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# Impacts of Experiential Learning Depth and Breadth on Student Outcomes

**Jeffrey Scott Coker[1], Evan Heiser[1], Laura Taylor[1], and Connie Book[2]**

**Abstract**

This 5-year study of graduating seniors at Elon University ($n$ = 2,058) evaluates the impacts of experiential learning depth (amount of time commitment) and breadth (number of different types of experiences) on student outcomes. Data on study abroad, undergraduate research, internships, service, and leadership experiences were pulled from cocurricular transcripts and paired with responses to the National Survey of Student Engagement. Both depth and breadth were associated with acquiring a broad general education, writing clearly and effectively, contributing to the welfare of communities, relationships with faculty and administration, and desire to attend the same institution. Depth (but not breadth) was associated with higher order thinking (synthesis and application) in the senior year, as well as overall educational experience. Breadth (but not depth) was associated with working effectively with others and better relationships with other students. Overall, key learning outcomes desired for a college student are driven by both experiential learning depth and breadth.

**Keywords**

experiential, study abroad, internship, leadership, service-learning, undergraduate research, high-impact practices

## Introduction

The broad-ranging benefits of individual forms of experiential learning are widely recognized. However, there is far less known about the relative benefits of depth, the amount of time a college student spends engaged with these high-impact practices, and breadth, the different types of experiences a student has while in college.

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Better understanding questions of depth and breadth in experiential learning could have far-reaching implications for program design, the structuring of general education requirements, advising practices, and overall student success. As Kuh and O'Donnell (2013) have said, what is needed next in our understanding of experiential learning and high-impact practices is a "more advanced logic model that will allow us to document the relative importance and influence of the structural and programmatic characteristics of high-impact practices in terms of inducing student effort and other desirable outcomes" (p. 8).

In the context of this study, depth and breadth are explored across five forms of experiential learning common in higher education: study abroad, undergraduate research, internships, service, and leadership experiences.

A recent study of Association of American Colleges & Universities (AAC&U) member institutions found that a majority offer the high-impact practices tested in this study Internships are offered by 98% of institutions, study abroad by 96%, undergraduate research by 96%, service-learning by 93%, and student organization leadership opportunities by 100% (Hart Research Associates, 2016). However, there is significant variance in whether these high-impact experiences are or should be required.

## *Outcomes of Depth*

The question of how much time a college student should engage in experiential learning is often driven by the perceived value of the experience and the time a student has to dedicate to the experience while continuing on to graduation. For example, in the case of study abroad, more than 60% of study abroad experiences are now short term (1-8 weeks), a percentage that has grown substantially over several decades (Institute of International Education, 2015). Students on short-term study abroad programs do show meaningful learning gains (Dwyer, 2004; Gaia, 2015; National Survey of Student Engagement [NSSE], 2007). However, studies have found that study abroad of longer duration (typically a semester or longer) has more benefits in developing intercultural sensitivity, global perspective, linguistic ability, lifelong friendships with host-country nationals, and so on (Dwyer, 2004; Ingraham & Peterson, 2004; Kehl & Morris, 2008; Medina-Lopez-Portillo, 2004; Zorn, 1996). Gaia (2015) concluded that short-term programs are an "effective and practical option" (p. 29) but that "long-term programs remain a particularly valuable academic experience for which short-term programs will never be a substitute" (p. 29). Likewise, a study found that employers associate low importance with shorter study abroad programs of 1 to 3 weeks and much higher importance with longer programs (Trooboff, Vande Berg, & Rayman, 2008). Engle and Engle (2003) proposed a five-tier system for indicating program quality and depth of immersion, progressing from study tours of a few days to a few weeks (Level 1) to cross-cultural immersion programs of a semester or year (Level 5). In a stinging criticism, the president of the Foundation for International Education went so far as to say that short-term programs "blur the distinction between education abroad and educational tourism" and "weaken the credibility of our field," while going on to say that they may be justified when students have no other opportunity (Woolf, 2007, p. 503).

Numerous studies suggest that undergraduate research that spans multiple semesters is most beneficial for student outcomes (Russell, Hancock, & McCullough, 2007; Zydney, Bennett, Shahid, & Bauer, 2013). A study comparing student research gains after a summer experience versus a yearlong experience found that students in the latter showed significantly higher gains overall, especially in research skills that require time to develop and that often occur toward the end of research projects (data interpretation, communication of results, independence, relating results to the bigger picture of their fields, and so on; Adedokun et al., 2014). Gilmore, Vieyra, Timmerman, Feldon, and Maher (2015) found that graduate-level research skill performance increased substantially with the duration of undergraduate research experiences. Craney et al. (2011) found that undergraduates with more research experience find the research more advantageous for employability and graduate school admissions than students with shorter experiences. Similarly, Fechheimer, Webber, and Kleiber (2010) found that longer undergraduate research experiences were positively related to student grades.

Research on the outcomes of internship depth is sparse and often focuses on training teachers. Spooner, Flowers, Lambert, and Algozzine (2008) found that preteachers in yearlong internships reported better relationships with supervising teachers, greater knowledge of school policies and procedures, and higher scores for the perceived adequacy of time spent in school than did the students in a semester internship. However, preteachers did not differ in perceptions of their own teaching ability (Spooner et al., 2008). Chambers and Hardy (2005) found that two-semester internships did not lead to added benefits over one-semester benefits in terms of instructional management, behavioral management, or self-efficacy. However, another study found that the most effective teacher training programs require 6 or more months of internship (Darling-Hammond, Chung, & Frelow, 2002). A study by the company Intern Bridge found that, across 6,147 students, the level of student satisfaction with an internship was directly correlated with length, ranging from short experiences of 1 to 4 weeks to long experiences of 13 to 16 weeks (Grasgreen, 2012).

Student outcomes are also affected by depth during service-learning experiences. Students involved in more than 20 hr of service-learning tend to gain a greater sense of social issues and a deeper commitment to community involvement than students involved in less than 20 hr (Kendrick, 1996; Markus, Howard, & King, 1993). Likewise, civic identity is shaped only when service-learning is regular and sustained (Hepburn, Niemi, & Chapman, 2000; Mabry, 1998).

Student leadership is another form of experiential learning that, though less studied, shares a developmental framework with other forms (Guthrie & Jones, 2012). The Multi-Institutional Study of Leadership (MSL; 2015) found that students who held more leadership positions scored significantly higher on measures of congruence, commitment, consciousness of self, collaboration, handling controversy with civility, citizenship, overall socially responsible leadership, resiliency, leadership efficacy, complex cognitive skills, and social perspective-taking. A study of leadership at a military academy found that more experienced student leaders were more self-critical (West, 2012).

The overall trend of the literature on depth is that longer experiences produce better outcomes. However, none of these studies address how choosing more depth in one

experience might compare with alternatives such as gaining more breadth through different forms of experiential learning.

## Outcomes of Breadth

The vast majority of experiential learning research studies focus on one type of experience, and thus, studies of breadth are far fewer in number than studies of depth.

One previous study, based on videotaped interviews with graduating seniors at Elon University, found that increased breadth of experiential learning led to increased career development benefits, a greater likelihood of altering students' future plans, and other gains (Coker & Porter, 2015).

Finley and McNair (2013) brought together NSSE data from 38 institutions to show the influence of various high-impact practices on gains in deep learning, general education, practical competence, and personal and social development. Self-reported learning gains continued as students did several types of experiential learning, suggesting that breadth was valuable (Finley & McNair, 2013).

An indirect line of evidence supporting experiential learning breadth involves the benefits of exposing students to new, unfamiliar environments (Ewert & Yoshino, 2011; Mackenzie, Son, & Hollenhorst, 2014). It seems logical that breadth would often expose students to new environments and encourage learning as a result.

## Context for Study

Elon University is a logical environment to conduct a case study and pose research questions that span multiple forms of experiential learning. The school has required experiential learning for more than 20 years and has significant participation by students in several experiential areas. Elon also has participated in the NSSE since 2003 and consistently performed near the top of all institutions, largely due to a rich environment for experiential learning. Students are required to complete an experiential learning requirement (ELR) as part of the Elon Core Curriculum, choosing from the following: study abroad, undergraduate research, internships, service-learning, or leadership experiences. The vast majority of students far surpass the requirement. At the time of this study, 72%, 25%, 87%, 85%, and 47% of graduating students participated in study abroad, undergraduate research, internships, service, and leadership experiences, respectively. This level of student participation provides a large sample size for comparative studies. Although this particular study focuses on quantity of experiential learning, it is worth noting that experiential learning quality is a focus at Elon (most experiences involve structured mentoring, reflection, etc.).

## The NSSE

One of the principal tools for demonstrating the connection between student experiences and educational outcomes is the NSSE. Established in 1999 and in use by more than half of all colleges and universities in the United States, the NSSE employs a

number of self-reported variables to measure and illustrate effective educational practices. Past studies comparing NSSE results with direct measures of learning have found the NSSE to be a good proxy measure for growth in important educational outcomes (NSSE, 2007; Pascarella, Seifert, & Blaich, 2010).

The NSSE asks students whether or not they have participated in several forms of experiential learning, but it does not typically ask about depth within those practices (except one service-learning question that was added in 2013). Thus, pairing NSSE data with other sources of information is necessary for studies of depth. To conduct this study, 5 years of data were used from responses to the NSSE and cocurricular transcripts of graduating seniors at Elon University.

## Method

Data from five graduating classes of Elon University ($N$ = 4,763) were drawn from Elon Experiences Transcripts (EETs) and the NSSE. The final data set included only students who began college at Elon, graduated within 6 years, and completed the NSSE ($n$ = 2,058).

The EET documents for-credit and not-for-credit experiences at the university in five areas of experiential learning: study abroad, undergraduate research, internships, service, and leadership. The EET is generated and validated by compiling the annual reports from each of the experiential learning offices and by a review of students' academic transcripts.

### *Weighting of the Elon Experiences*

To make depth and breadth comparisons across different forms of experiential learning, a common unit was needed. The basis for a "unit" was borrowed from Elon's long-standing ELR, for which each type of experience has established criteria for what satisfies a unit. Starting with these established criteria, and in consultation with campus leaders from each area, the following coding scheme was established:

- Study abroad
  - 4 units for fall or spring semester-long programs abroad
  - 1 unit for a 3- to 4-week course; 3 units for a 9-week program
- Undergraduate research
  - 1 unit for every 1 credit-hour of undergraduate research awarded
  - 4 units for a summer research experience (summer research program)
  - 0.2 units for presenting at a conference or at a student undergraduate research forum
- Internships
  - 1 unit for every 40 hr of internship
- Service
  - 1 unit for every 40 hr of service

- Leadership experiences
  - 1 unit for every mentored leadership experience
  - 1 unit for every semester of executive leadership (e.g., president or vice president)
  - 0.6 units for every semester of nonexecutive leadership

For experiences reported as hours (internships and service), values were coded as a portion of whole units using the following tiers: 0 units = 0 to 3 hr, 0.1 units = 4 to 7 hr, 0.2 units = 8 to 15 hr, 0.4 units = 16 to 23 hr, 0.6 units = 24 to 31 hr; 0.8 units = 32 to 39 hr; 1.0 unit = 40 hr. For example, 22 hr of service was coded as 0.4 units and 120 hr of service was coded as 3 units.

### *Calculating Total Activity, Depth, and Breadth*

Total experiential learning activity was calculated by adding the total number of units earned for each of the five Elon Experiences.

A "deep experience" was defined as having at least 4 units of one type of experience before graduation.

Breadth was measured by the number of unique experiences of at least 1 unit that a student had while in college. A student could have up to five unique types of experiences (study abroad, undergraduate research, internships, service, and leadership).

### *Statistical Analysis*

Typical assumptions for parametric tests were not met by the data set because of skew toward the upper boundary of NSSE questions. Thus, nonparametric tests were used to test for differences in population distributions. Specifically, the Kruskal–Wallis test was used to test for differences based on depth and breadth of experiences. To test for pairwise differences based on the amount of breadth, simultaneous confidence intervals on the ranks were conducted using Bonferroni's adjustment for multiple comparisons to control the Type I error.

## Results

### *Overview of Experiential Learning Engagement at Elon*

Total experiential learning activity, depth, and breadth were characterized for 5 years of graduating seniors to understand the study population.

The total amount of experiential learning completed by individual students at Elon University over a 5-year period is shown in Figure 1. The range was from 1 to 63 experiential units, or 40 to 2,520 hr of validated engagement. The average number of experiential units completed was 9.4 (SD = 7.2, $n$ = 2,058) units per student, or 376 hr. No graduating student could have had less than 1 unit, because the university's Core Curriculum required 1 unit during the study period.

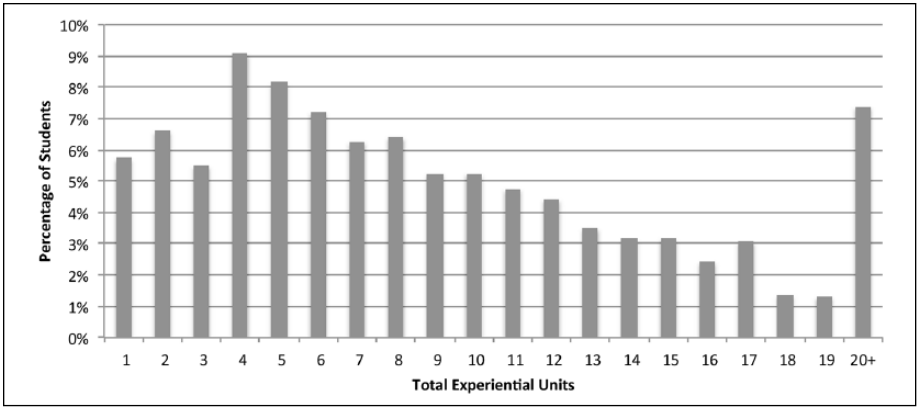


**Figure 1.** Total amount of experiential learning completed by students at Elon University.
*Note.* One unit equals at least 40 documented hours of activity or an experiential learning course.

Most Elon students have substantial depth in at least one form of experiential learning. Figure 2 shows the percentage of students who completed various numbers of "deep" experiences. Deep experiences were defined as those having at least four experiential learning units, or more than 160 validated hours of activity, in a single experience type. Examples include semester study abroad, summer-long research or internship experiences, and so on. Two thirds (66%) of students completed a deep experience of some sort, and 28% completed two or more.

As shown in Figure 3, most Elon students also have breadth in their experiential learning activities. An Elon student completes a full unit of 2.6 (SD = 1.1, $n$ = 2,057) different types of experiential learning on average (of the five documented by the institution). About 20%, 29%, 30%, 16%, and 5% of students complete a full unit of one, two, three, four, and five experiences, respectively.

Overall, Elon students are very engaged with experiential learning as measured by total activity, depth, and breadth. Nevertheless, there is a wide variance in these three measures across the student population. Taken together, high engagement and variance in the study population create excellent conditions (e.g., substantial sample sizes) for studying the effects of depth and breadth on student outcomes.

## *Perceived Learning and Higher Level Thinking*

Table 1 shows how experiential learning based on depth and breadth is associated with self-reported learning gains in a variety of NSSE areas. Students responded to the question "To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?" (1 = very little, 2 = some, 3 = quite a bit, 4 = very much) for 15 items shown in the table.

Both depth, $\chi^2(1) = 10.71$, $p = .0011$, and breadth, $\chi^2(4) = 9.71$, $p = .0457$, were associated with differences in scores on the item regarding acquiring a broad general

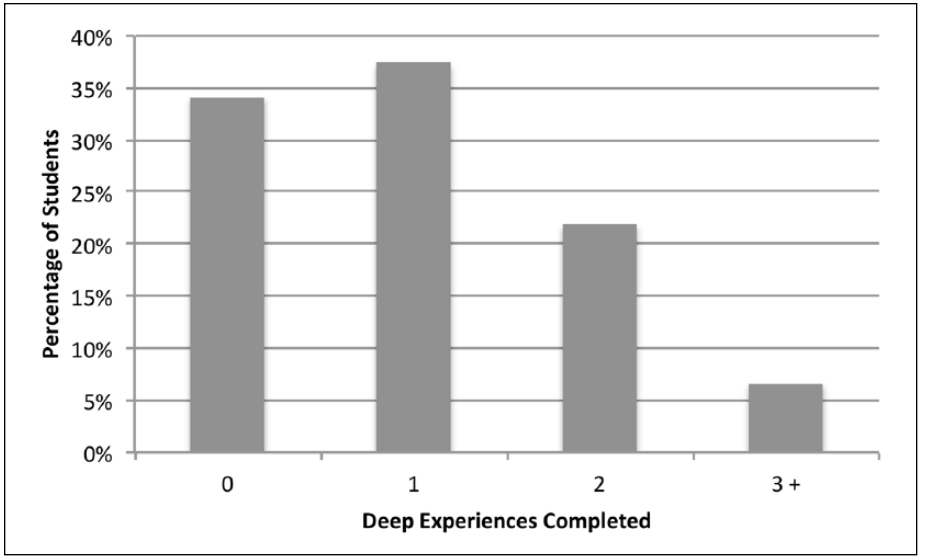


**Figure 2.** Deep experiences completed by students at Elon University.
*Note.* A deep experience was defined as having at least 4 experiential learning units.

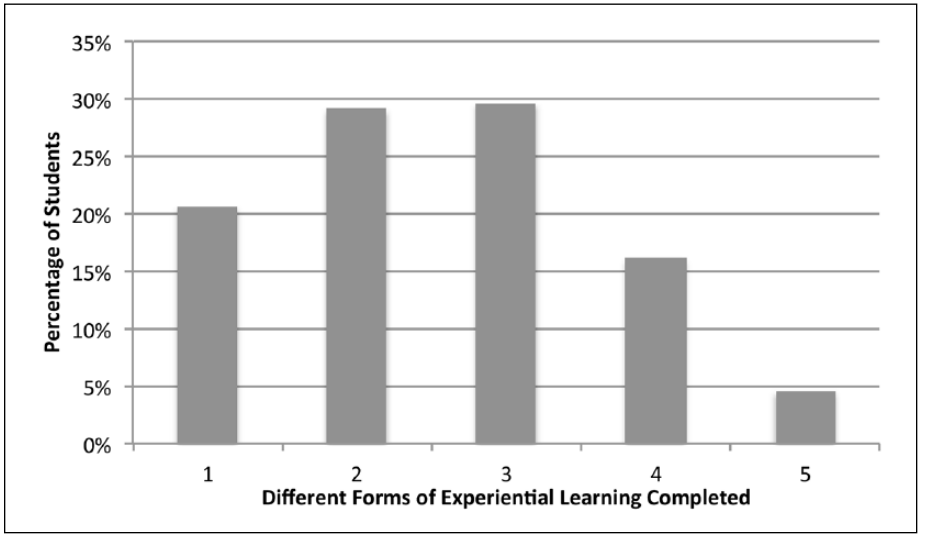


**Figure 3.** Breadth of experiential learning completed by Elon students.
*Note.* The five forms of documented experiential learning were study abroad, undergraduate research, internships, service, and leadership experiences. At least 1 full unit of experiential learning was required to be counted.

**Table 1.** Effects of EL Depth and Breadth on How Students Respond to the Question, "To What Extent Has Your Experience at This Institution Contributed to Your Knowledge, Skills, and Personal Development in the Following Areas?" (1 = Very Little, 2 = Some, 3 = Quite a Bit, 4 = Very Much; $n$ = 2,057).

| | Deep EL during college | | Breadth of EL during college | | | | |
|---|---|---|---|---|---|---|---|
| | No | Yes | 1 | 2 | 3 | 4 | 5 |
| Acquiring a broad general education | 3.51[a] (0.67) $n$ = 613 | 3.61[a] (0.62) $n$ = 1,197*** | 3.5[a] (0.69) $n$ = 367 | 3.55 (0.64) $n$ = 523 | 3.59 (0.65) $n$ = 533 | 3.64[a] (0.57) $n$ = 301 | 3.64 (0.53) $n$ = 86** |
| Acquiring job- or work-related knowledge and skills | 3.21 (0.85) $n$ = 611 | 3.24 (0.85) $n$ = 1,196 | 3.20 (0.83) $n$ = 367 | 3.21 (0.86) $n$ = 520 | 3.25 (0.86) $n$ = 533 | 3.30 (0.84) $n$ = 301 | 3.21 (0.83) $n$ = 86 |
| Writing clearly and effectively | 3.30[a] (0.78) $n$ = 611 | 3.41[a] (0.70) $n$ = 1,194** | 3.30[a] (0.78) $n$ = 365 | 3.32[b] (0.74) $n$ = 523 | 3.41 (0.72) $n$ = 531 | 3.47[ab] (0.69) $n$ = 299 | 3.48 (0.64) $n$ = 87*** |
| Speaking clearly and effectively | 3.28 (0.80) $n$ = 612 | 3.32 (0.77) $n$ = 1,193 | 3.30 (0.79) $n$ = 367 | 3.25 (0.79) $n$ = 523 | 3.33 (0.79) $n$ = 530 | 3.37 (0.74) $n$ = 300 | 3.32 (0.76) $n$ = 85 |
| Thinking critically and analytically | 3.51 (0.67) $n$ = 613 | 3.54 (0.65) $n$ = 1,187 | 3.53 (0.66) $n$ = 366 | 3.47 (0.69) $n$ = 521 | 3.56 (0.65) $n$ = 530 | 3.57 (0.62) $n$ = 298 | 3.55 (0.59) $n$ = 85 |
| Analyzing quantitative problems | 3.10[a] (0.86) $n$ = 609 | 3.00[a] (0.90) $n$ = 1,190** | 3.06 (0.90) $n$ = 368 | 3.00 (0.89) $n$ = 519 | 3.05 (0.86) $n$ = 528 | 3.06 (0.92) $n$ = 297 | 2.97 (0.86) $n$ = 87 |
| Using computing and information technology | 3.21 (0.82) $n$ = 610 | 3.15 (0.84) $n$ = 1,197 | 3.17 (0.85) $n$ = 366 | 3.15 (0.82) $n$ = 520 | 3.22 (0.83) $n$ = 533 | 3.17 (0.84) $n$ = 301 | 3.01 (0.84) $n$ = 87 |
| Working effectively with others | 3.52 (0.66) $n$ = 612 | 3.55 (0.67) $n$ = 1,196 | 3.51 (0.70) $n$ = 368 | 3.48[ab] (0.68) $n$ = 523 | 3.58[b] (0.66) $n$ = 531 | 3.61[a] (0.62) $n$ = 299 | 3.59 (0.62) $n$ = 87** |
| Voting in local, state, or national elections | 2.4 (1.03) $n$ = 612 | 2.38 (1.01) $n$ = 1,177 | 2.37 (1.01) $n$ = 365 | 2.41 (1.00) $n$ = 512 | 2.40 (1.01) $n$ = 526 | 2.35 (1.03) $n$ = 300 | 2.37 (1.11) $n$ = 86 |

*(continued)*

**Table 1. (continued)**

| | Deep EL during college | | Breadth of EL during college | | | | |
|---|---|---|---|---|---|---|---|
| | No | Yes | 1 | 2 | 3 | 4 | 5 |
| Learning effectively on your own | 3.24 (0.75) $n$ = 611 | 3.25 (0.76) $n$ = 1,177 | 3.27 (0.76) $n$ = 365 | 3.18 (0.78) $n$ = 511 | 3.28 (0.73) $n$ = 527 | 3.27 (0.76) $n$ = 299 | 3.28 (0.66) $n$ = 86 |
| Understanding yourself | 3.15 (0.84) $n$ = 609 | 3.19 (0.85) $n$ = 1,170 | 3.20 (0.86) $n$ = 364 | 3.11 (0.87) $n$ = 507 | 3.18 (0.84) $n$ = 525 | 3.25 (0.82) $n$ = 299 | 3.19 (0.75) $n$ = 84 |
| Understanding people of other racial and ethnic backgrounds | 2.58 (0.95) $n$ = 606 | 2.58 (0.96) $n$ = 1,168 | 2.63 (0.97) $n$ = 362 | 2.53 (0.95) $n$ = 511 | 2.57 (0.95) $n$ = 519 | 2.60 (0.98) $n$ = 298 | 2.65 (0.90) $n$ = 84 |
| Solving complex real-world problems | 2.97 (0.88) $n$ = 607 | 2.99 (0.86) $n$ = 1,171 | 2.96 (0.93) $n$ = 364 | 2.92 (0.90) $n$ = 507 | 2.99 (0.83) $n$ = 523 | 3.09 (0.84) $n$ = 298 | 3.06 (0.73) $n$ = 86 |
| Developing a personal code of ethics | 3.03 (0.88) $n$ = 610 | 3.03 (0.88) $n$ = 1,172 | 3.05 (0.91) $n$ = 362 | 2.98 (0.87) $n$ = 512 | 3.04 (0.89) $n$ = 525 | 3.07 (0.85) $n$ = 297 | 3.08 (0.83) $n$ = 86 |
| Contributing to the welfare of your community | $2.86^{a}$ (0.92) $n$ = 610 | $3.01^{a}$ (0.88) $n$ = 1,174*** | $2.86^{ab}$ (0.92) $n$ = 363 | $2.89^{cd}$ (0.91) $n$ = 512 | 2.98 (0.89) $n$ = 523 | $3.06^{ac}$ (0.88) $n$ = 300 | $3.24^{bd}$ (0.80) $n$ = 86*** |

*Note*. The cells report the mean, standard deviation, and number of responses for 15 items provided across the levels of depth and breadth. EL = experiential learning.

[abcd]Significant pairwise differences at the $\alpha$ = .10 significance level.

*$p$ < .10. **$p$ < .05. ***$p$ < .01.

education. Pairwise comparisons in the number of breadth experiences indicated that having four experiences was significantly greater than having only one experience. Differences in depth, $\chi^2(1) = 9.85$, $p = .0017$, and breadth, $\chi^2(4) = 19.52$, $p = .0006$, were also present in responses to the item related to contributing to the welfare of the community. Differences in scores for the item related to writing clearly and effectively were also detected based on depth, $\chi^2(1) = 5.83$, $p = .0158$, and breadth, $\chi^2(4) = 14.63$, $p = .0055$. For each of these items, scores were significantly higher for students who had completed a deep experience compared with students who had not completed a deep experience. Significant differences in scores on the item related to working effectively with others were reported based on breadth, $\chi^2(4) = 12.59$, $p = .0135$, but not related to depth, $\chi^2(1) = 1.55$, $p = .2135$.

Interestingly, the impacts of breadth became significant for students completing four different experiences compared with students who only completed one experience for the items associated with acquiring a broad general education, writing clearly and effectively, and contributing to the welfare of the community, suggesting a possible goal for students and a useful point for academic advisors. Pairwise comparisons indicated a few additional differences (as seen in Table 1), all of which indicated that scores for students with more breadth were higher than those for students with less breadth.

As shown in Table 1, a significant difference in scores on the item associated with analyzing quantitative problems was detected based on the depth of experiential learning, $\chi^2(1) = 4.85$, $p = .0277$. Paradoxically, scores on the item related to analyzing quantitative problems were higher by 0.10 for students who did not complete a deep experience compared with students who had completed a deep experience. It seems possible that this is not a causative relationship but rather an artifact of fewer students in quantitative disciplines (sciences and business) being able to achieve experiential learning depth because of curricular requirements.

While some of the other outcomes in Table 1 may be associated with individual experiences, they were not significantly associated with experiential learning depth or breadth overall.

Table 2 shows how experiential learning depth and breadth are associated with various mental activities for seniors who were asked to respond to the question "During the current school year, how much has your coursework emphasized the following mental activities?" (1 = very little, 2= some, 3= quite a bit, 4= very much) for five items shown in the table. Unlike Table 1, Table 2 focuses on the activity and perceptions exclusively in the senior year. The data show a clear pattern of depth being related to greater scores on the higher order thinking items like synthesizing, $\chi^2(1) = 5.92$, $p = .0150$, and applying, $\chi^2(1) = 7.08$, $p = .0078$, and lower scores on memorization, $\chi^2(1) = 16.59$, $p < .0001$. Increased breadth had no impact on the type of mental activities with which students were engaged.

## Relationships

Table 3 shows the relationship between students' perceptions of relationships with peers, faculty, and administrators on campus based on the depth and breadth of their

**Table 2.** Effects of EL Depth and Breadth on How Students Respond to the Question, "During the Current School Year, How Much Has Your Coursework Emphasized the Following Mental Activities?" (1 = Very Little, 2 = Some, 3 = Quite a Bit, 4 = Very Much; $n$ = 2,057).

| | Deep EL in senior year | | Breadth of EL in senior year | | | | | |
|---|---|---|---|---|---|---|---|---|
| | No | Yes | 0 | 1 | 2 | 3 | 4 | 5 |
| Memorizing facts, ideas, or methods from your courses and readings so you can repeat them in pretty much the same form | 2.71[a] (0.89) $n$ = 1,327 | 2.53[a] (0.90) $n$ = 565*** | 2.70 (0.88) $n$ = 515 | 2.64 (0.90) $n$ = 772 | 2.63 (0.94) $n$ = 438 | 2.73 (0.86) $n$ = 140 | 2.71 (0.86) $n$ = 24 | 2.67 (1.15) $n$ = 3 |
| Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components | 3.39 (0.65) $n$ = 1,322 | 3.42 (0.65) $n$ = 565 | 3.43 (0.64) $n$ = 515 | 3.39 (0.66) $n$ = 771 | 3.39 (0.65) $n$ = 435 | 3.40 (0.69) $n$ = 139 | 3.54 (0.59) $n$ = 24 | 3.33 (0.58) $n$ = 3 |
| Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships | 3.26[a] (0.74) $n$ = 1,321 | 3.35[a] (0.72) $n$ = 564** | 3.29 (0.76) $n$ = 515 | 3.30 (0.72) $n$ = 768 | 3.25 (0.74) $n$ = 435 | 3.33 (0.77) $n$ = 140 | 3.50 (0.51) $n$ = 24 | 3.67 (0.58) $n$ = 3 |
| Making judgments about the value of information, arguments, or methods, such as examining how others interpreted data and assessing the soundness of their conclusions | 3.13 (0.78) $n$ = 1,324 | 3.20 (0.76) $n$ = 564 | 3.18 (0.76) $n$ = 518 | 3.15 (0.78) $n$ = 770 | 3.12 (0.77) $n$ = 434 | 3.19 (0.79) $n$ = 139 | 3.13 (1.03) $n$ = 24 | 3.00 (1.00) $n$ = 3 |
| Applying theories or concepts to practical problems or in new situations | 3.37[a] (0.75) $n$ = 1,328 | 3.47[a] (0.70) $n$ = 566*** | 3.43 (0.71) $n$ = 518 | 3.39 (0.75) $n$ = 774 | 3.38 (0.73) $n$ = 435 | 3.34 (0.78) $n$ = 140 | 3.42 (0.72) $n$ = 24 | 3.67 (0.58) $n$ = 3 |

*Note*. The cells report the mean, standard deviation, and number of responses for 15 items provided across the levels of depth and breadth. EL = experiential learning.

[a]Significant pairwise differences at the $\alpha$ = .10 significance level.

*$p$ < .10. **$p$ < .05. ***$p$ < .01.

**Table 3.** Effects of EL Depth and Breadth on How Students Respond to the Question, "Mark the Box That Best Represents Your Relationships With People at Your Institution" (1 = Unfriendly, Unsupportive, Sense of Alienation; 7 = Friendly, Supportive, Sense of Belonging; $n$ = 2,057).

| | Deep EL during college | | Breadth of EL during college | | | | |
|---|---|---|---|---|---|---|---|
| | No | Yes | 1 | 2 | 3 | 4 | 5 |
| Relationships with other students | 5.87 (1.17)<br>$n$ = 630 | 5.88 (1.20)<br>$n$ = 1,222 | 5.80[a] (1.25)<br>$n$ = 381 | 5.74[b] (1.25)<br>$n$ = 532 | 5.94 (1.13)<br>$n$ = 545 | 6.04[ab] (1.13)<br>$n$ = 305 | 6.00 (1.04)<br>$n$ = 89*** |
| Relationships with faculty members | 5.90[a] (1.05)<br>$n$ = 630 | 6.07[a] (0.99)<br>$n$ = 1,219*** | 5.94[a] (1.09)<br>$n$ = 381 | 5.95[b] (0.99)<br>$n$ = 531 | 5.99[c] (1.01)<br>$n$ = 546 | 6.23[abc] (0.95)<br>$n$ = 304 | 6.17 (0.93)<br>$n$ = 87*** |
| Relationships with administrative personnel and offices | 4.98[a] (1.42)<br>$n$ = 630 | 5.13[a] (1.39)<br>$n$ = 1,223** | 5.04 (1.47)<br>$n$ = 381 | 4.98[a] (1.39)<br>$n$ = 532 | 5.05 (1.42)<br>$n$ = 545 | 5.27[a] (1.35)<br>$n$ = 306 | 5.35 (1.12)<br>$n$ = 89** |

*Note*. The table reports the mean, standard deviation, and number of responses for the three relationship items across the levels of depth and breadth.
EL = experiential learning.
[abc]Significant pairwise differences at the $\alpha$ = .10 significance level.
*$p$ < .10. **$p$ < .05. ***$p$ < .01.

experiential learning. Students were asked to "mark the box that best represents your relationships with people at your institution" (1 = unfriendly, unsupportive, sense of alienation; 7 = friendly, supportive, sense of belonging) for the groups indicated in the table. Both depth and breadth are strongly associated with significant differences in scores on the items regarding relationships with faculty members, depth: $\chi^2(1) = 12.26$, $p = .0005$; breadth: $\chi^2(4) = 25.47$, $p < .0001$, and relationships with administrative personnel and offices, depth: $\chi^2(1) = 5.57$, $p = .0183$; breadth: $\chi^2(4) = 11.89$, $p = .0182$. Interestingly, significant differences in scores on the item related to relationships with other students were detected based on the breadth of experiences, $\chi^2(4) = 16.96$, $p = .0020$. However, no significant differences were detected in responses to the item related to relationship with peers based on depth, $\chi^2(1) = 0.16$, $p = .6851$.

Similar to Table 1, the benefits of breadth among pairwise comparisons of different breadth amounts seem to be triggered most strongly after completion of four experiences compared with fewer experiences as seen in Table 3.

### *Overall College Experience*

Two questions were used to explore how the depth and breadth of experiential learning were related to students' overall college experiences.

The first item related to overall experience was the NSSE question, "How would you evaluate your entire educational experience at this institution?" (1 = poor, 2 = fair, 3 = good, 4 = excellent). Differences in depth of experience were associated with differences in responses to this question, $\chi^2(1) = 4.04$, $p = .0444$. In particular, the mean response for individuals categorized as not having a deep experience was 3.60 (SD = 0.60, $n = 612$), and the mean response for individuals categorized as having a deep experience was 3.65 (SD = 0.57, $n = 1{,}189$). There was no evidence of a difference in responses to this item based on the breadth of experiences, $\chi^2(4) = 5.66$, $p = .2256$.

The second item related to overall experience was the NSSE question, "If you could start over again, would you go to the same institution you are now attending?" (1 = definitely no, 2 = probably no, 3= probably yes, 4 = definitely yes). Both depth, $\chi^2(1) = 6.06$, $p = .0138$, and breadth, $\chi^2(4) = 9.81$, $p = .0438$, were associated with differences in responses to this question. Individuals who had not completed a deep experience had a mean score of 3.36 (SD = 0.81, $n = 613$) compared with individuals who had completed a deep experience with a mean of 3.46 (SD = 0.75, $n = 1{,}192$). No significant differences in scores on this item based on breadth were detected based on pairwise comparisons.

## Discussion

### *Impacts of Depth and Breadth on Outcomes*

Overall, this study suggests that both experiential learning depth (amount of time commitment) and breadth (number of different types of experiences) are valuable and lead to additional learning gains in a range of areas. Both depth and breadth were positively

associated with acquiring a broad general education, writing clearly and effectively, contributing to the welfare of the community, relationships with faculty and administration, and desire to attend the same institution. Put simply, more experiential learning is better whether in the form of depth or breadth.

Conceptual models for experiential learning suggest a process that is affected by the duration of the experience, though the specifics are often ambiguous. For example, in Kolb's (1984) classic experiential learning theory, the cycling between concrete experience, reflective observation, abstract conceptualization, and active experimentation implicitly suggests a time-sensitive process. A more modern model, Co-Constructed Developmental Teaching Theory (CDTT), is more explicit. It suggests that experiential learning takes place through iterative learning cycles that increase in time and complexity with more and more advanced learning (Schenck & Cruickshank, 2015). The results of the current study support the notion of iterative learning cycles and additive learning over time, whether through depth or through breadth. As Kuh (2008) said, among the "key elements" of high-impact educational practices is a "significant investment of time and effort by students over an extended period of time" (p. 9).

Although more experiential learning is better, generally speaking, depth and breadth are not the same and each has unique benefits. Depth (but not breadth) was associated with higher order thinking (synthesis and application) in the senior year, as well as overall educational experience. In terms of maximum impact on cognitive gains, then, depth may have an edge over breadth. This would seem consistent with findings on the cognitive value of depth related to individual experiences (Adedokun et al., 2014; Gilmore et al., 2015; Kehl & Morris, 2008; Kendrick, 1996; MSL, 2015).

An implication of this study is that experiential learning depth should be taken more seriously across higher education. There is a temptation for colleges and universities to drift toward shorter and shorter experiential learning opportunities, which favors breadth. Economic pressures on higher education may make it difficult to support the costs of deep, mentored experiential learning. Shorter experiences are also incentivized, in part, because schools commonly promote the percentages of students doing various opportunities (e.g., study abroad or service) as part of admissions messages, and various ranking systems take such percentages into account. Depth is less likely to be considered. Even the NSSE does not typically report depth of experiential learning, except for one question about service that appeared in 2013. This overall environment has led to trends such as study abroad experiences getting far shorter on average over time (Dwyer, 2004; Woolf, 2007). Although the artificial incentives for breadth overwhelm the incentives for depth in many situations, the learning value of depth equals or exceeds that of breadth.

On the contrary, breadth (but not depth) was associated with working effectively with others and better relationships with other students. In terms of maximum impact on relational gains, then, breadth may have an edge over depth. This finding suggests that interactions with more people in a wider range of environments may be more beneficial to building people skills than relationships with a smaller group over a longer period of time. This is supported by literature on the learning benefits of exposure to new, unfamiliar environments (Ewert & Yoshino, 2011; Mackenzie et al., 2014).

The impact of experiential breadth on relationships is reflected by Takacs and Chambliss's (2013) observation, "This pervasive influence of relationships suggests that a college, at least insofar as it offers real benefits, is less a collection of programs than a gathering of people" (p. 12).

Finley and McNair (2013) found that the typical American student engages in between 1.2 and 1.5 different high-impact practices while in college. Because this approximation included experiential learning as well as other practices such as capstones and writing-intensive courses, the national average for experiential learning is surely lower. The additive benefits of experiential learning shown in the current study at Elon suggest that the national average is quite low compared with how far the additive learning benefits of experiential learning extend. Kuh (2008) suggested, "Ideally, institutions would structure the curriculum and other learning opportunities so that one high-impact activity is available to every student every year" (p. 20). The current study suggests that at least tripling the national average amount of experiential learning would have substantial benefits for many students. It also supports Kuh's specific suggestion of one experience per year and/or other curricular arrangements that support four or more across the college experience (scaffolded experiential pathways, deeper ELRs, etc.).

Interestingly, the unique gains of depth loosely correspond with "hard skills" of the workplace, whereas those of breadth loosely correspond with "soft skills." Clearly, both hard and soft skills are highly valued by employers and graduate schools (Hart Research Associates, 2013; Kyllonen, 2013). Likewise, both depth in a field and breadth of knowledge and skills are highly valued by employers, as are the various forms of experiential learning investigated in the current study (Hart Research Associates, 2013). Overall, the ideal situation for a college student is likely to include both experiential learning depth and breadth—an approach that develops the full array of knowledge and skills that are highly advantageous for succeeding in life after college.

## *Study Limitations and Future Work*

The limitations of this study are threefold. First, although the NSSE is a widely used instrument with verified correlation to direct measures of learning (Pascarella et al., 2010), it is still an indirect measure. Second, definitions of "breadth" and "depth" may vary depending on context. Although it seems likely that the findings here will be transferable to many other institutions, differences in student demographics, experiential programs, and curricular requirements may lead to different perspectives. Third, the relationships uncovered in this study may not be causal. Specifically, it is possible that other causative agents (income level, mind-set, major, etc.) are partially driving both levels of participation in experiential learning and the outcomes measured by the NSSE.

Future studies on the impacts of experiential learning depth and breadth will be very valuable for improving undergraduate education. Such studies will further resolve what role experiential learning should (and should not) play across curricula to achieve maximal educational benefits. For example, it would be valuable to explore which particular types of experiences lead to the most gains when depth is achieved, whether the ordering of experiences changes the effectiveness of breadth, which variables alter

postgraduation outcomes such as employment, and whether effects of depth and breadth are different among different demographic populations. It would also be useful to verify (or contradict) the findings here by asking similar questions at other institutional types, using other interpretations of depth and breadth, and measuring student learning more directly. Of particular value would be highly controlled studies in which students are randomly assigned situations of more/less depth and breadth to eliminate any biases of self-selection, demographics, and so on. However, performing such random assignments may not be ethical or desirable in many educational contexts.

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