapt to new roles and responsibilities in order to become productive members of the university community. Given these numerous environmental demands and uncertainties, entry stress (i.e., stress associated with entering a new environment) is commonly experienced by first-year students. Furthermore, the successful management of different entry stressors and thus adjustment to college requires that students possess the necessary coping skills and strategies. Considering the emphasis of previous researchers on the importance of supporting the adjustment needs of first-year students as early as possible (Astin, 1993; Tinto, 1993; Ucraft & Gardner, 1989), first-year seminars serve a critical function in the adjustment process.

Our theoretical framework for how first-year seminars facilitate the adjustment of college students is based on stress inoculation theory (e.g., Janis, 1983; Meichenbaum, 1996). According to stress inoculation theory, stress results when perceived environmental demands and uncertainties (i.e., stressors) exceed an individual's perceived coping resources (Lazarus & Folkman, 1984). In the first phase of stress inoculation, individuals are provided realistic information about their tasks, the novel environment, and the various expected stressors (Fan & Wanous, 2008). Based on Porter and Steers's (1973) theory of met expectations, there is usually a certain level of discrepancy between what newcomers expect to experience and what is actually experienced after organizational entry. Failure to adequately disconfirm these inaccurate and inflated pre-entry expectations of newcomers on entry can result in poor adjustment and increased turnover. Providing realistic information serves to adjust many of the inaccurate pre-entry beliefs and expectations of newcomers in order to better align them with post-entry organizational reality (Fan et al., 2012; Janis, 1983). Met-expectations
ory has received considerable empirical support (e.g., Wanous, Poland, Emack, & Davis, 1992). In the second phase of stress inoculation, individuals taught various coping skills and strategies that expand their coping resources, increase their ability to deal with different stressors (Fan & Wanous, 2008; Eichenbaum, 1996).

From this theoretical perspective, first-year seminars attempt to reduce the entry stress of first-year students and thereby facilitate their adjustment by providing holistic information and increasing coping resources. Specifically, first-year seminars communicate information about the realities of the social and academic mands of college life that serve to better align the pre-entry expectations of new students with their actual post-entry experiences (e.g., the fast-paced nature of the first academic term, how standards and expectations in college differ from high school, the lack of an externally imposed structure). Furthermore, first-year seminars expand students’ coping resources by informing them of the availability of different campus resources for managing adjustment difficulties (e.g., academic advising, career services, individualized counseling, peer mentoring programs) and teaching different coping skills and strategies that enable students to better manage various stressors (e.g., time management, study skills, problem-solving skills, goal setting, decision-making skills, cognitive restructuring, academic planning, and critical thinking). First-year seminars also expand students’ coping resources by providing social support from instructors who can also function as mentors and peers who may also be experiencing similar adjustment difficulties. Seeking social support is an additional valuable coping strategy. Most of these different coping skills and strategies are attempts to directly reduce the cause of a stressor (e.g., problem-focused coping; Lazarus & Folkman, 1984) and function as buffers against the entry stress of new students (Cohen & Willis, 1985).

Students who are unable to adjust successfully are widely theorized to perform poorly in classes and exhibit an increased risk of dropping out. Thus, numerous authors have theorized that adjustment to college is a proximal determinant of academic performance (e.g., Astin, 1993; Bean, 1980) and retention (e.g., Abera, Nora, & Castañeda, 1993; Hatcher, Kryter, Prus, & Fitzgerald, 1992; Scarela & Terenzini, 1976; Spady, 1970). A common element of these theoretical approaches is that early experiences in college influence students’ adjustment, in turn, these levels of adjustment influence both grades and the decision to remain in college. Many researchers in the domain of adjustment have used the concept of Baker and Siry (1984) to conceptualize the structure of this construct (Credé & Niehorster, 2012).

Baker and Siry (1984) classified adjustment to college into four types: academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment. Importantly, Baker and Siry argued that adjustment to college is a multidimensional construct and represented by all four of these types of adjustment (Credé & Niehorster, 2012). Academic adjustment reflects the degree to which students have adapted to the more rigorous academic demands of higher education. Social adjustment reflects the degree to which students have adapted to the social demands of college and integrated into the social environment. Personal-emotional adjustment reflects the degree to which students experience physical and psychological distress resulting from the college environment.

Last, institutional attachment reflects the degree to which students feel affiliated with and committed to their institution.

Based on this multidimensional view of adjustment to college (Baker & Siry, 1984), academic adjustment is proposed to directly affect academic performance as first-year students who fail to adequately adjust to the more rigorous academic demands of college are also more likely to struggle in their coursework (Credé & Niehorster, 2012). The theoretical relationship between the other types of adjustment and academic performance is proposed to have a spillover effect by which adjustment difficulties in any one of the three types (i.e., social adjustment, personal-emotional adjustment, institutional attachment) reduces the ability to adjust in other types. For example, social isolation resulting from poor integration with an institution’s social environment (i.e., poor social adjustment) is likely to increase the experience of stress and anxiety due to the college environment (i.e., poor personal-emotional adjustment) and, in turn, interfere with a student’s ability to perform at a high level academically.

The theoretical relationship between adjustment to college and retention is viewed as either a mediated effect or a direct effect (Credé & Niehorster, 2012). The mediated effect is observed when academic adjustment difficulties lead to unsatisfactory grades that, in turn, result in the voluntary decision to withdraw from college or result in academic dismissal due to poor grades. Even more students, however, fail to persist in college for nonacademic reasons (Rummel et al., 1999). Therefore, a direct effect on retention is observed when poor social adjustment, personal-emotional adjustment, or institutional attachment increase the likelihood of withdrawal from college (Bean, 1980; Credé & Niehorster, 2012; Pascarella, 1980; Spady, 1970; Tinto, 1975). For example, poor institutional attachment (i.e., reflecting low levels of commitment to an institution) is likely to reduce a student’s willingness to graduate from an institution. Institutional attachment has been emphasized as an important determinant of retention in many theoretical frameworks (e.g., Bean, 1980; Pascarella, 1980; Tinto, 1975).

The various theoretical models that highlight the importance of adjustment to college for academic performance and retention have received relatively widespread empirical support (e.g., Bean & Metzger, 1985; Cabrera et al., 1993). In a recent meta-analytic review, Credé and Niehorster (2012) also found that students’ adjustment to college is predictive of both retention and grades. Notably, Credé and Niehorster reported that the strongest relationships are between retention and students’ level of institutional attachment (ρ = 0.29) and their level of social adjustment (ρ = 0.25), whereas first-year GPA is most strongly predicted by students’ level of academic adjustment (ρ = 0.36). Therefore, interventions designed to hasten the adjustment to college should have a positive effect on both grades and retention. That is, first-year seminars that foster students’ adjustment by providing realistic information and expanding students’ coping resources should have a positive effect on both grades and retention.

College Knowledge and Motivation

The second theoretical perspective that highlights the manner in which first-year seminars potentially affect grades and retention borrows heavily from theoretical models of performance developed in organizational settings and emphasizes
the important role of academic skills and motivation. Campbell’s model of performance (Campbell, 1990; Campbell, McCloy, Oppler, & Sager, 1993) specifies three direct determinants of performance: declarative knowledge, procedural knowledge, and motivation. Declarative knowledge includes knowledge of facts and principles and can be characterized as knowledge of what needs to be done. In an academic setting, declarative knowledge might include knowledge that was acquired during prior schooling and new knowledge learned in classes, but it can also include awareness of knowledge deficits (e.g., recognizing that material is not well understood and that further studying is required). Procedural knowledge refers to an individual’s knowledge of how to do things, for example, knowledge of how to study effectively or how to ask for an instructor’s assistance. Motivation, the third proximal determinant, reflects the willingness to expend high levels of effort for long periods on performance relevant tasks.

These three theoretical determinants of academic performance have found substantial empirical support. First, there is ample support that variables that are largely stable—and hence likely to be unresponsive to interventions—are predictive of academic performance and retention. These include variables that reflect declarative knowledge such as prior academic performance (i.e., high school GPA; Bridgeman, McCormick-Jenkins, & Ervin, 2000) and academic preparedness (Kuncel & Hezlett, 2007). Variables reflecting procedural knowledge have also been shown to be highly predictive of academic performance, specifically study skills and study habits (Credé & Kuncel, 2008; Robbins et al., 2004), help-seeking behavior (Karabenick, 2003), learning strategies (Credé & Phillips, 2011), and time management skills (Britton & Tesser, 1991). Because of the greater specificity and more behavioral nature, these determinants of academic performance might be more easily targeted in short- to medium-term interventions.

First-year seminars that focus on the development of these skills should therefore have a positive effect on academic performance. For example, first-year seminars may improve grades by helping students understand that different classes may require different strategies for maximizing learning and academic performance—as suggested by social-cognitive views of the learning process (Duncan & McKenrick, 2005; Pintrich, 2000). First-year seminars may also help students understand the need to engage in self-regulated learning (Rotgans & Schmidt, 2009; Zimmerman, 1990)—an important set of behaviors because college classes typically provide performance feedback less regularly than students may have received in high school. In addition to being a valuable procedural knowledge construct, self-regulated learning also incorporates motivational processes that have important implications for student grades. Similarly, first-year seminars may improve grades by helping students understand the importance of short-term and long-term goal setting and assist them in understanding the necessary steps to reach graduation.

The general concept of goals as a motivational construct has received considerable empirical support (e.g., Austin & Vancouver, 1996; Locke & Latham, 1990). Motivational constructs, of course, also have been shown to be highly predictive of academic performance. For example, first-year seminars can target attitudinal and motivational factors such as study attitudes, achievement motivation, and even simple class attendance that have exhibited relatively strong relationships with college grades (e.g., Credé & Kuncel, 2008; Credé, Roch, & Kiesczynka, 2010; Lotkowski, Robbins, & Noeth, 2004). Although Campbell’s model is a model of performance—and not of retention—the effect of declarative knowledge, procedural knowledge, and motivation on grades also implies a positive effect of these variables on retention because many students who drop out of college do so, at least in part, due to academic difficulties (Rummel et al., 1999).

Summary

Our two broad theoretical frameworks—one centered on reducing entry stress and facilitating adjustment to college and the other centered on improving declarative knowledge, procedural knowledge, and motivation—suggest that first-year seminars can increase retention and improve academic performance if they provide one or more of the following: (a) information about the realities of the social and academic demands of college to adjust inaccurate pre-entry beliefs and expectations, (b) assistance in managing adjustment difficulties and entry stress by teaching various coping skills and strategies, (c) information and training in skills that are important for academic success, and (d) efforts to increase the motivation of students to succeed in college. A wide variety of specific first-year seminar activities and exercises may foster students’ adjustment to college and enhance declarative and procedural knowledge as well as motivation, including an orientation to campus resources, information about campus policies, career planning using short-term and long-term goal setting, and the development of effective coping skills such as time management and study skills.

Moderators of First-Year Seminar Effectiveness

We hypothesize that first-year seminars are likely to have a positive effect on both first-year grades and the 1-year retention rate. In addition, we expect that the observed effectiveness of first-year seminars is moderated by the characteristics of first-year seminars, the characteristics of the institutions in which they take place, and the characteristics of the studies that are used to investigate the effectiveness of first-year seminars. The possibility that seminar characteristics moderate the effectiveness of first-year seminars is supported by prior research on the characteristics of effective training programs in organizational settings. A meta-analytic review of this literature (Arthur, Bennett, Edens, & Bell, 2003) found that both the content of training programs and the training method (e.g., lectures, discussions, audiovisual) significantly moderated the effectiveness of organizational training programs. Similar findings from reviews of more specialized training programs (e.g., flight simulator training effectiveness; Hays, Jacobs, Prince, & Salas, 1992) also support the moderating effect of program characteristics on program effectiveness.

We base our approach to evaluating the effectiveness of first-year seminars on the approach taken by these prior quantitative reviews of the effectiveness of training programs. We not only expand on the range of seminar characteristics that we consider as possible moderators of the effectiveness of first-year seminars, but we also include institutional characteristics and study characteristics as additional potential moderators. Certain characteristics of seminar participants are
First-Year Seminar Characteristics

First-Year Seminar Type

National surveys of first-year seminars (e.g., Padgett & Keup, 2011; Young & Lopp, 2014) have used the typology developed by Barefoot (1992) to classify seminars. Barefoot categorized first-year seminars based on course content into four broad types. Extended orientation seminars focus primarily on facilitating students’ adjustment to college. Topics covered by extended orientation seminars include an introduction to campus resources, college policies and procedures, academic skills, time management, and learning strategies (Barefoot, 1992). Academic seminars, on the other hand, focus primarily on the development of academic skills such as critical thinking, expository writing, and oral communication skills. Discipline-linked seminars serve as an introduction to a specific major and prepare students for the demands of that particular course of study. Last, basic study skills seminars focus on the development of more narrowly defined academic skills such as study skills, grammar, and note taking. Importantly, these content categories are not mutually exclusive; institutions can design hybrid seminars characterized by more than one type of content category.

Because a prior meta-analytic review (Hattie, Biggs, & Purdie, 1996) already examined the effectiveness of basic study skills courses and because many of these are open to all students (i.e., not just first-year students), we excluded all basic study skills seminars from this review. Additionally, no data on discipline-linked seminars that met our inclusion criteria were available. First-year seminars were thus coded as either an extended orientation seminar, academic seminar, or hybrid seminar; the coding was determined by the reported course description and covered topics of each first-year seminar. The large majority of coded hybrid seminars combined the content of extended orientation and academic seminars.

Because of the strong relationship between GPA and factors such as academic skills and knowledge (e.g., Créde & Kuncel, 2008; Robbins et al., 2004), learning strategies (Créde & Phillips, 2011), and basic academic behaviors (Créde et al., 2010), we expect that academic seminars (or hybrid seminars providing some academic content) will have a larger effect on the first-year GPA than extended orientation seminars (Hypothesis 1A). Because of the importance of adjustment to college or retention (e.g., Créde & Niehorster, 2012), we expect that extended orientation seminars (or hybrid seminars providing some orientation content) will have a larger effect on the 1-year retention rate than academic seminars (Hypothesis 1B).

First-Year Seminar Structure

First-year seminars are sometimes linked with other classes as part of a learning community—defined by Gabelnick, Macgregor, Matthew, and Smith (1990) as follows:

Any one of a variety of curricular structures that link together several existing courses—or actually restructure the material entirely—so that students have opportunities for deeper understanding and integration of the material they are learning, and more interaction with one another and their teachers as fellow participants in the learning enterprise. (p. 19)

Learning communities lead to both greater levels of student engagement (Zhao & Kuh, 2004) and institutional commitment (Stassen, 2003). Student engagement and institutional commitment, in turn, are moderately predictive of both student grades and retention (Lotkowski et al., 2004). Learning community participants also achieve higher grades and are retained at a higher rate than students in respective stand-alone courses (Price, 2005). We therefore expect that first-year seminars will be more effective when embedded within a learning community than first-year seminars that are stand-alone courses (Hypothesis 2).

First-Year Seminar Instructor

Institutions use instructors with varying levels of expertise to teach first-year seminars. Some rely on graduate students or even senior undergraduate students, whereas others make sole use of faculty or administrative staff as first-year seminar instructors. Faculty and administrative staff are likely to be able to provide more accurate information regarding the academic demands faced by students, have more extensive experience in using various teaching pedagogies, and are likely to be seen as more credible sources of information. We therefore expect that first-year seminars will be more effective when taught by faculty or administrative staff than first-year seminars taught in part by students (Hypothesis 3A).

A second relevant characteristic of seminar instructors is whether they have been provided with specialized training to help them acquire the skills and knowledge required to be an effective first-year seminar instructor. We expect that first-year seminars taught by trained instructors will be more effective than first-year seminars taught by untrained instructors or taught by instructors for whom training information was not provided (Hypothesis 3B).

First-Year Seminar Length

First-year seminars vary substantially in terms of the total hours of instruction experienced by students and in terms of the number of credits granted for completion. Some first-year seminars are short and spread over a few weeks at the beginning of a term (or even prior to the start of a term), whereas others involve regular class meetings for the entire first term. Similarly, some institutions do not offer any credit for seminar completion, whereas other institutions offer course credits. Prior findings from the training literature (e.g., Cole, 2008) suggest that longer programs are more effective, and we expect that seminar length, based on the total hours of instruction or the number of credits granted, will be positively associated with first-year seminar effectiveness (Hypothesis 4).

First-Year Seminar Grading

Some first-year seminars are graded strictly on a pass/fail basis, whereas others assign letter grades on an A to F scale. Pass/fail grading systems have long been associated with lower motivation levels in students (e.g., Hales, Bain, & Rand, 1973). We therefore expect that first-year seminars graded on an A to F scale will
First-Year Seminar Target Population

First-year seminars also vary with regard to their target population. Some focus primarily on academically underprepared students (as defined by low admissions test scores and low high school grades) who are more likely to struggle academically and have a greater risk of attrition, whereas others focus on the entire incoming class of first-year students. Another common distinction is between first-year seminars that target students living off-campus and those that target students living on-campus. Students living off-campus have been found to be at a greater risk of low academic achievement and attrition because of less contact with other students and faculty (Johnson, 1997) and greater difficulty to integrate with the institution (e.g., Pascarella & Terenzini, 1991; Wintre & Bowers, 2007). Interventions designed to assist academically underprepared and off-campus students have a greater ability to have a positive effect than interventions for students who do not face the same academic or social challenges (i.e., academically prepared and on-campus students).

We therefore expect that first-year seminars for academically underprepared students will be more effective than first-year seminars targeted at all first-year students (Hypothesis 6A). In addition, we expect that first-year seminars will be more effective when a greater proportion of first-year students reside off-campus compared with when a lesser proportion of first-year students reside off-campus. That is, we expect that first-year seminar effectiveness will be negatively associated with the proportion of first-year students residing on-campus (Hypothesis 6B).

Institutional Characteristics

Attrition Rate

Institutions differ from each other with respect to the proportion of students who fail to persist to the second academic year. These differences in 1-year attrition rates introduce an additional source of variability in effect sizes for the retention rate criterion because the base rate of a dichotomous criterion affects the size of observed correlations (McGrath & Meyer, 2006; McLennan, 1988), with effects being attenuated downward as the base rate deviates from 50%. Because some institutions have higher retention rates than others (and very few have 1-year attrition rates greater than 50%), we expect that first-year seminar effectiveness based on the 1-year retention rate criterion will be positively associated with the overall sample 1-year attrition rate (Hypothesis 7).

Other Institutional Characteristics

A number of institutional characteristics are also potential moderators of first-year seminar effectiveness. For example, institutions differ in terms of the types of degrees that are granted and in terms of their admissions standards. Because of lower average admissions test scores and lower levels of academic preparedness, students in 2-year community colleges may benefit more from first-year seminar participation than students in 4-year colleges (Sparks & Malkus, 2013). We therefore expect that first-year seminars at 2-year institutions will be more effective than first-year seminars at 4-year institutions (Hypothesis 8A). Similarly, students at institutions with low acceptance rates are likely to have higher academic aptitude and achievement motivation. Therefore, first-year seminars at such institutions are likely to be less effective than similar seminars offered at institutions with higher acceptance rates. For that reason, we expect that first-year seminar effectiveness will be positively associated with the institutional acceptance rate (Hypothesis 8B).

Because of the presence of a larger number of community colleges (i.e., institutions with high acceptance rates and low admissions standards), public institutions have, on average, lower 1-year retention rates than private institutions (ACT, 2014) and therefore are likely to have more students who would benefit from first-year seminar participation. Thus, we expect that first-year seminars at public institutions will be more effective than first-year seminars at private institutions (Hypothesis 8C). We also examined two other institutional characteristics: the size of the institution at the time that data were gathered (i.e., total enrollment) and student ethnicity (defined as the proportion of the student population comprising White students). However, we made no a priori predictions about the direction of any possible effect.

Study Characteristics

Definition of First-Year Seminar Participants

In some studies, first-year seminar participants were defined as students who completed the seminar and received a grade. In other studies, participants were defined as students who simply enrolled in the seminar, irrespective of whether they completed the course. Students who enroll but fail to complete the course are not exposed to the full treatment effect of the seminar. We therefore expect that first-year seminars will be more effective when participants are students completing the course than when participants are simply students enrolling in the course (Hypothesis 9).

Publication Source

Meta-analytic reviews have often examined the possibility that the literature on a particular relationship is characterized by the "file-drawer effect" whereby nonsignificant findings (i.e., small effects) are less likely to be published in peer-reviewed journals. Thus, a review (narrative or meta-analytic) based purely on peer-reviewed articles would result in an overestimate of the strength of the relationship. Although the strength of the file-drawer effect appears to be weak or nonexistent in many fields (Hunter & Schmidt, 2004), we examined the possible difference between the effects described in peer-reviewed sources and the effects described in other sources (books, dissertations, and technical reports). We expect that first-year seminar effectiveness will be higher for studies described in peer-reviewed publications than for studies described in non-peer-reviewed publications (Hypothesis 10).

Year of Publication and Year of Treatment

To examine whether the effectiveness of first-year seminars has changed over time, we also examined the potential moderating effect of the year in which the
udy was published and the year in which the first-year seminar being described a study took place. We had no a priori expectations about the direction of the facts.

udy Design

Studies that have evaluated the effectiveness of first-year seminars can be classified into three types of research design. The first design was a randomized experiment in which students were randomly assigned to the treatment (i.e., seminar participant) or control condition (i.e., seminar nonparticipant). The second study was an ex post facto design using matching where criterion data of seminar participants were compared with the criterion data of seminar nonparticipants to had similar admissions test scores or high school GPA. The third design was simple ex post facto design where criterion data of seminar participants were compared with the criterion data of seminar nonparticipants, without any attempt to match on relevant characteristics.

Randomized experiments are the ideal design for evaluating seminar effectiveness. This design, however, is rarely used because of the ethical and practical problems associated with randomly assigning college students to a condition that nies them access to a first-year seminar. Therefore, ex post facto designs are frequently used in evaluating first-year seminars. However, these designs are associated with multiple threats to internal validity. The selection bias is the primary threat in an ex post facto design and is defined as any systematic existing differences in participant characteristics across study conditions that could also use observed effects (Shadish, Cook, & Campbell, 2002). Given that the major of first-year seminar participants in ex post facto designs are voluntary enrollments (Padgett & Keup, 2011), selection is a major threat to the validity of study findings as students who choose to enroll in a first-year seminar may differ on a number of potentially important variables from those students who choose not to roll. On the one hand, it could be argued that students who enroll voluntarily are those who are more motivated and committed to their academic careers, while students who do not enroll are those who are less likely to benefit from seminar participation.

The main problem posed by the selection bias is the confounding of the effects of an intervention with differences between populations. There may be important existing differences between the average first-year seminar participant and nonparticipant. These differences in participant characteristics may explain observed study effects, irrespective of first-year seminar effectiveness. For example, observed differences in grades or retention between first-year seminar participants and nonparticipants can be artificially inflated by variables that influence students' academic performance or difficulties in college. This, in turn, would result in students who enroll voluntarily possibly having lower retention and better grades.

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Method

Source of data were identified by keyword searches of the ERIC, Education Full Text, PsycINFO, and Dissertation Abstracts databases. Searches of these databases were conducted using the following keywords: first-year seminar, first-year orientation, freshman seminar, freshman orientation, new student orientation, new student class, orientation class, orientation seminar, transition class, transition seminar, University 101, success course, and college survival seminar. Additional potential sources were identified by examining the citations of obtained sources and the references of the narrative review by Pascarella and Terenzini (2005). These searches yielded 682 sources that were examined to determine if they contained data that could be included in the review.

Inclusion Criteria

Studies were included in the review if information was presented that allowed computation of the standardized difference in either the first-year GPA or the 1-year retention rate between first-year seminar participants and nonparticipants. We limited our coding to these two criteria and therefore excluded data on GPA for periods other than the first year as well as data on retention for periods other than the 1-year rate. Importantly, we excluded studies that reported persistence to the end of the first year as opposed to the beginning of the second year because departure decisions are often made between the end of the first year and the beginning of the second year. Furthermore, studies were only included if they met the following criteria:

1. Initial enrollment in the first-year seminar occurred during the summer preceding the start of the first term (i.e., first semester or quarter) or during the first term, as opposed to the second term. Given that first-year seminars are often intended for new incoming students without college experience, more experienced second-term students who enroll in a seminar for the first time are less likely to benefit from participation. Therefore, the inclusion of such studies would have potentially resulted in a reduced measure of first-year seminar effectiveness.

2. Course instruction took place in a classroom, as opposed to online or outdoors. We wanted to eliminate any possible differences in first-year seminar effectiveness that may have resulted from differences in delivery medium (online vs. face-to-face). Therefore, the few studies with online first-year seminars were excluded. Furthermore, we excluded any first-year seminar held outdoors. These courses are often referred to as "wilderness orientation programs" and defined as "orientation experiences for small groups of first-year students that use adventure experiences and include at least one overnight in a wilderness setting" (Bell, Holmes, & Williams, 2010, p. 2). Wilderness orientation programs were not classified by Barefoot (1992) as a type of seminar. We agree with Barefoot and view this type of orientation activity as inherently different from the more traditional first-year seminar. Specifically, wilderness orientation programs...