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Priming the Pump: Residential Learning Community Effects on Engagement with Diversity and Participation in High-Impact Practices

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Abstract

Using the National Survey of Student Engagement and multivariate regression techniques, we examine the impact of a first-year residential learning community (RLC) at a predominately White small liberal arts institution. This program disproportionately attracts students of color, providing structural diversity. We include measures of students' prior interest and engagement levels from the Before College Survey of Student Engagement to control for potential sample selection bias from students' pre-existing engagement levels and expectations, allowing a better measure of the program's effects. Despite having similar expectations about participation in future HIPs, students in this RLC completed on average 1.15 more HIPs by the end of their senior year than non-participants. In particular, they were more likely to have done research with faculty and to have held leadership positions. Additionally, White program participants were more likely than non-participants to report frequent interactions with students from different racial/ethnic backgrounds, an effect which persists to the end of their senior year. Additional analysis indicates that the programming in the RLC, and not simply the structural diversity of residence component, is the likely driver of this increased engagement with diverse others.

Keywords

residential learning communities, first-year students, engagement with diversity, HIPs

Cover Page Footnote

The authors thank the Office of Institutional Research for providing the de-identified student data for this project.

It is now just over a decade since George Kuh (2008) coined the term "high-impact practices" (HIPs) for a set of teaching and learning practices that benefit students from many different backgrounds. Learning communities (LCs) are one high-impact practice that take the form of a program in which a group of students take two or more classes together and work closely with faculty (Kuh, 2008). By adding a housing component, residential learning communities (RLCs) are optimally designed to augment the learning community by integrating a student's in- and out- of the classroom experience (Astin, 1993; Pike, 1999). These practices are often targeted at first-year students. While there is an extensive literature documenting the positive impact of LCs and RLCs on student outcomes (Lindblad, 2000; Rocconi, 2011; Stassen, 2003), much of the literature focuses on their impact on first-year GPA and retention rates (Pike et al., 1997; Pike, 1999; Stassen, 2003; Zhao & Kuh, 2004); less is known about their impact on other HIPs and on meaningful interactions with diversity. Further, the bulk of the literature studies RLCs at large universities. This study will address some of these gaps by examining the impact of a first-year RLC on participation in additional HIPs and on interactions with diversity at a small liberal arts college with a predominately White student body. Given the particular nature of our RLC, we can further explore whether the RLC's effects spill over to students living in close proximity to the RLC participants. These questions are particularly interesting to us because they offer compelling new ways to measure RLC outcomes beyond GPA and retention, where our institution already preforms well regardless of RLC participation.

While finding that small liberal arts colleges incorporate more HIPs than other university types, Pascarella et al. (2004) state that the bulk of the positive impact of these practices seems to occur during the students' first year, with declining marginal benefits as they progress towards graduation. Additionally, since the university in our study has a small student-to-faculty ratio, at 9:1; one would expect all students to report high student-faculty interaction levels and other measures of student engagement, regardless of their participation in the first-year RLC. Hence, we are specifically interested in examining the RLC program's effect on the number and type of subsequent HIPs. While many students participate in HIPs at the institution, does participation in the voluntary first-year RLC in this context explain variation in subsequent participation in HIPs within the student body? Because the student body is predominately White at this university, we are also interested in how the program affects their engagement with students from different backgrounds.

We first review literature relevant to the first-year experience and the impact of LCs and RLCs on measures of student engagement and interactions with an openness to diverse others, including a discussion of the limitations and gaps in the literature. We then outline the theoretical framework underpinning our analyses. We use National Survey of Student Engagement (NSSE) data collected by the institution to examine the effects of participating in an RLC on several measures of

student engagement. To deal with potential selection bias, we merge individual student data from the Beginning College Survey of Student Engagement (BCSSE) to control for student inputs and better separate the program effect from the underlying propensity for engagement.

Review of the Literature

Because the program in this study is a first-year program, centered on an enhanced first-year seminar with a residential component, we review the literature on first-year programming, including but not limited to LCs and RLCs. Additionally, the institutional context of this program may camouflage its effectiveness using traditional measures of RLC success, so we include some analysis of the impact of liberal arts colleges on student engagement and student interactions with diversity. As RLCs contain both a residential, structural component as well as a programming component, we review the findings on the contributions of structural and programming effects on diversity outcomes. We find a few gaps in the literature, some common methodological concerns regarding lack of control groups, and a lack of data on the same student before and after they participated in the program, all of which we are able address in our analysis.

Learning Communities and First-year Programming

When Upcraft et al. (1989) defined freshman success, they placed the greatest emphasis on "developing academic and intellectual competence" (p.2), stating that students who find success in these areas are more likely to persist to graduation. In addition, the literature shows that, regardless of their preparation, the student's first-year environment and their involvement with academically related activities play a large part in influencing their decision to persist (Astin, 1993; Pascarella & Terenzini, 2005; Upcraft et al., 1989).

Intentional and meaningful educational experiences can increase the likelihood that students will begin to build the competencies necessary to view themselves as scholars and find meaning in their academic pursuits (Kuh, 2009a). The research shows that universities cannot leave building these competencies to chance (Astin, 1993; Inkelas et al., 2018; Kuh 2008; Upcraft et al. 2005). By putting programs in place that make it unavoidable for students to meaningfully engage with faculty, staff, and fellow students and to discuss topics with others who come from different backgrounds, universities create an environment in which students can test out ideas and build the confidence to then share in the classroom or other settings.

LCs are one such intentional educational experience. A plethora of studies show positive impacts of LCs on first-year student success and engagement (see Lindblad, 2000; Rocconi, 2011; Stassen, 2003 for examples). Many of these studies show that the positive impacts of LC participation on student grades, retention rates,

etc., are mediated through increased engagement as measured by perceptions of the environment, collaborating with peers, integrated thinking, and student-faculty interactions (Pike et al., 1997; Pike, 1999; Stassen, 2003; Zhao & Kuh, 2004). Other environmental factors of LCs most relevant for persistence include having interpersonal relationships, interactions with faculty, and connections to their living environment (Upcraft et al., 2005).

Residential Learning Communities

A number of studies examine the impact of RLCs. According to Upcraft et al. (2005), RLCs contribute positively to creating an engaging environment and are well positioned to blur the line between the curricular and co-curricular experiences. Wawrzynski et al., (2009) describe these communities as a constantly evolving cultural phenomenon in which students both influence and are influenced by established academic and social expectations. These findings are supported by Inkelas et al. (2007), who report that, for example, students who participate in residential learning programs have better interactions with peers and faculty and a more supportive academic and social residential climate. Pike (1999), studying a first-year RLC, also finds higher involvement in activities and interactions with other peers and faculty.

Differences in First-Year Student Engagement by Type of Program

While the literature generally finds positive impacts of first-year programming of a variety of types, a few studies have compared the effects of different types of programs. Purdie and Rosser (2011) compared three types: first-year interest groups (which included both a residential and academic component), academic themed floors (which included only residential and social components), and a first-year experience course (academic component only). They found the first-year interest groups, the most comprehensive program, to be most effective at increasing student engagement. Similarly, Hansen and Schmidt (2017) found stronger benefits from a first-year LC that includes a first-year seminar course and other linked courses over a first-year seminar course alone; these effects are magnified for students who also participated in a summer transition program. Brownell and Swaner (2010) also note that the quality of the LC or RLC makes a difference in the outcomes.

Institution Type: Are Liberal Arts Colleges More Impactful?

There is little research specifically exploring how institution type impacts student academic gains. The existing research has inconsistent findings. For example, when additional control variables are included, differences in frequent faculty-student interactions between Liberal Arts Colleges (LACs) and Doctoral Research Extensive universities disappears, while faculty at LACs do consistently emphasize higher-order cognitive activities (Umbach & Wawrzynski, 2005). Other research finds small to no differences in student academic improvement (Pascarella & Terenzini, 2005; Toutkoushian & Smart, 2001). In reviewing the literature, Toutkousian and Smart (2001) note that many differences between outcomes disappear once the characteristics of the admitted students are controlled for. One theme in the research is that the gains found at small liberal arts colleges such as the institution in this study cannot be attributed to the university type in general but rather to the learning environment intentionally created within individual colleges (Kuh, 2003; Seifert et al., 2010; Umbach & Wawrzynski, 2005). Thus, it is important to further examine the impact of practices such as RLCs within a liberal arts college.

What do we know about the intersection of liberal arts colleges and LCs? While higher percentages of students at baccalaureate colleges with an arts and science focus are more likely to participate in HIPs, the participation in LCs among *first-year* students at these types of institutions is slightly lower than at other types of institutions, at 10% compared to 11-15% (Center for Postsecondary Research, 2019). Like many other small liberal arts institutions, retention rates from first to second year and four-year graduation rates at our university are in the mid-ninetieth percentile (Horissian, 2019). At institutions with low-retention rates, LCs and RLCs are often created with the intention to increase retention rates, which likely explains the slightly higher rates of *first-year* LCs/RLCs at large master's and Ph.D. granting universities. However, in our intuitional context with high retention for all students, retention rates will not be a good measure of the impact of the RLC on student engagement; other measures will need to be studied.

Meaningful Interactions with Diversity

Increasing interactions with diverse others has positive benefits for students. Hu and Kuh (2003) note that the more interactions with diversity a student has, the more involved they are in other forms of engagement on campus such as active and collaborative learning, but that these interactions were more common at larger institutions. Another interesting finding is that for White students, in particular, those from segregated neighborhoods, these interactions establish a commitment to a racially integrated lifestyle after college (Jayakumar, 2008).

Various factors in the literature have been associated with more openness to diversity among students. Zuniga et al. (2005) find that more frequent interactions

with diverse others, diversity-related curriculum, and co-curricular activities with an orientation towards diversity increase the likelihood of students questioning their prejudices and increasing the probability that they take some positive action to promote inclusion. Increasing openness to diversity has been linked to greater interactions between students of different races and ethnicities (Pascarella et al., 1996).

There is considerable research linking institutional factors with increasing interactions with diverse others and with openness to diversity. Research shows that students living in a residence hall rather than off-campus (Whitt et al., 2001) and students who make friends across racial-ethnic lines gain positive attitudes toward racial-ethnic groups different from their own and a general openness to diversity broadly defined (Pascarella & Terenzini, 2005). Umbach and Kuh (2006) note that liberal arts institutions tend to have more predominately White student bodies than other institutions and that lack of structural diversity in and of itself might matter. In spite of the lower levels of structural diversity, Umbach and Kuh (2006) find that when these types of colleges intentionally infuse diversity experiences into the undergraduate experience, students have higher rates of engagement in diversity-related activities and in self-reported gains in understanding diverse others.

However, there is some inconsistency of evidence about whether LCs have a positive impact in promoting diversity activities or in improving student attitudes towards diverse others. Inkelas and Associates (2007) do not find a positive relationship between participation in an LC on the frequency of interactions with diverse others nor on student perceptions about a positive diversity climate. Additionally, students of color are also found to be less likely to participate in LCs (Kinzie et al., 2008). In contrast, Zhao and Kuh (2004), Pike (2002), and Pike et al. (2011) find that LCs increased the frequency of interactions with diverse others. Since one of the important contributors to interactions is structural diversity (Pike, 2002), the disproportionately White participation in these programs may be one explanation for the inconsistency in findings. Bucking the national trend, as we will show below, our RLC program disproportionately attracts the students of color at this predominately-White institution (PWI), providing an opportunity to examine the impact on interactions between students of diverse race/ethnicities when the RLC is associated with higher levels of diversity at a PWI.

Critique of the Literature and Remaining Questions

Some studies have methodological problems. Zhao and Kuh (2004) use student self-reports to measure participation or planned participation in a learning community, and the survey question regarding LCs does not include a residential component. As noted in Brownell and Swaner (2009, 2010) and Hansen and Schmidt (2017), many of these studies do not include controls for student selection into the LC/RLC, and the effects attributed to these programs may partly or wholly reflect underlying student characteristics. Brownell and Swaner (2010) also note

that most studies of these programs are at single institutions, are often short-term in nature and sometimes do not include a full description of the program's components, which makes comparisons across studies difficult. In Taylor's (2003) review of assessment of LC programs, only three of the ten studies of LCs at baccalaureate institutions included a student control group.

As described above, many of the studies focus on GPA and retention rates with a focus on the first-year experience. Less is known about other outcomes, such as whether participation in a first-year RLC feeds students into additional HIPs and whether the gains from the programs persist beyond the first year. There is no consensus in the literature about the impact of RLCs on interactions between students of different backgrounds.

Another gap in the literature is the relative paucity of studies of LCs and RLCs at small liberal arts institutions. Inkelas et al.'s (2007) study predominately examined LCs at institutions classified as research and master's granting; only one baccalaureate college participated in this study. The institutional context in Pike (1999) is also a research university. Taylor's (2003) review of 151 dissertations, theses and single-institution research or assessment reports of LCs included only ten studies of programs based in liberal arts institutions. While we are aware of many LCs at baccalaureate institutions, it appears that there is less documentation of their impact in this institutional context as opposed to research and master's granting institutions.

Our study, which links students' enrollment in an RLC based on institutional records rather than student self-reports, and is done at a small private predominately-White liberal arts university helps fill some of these gaps. To our knowledge, this is the first study that examines the impact of a first-year RLC on completion of other HIPs. We also include an analysis of seniors, which tests for persistence of these effects. While we acknowledge that this is a single institution study and, thus, there are limits to the generalizability of our findings, we address selection problems by including pre-college student input measures and include a thorough description of the program's features. Because, unlike many other RLCs, our program disproportionately attracts students of color and we have students who reside on the same floor but do not participate in the curricular programming, we have some limited ability to test how much the structural diversity of the program matters independently from the additional programing at a PWI.

Conceptual Framework

The conceptual model for our study is Astin's (1993) Input-Environment-Outcome college impact model. This model is most useful since it accounts for the fact that students come to college with their own set of skills and attributes (inputs) which will influence their success. By controlling for those inputs, we can better isolate the student outcomes that can be attributed to the environment created by the RLC in question.

Inputs:	Demographic: • Race/ethnicity • Gender • Pell Grant status • First-generation • Intended major High School Engagement Level: • High school GPA • Come to class unprepared • Prepare two or more drafts of an assignment before turning it in Before-College Expectations: • Work with faculty outside of class • Have serious conversations with people of different race/ethnicity • Have serious conversations with people of different religion, political views • Study even when other things to do • Find information • Participate in class • Ask for help • Finish even when discouraged • Have a positive attitude
Environment:	RLC participant RLC resident, non-participant Non-resident, non-participant
Outcomes:	Likelihood to: • Take NSSE end of first and senior years • Engage in serious conversations with diverse groups • Participate in one or more HIPs after first year

Figure 1: The conceptual model. The conceptual model is an adaptation of Astin's 1993 Input Environment-Outcome Model to BCSSE and NSSE measures.

As suggested by Cole, Kennedy and Ben-Avie (2009), a fuller picture of a student's experience is gained when pre-college data is merged with other sources of data once the student is enrolled. The pre-college data provides a necessary baseline to assess program and institutional initiatives. By using BCSSE to identify a baseline of student's inputs, we hope to identify ways that the RLC influences their engagement during first year through senior year.

The inputs we controlled for are: students' individual characteristics (demographic inputs), their high school engagement levels, and their expectations about engagement before entering college. The demographic inputs are as follows: (a) race/ethnicity, (b) gender, (c) Pell Grant status, (d) first-generation, and (e) intended major. The high school engagement measures are self-reported frequency of the following: (a) coming to class unprepared, (b) preparing two or more drafts

of an assignment before turning it in, and (c) high school GPA. The before-college expectations inputs are as follows: (a) to work with faculty outside of class, (b) to have serious conversations with people of different race/ethnicity, (c) to have serious conversations with people of different religious, political views, (d) to study even when there are other things to do, (e) to find information, (f) to participate in class, (g) to ask for help, (h) to finish even when discouraged, and (i) to have a positive attitude.

For the environment, we focus on three different settings: (a) students who participated in the RLC (participant), (b) students who lived in the RLC environment, but are not involved in the academic component (resident, non-participant), and (c) first-year students who did not participate in the RLC and lived on another floor (non-resident, non-participant). To identify which students participated in these three different environments, we linked institutional data on participation in RLCs to BCSSE and NSSE data. These settings allow us to examine whether there are impacts on students in residence who are exposed to the social programming but not the academic component of the RLC.

The outcomes we examine the following: (a) likelihood of expecting to and actually participating in other HIPs, (b) the total number of HIPs that they participated in, and (c) the likelihood of having a serious conversation with students of different racial/ethnic and different economic, religious and political backgrounds from their own. The NSSE data is an ideal instrument to measure these outcomes since it is specifically developed to measure what undergraduates perceive as their "educationally purposeful experiences" (McCormick et al., 2013, p.7). NSSE is an assessment tool used by over 620 campuses and a survey to which over 1.6 million graduates have access (McCormick et al., 2013). By linking the BCSSE controls to our other data, we minimize the impact of potential bias from self-selection.

Residential Learning Community Description & Institutional Context

Located in rural Pennsylvania, Bucknell University is a small private liberal arts college with professional Management[1] and Education programs and a College of Engineering. The institution's Carnegie Classification is a Baccalaureate, Arts & Sciences College, and the university primarily serves undergraduates. The current student-to-faculty ratio is 9:1. Most students are housed on campus, although roughly 200 upper-class students live off-campus. The student body is predominately White, but the level of diversity on a variety of measures has been increasing in recent years. As shown in the sample of first-year students in Table 1, Asian students are the largest nonwhite group, at 10% of the student body, and Hispanic and African American students are 5% and 3% of the student body respectively. The patterns are similar in the senior samples in Table 2. All non-

[1] Subsequent to the period of this study, the Management program has become a separate college.

Engineering students enroll in a small first-year seminar, capped at 16 students. Engineering students may only enroll in a first-year seminar if they select one of the RLC offerings.

Table 1

First Year Sample Characteristics, by Program Participation Status

	All N=610		Program Participants N=269		Resident, Non-participants N= 36		Non-resident, non-participants N= 305	
Variable	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Program Participant	0.42	0.49						
Resident, Nonparticipant	0.06	0.23						
Female	0.56	0.50	0.56	0.50	0.65	0.48	0.55	0.50
Asian	0.10	0.31	0.17	0.38	0.07	0.26	0.06	0.23
African American	0.03	0.17	0.04	0.20	0.04	0.19	0.02	0.14
Hispanic	0.05	0.21	0.07	0.26	0.00	0.00	0.03	0.18
Other, nonwhite	0.01	0.28	0.02	0.28	0.02	0.24	0.00	0.28
International	0.07	0.26	0.14	0.34	0.08	0.28	0.03	0.17
Pell Recipient	0.17	0.37	0.15	0.35	0.19	0.40	0.29	0.46
First Generation	0.15	0.36	0.21	0.41	0.08	0.28	0.12	0.33
GPA	3.45	0.45	3.45	0.45	3.56	0.37	3.45	0.45
Arts & Humanities	0.08	0.27	0.11	0.32	0.15	0.36	0.05	0.22
Natural Sciences	0.28	0.45	0.34	0.47	0.22	0.42	0.23	0.42
Management	0.14	0.35	0.08	0.28	0.15	0.36	0.19	0.39
Engineering	0.21	0.41	0.25	0.44	0.13	0.34	0.19	0.39
Social Sciences	0.22	0.42	0.17	0.38	0.31	0.47	0.26	0.44
Undeclared	0.07	0.25	0.04	0.20	0.04	0.19	0.09	0.28
Talk to Often/Very Often Someone of Different _____ Background Than Self								
Race/ethnicity	0.67	0.47	0.76	0.43	0.72	0.45	0.59	0.49
Economic/religious/ political	0.76	0.43	0.80	0.39	0.86	0.35	0.71	0.45
Economic	0.33	0.47	0.35	0.48	0.30	0.47	0.32	0.47
Religious	0.35	0.48	0.34	0.47	0.37	0.49	0.36	0.48
Political views	0.35	0.48	0.34	0.47	0.37	0.49	0.35	0.48

High-Impact Activities Plan to do / Have Done								
Internship	0.96	0.20	0.97	0.18	0.86	0.35	0.97	0.18
Research	0.64	0.48	0.74	0.44	0.47	0.51	0.57	0.50
Study Abroad	0.68	0.47	0.72	0.45	0.69	0.47	0.65	0.48
Leadership Position	0.80	0.40	0.85	0.36	0.73	0.45	0.75	0.43
Culminating Experience‡	0.29	0.45	0.24	0.43	0.32	0.47	0.32	0.47
# of HIP, Full list	3.17	0.94	3.34	0.85	2.81	1.13	3.02	0.98
# of HIP, Excluding Culminating Experience	3.14	0.92	3.32	0.83	2.77	1.18	2.99	0.94

Source: Authors' calculations from 2011, 2014 & 2017 NSSE institutional data.
‡Not available in 2011

Table 2

Demographic and Outcomes, Senior Students, by Program Participation Status

	All N=699		**Program Participant** N=223		**Resident, Non-participant** N=49		**Non-resident, non-participant** N=427	
Variable	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Program Participant	0.32	0.47						
Resident, Nonparticipant	0.07	0.25						
Female	0.49	0.50	0.49	0.50	0.53	0.50	0.49	0.50
Asian	0.07	0.26	0.13	0.33	0.06	0.24	0.05	0.21
African American	0.02	0.15	0.03	0.18	0.03	0.17	0.02	0.14
Hispanic	0.04	0.20	0.07	0.25	0.01	0.12	0.03	0.18
Other, nonwhite	0.00	0.30	0.01	0.30	0.02	0.31	0.00	0.29
International	0.07	0.25	0.08	0.27	0.04	0.20	0.06	0.23
Pell Grant Recipient	0.16	0.37	0.12	0.32	0.12	0.33	0.15	0.36
First Generation	0.16	0.36	0.24	0.43	0.06	0.24	0.14	0.35
Arts & Humanities	0.07	0.25	0.08	0.28	0.10	0.31	0.06	0.24
Natural Sciences	0.19	0.39	0.25	0.43	0.12	0.32	0.17	0.38
Management	0.11	0.32	0.06	0.25	0.09	0.29	0.14	0.35
Engineering	0.15	0.36	0.18	0.38	0.15	0.36	0.14	0.35
Social Sciences	0.25	0.43	0.19	0.39	0.31	0.47	0.27	0.45
Other Major	0.22	0.42	0.24	0.43	0.24	0.43	0.22	0.41
GPA	3.49	0.41	3.46	0.42	3.52	0.46	3.49	0.41
Fraction responding "often/very often" to "How often have you had serious conversations with the following groups?"								
Of a different race/ethnicity	0.68	0.47	0.77	0.42	0.61	0.49	0.65	0.48
Different economic background	0.78	0.41	0.85	0.36	0.70	0.46	0.75	0.43
Different religious beliefs	0.76	0.43	0.79	0.41	0.66	0.48	0.75	0.43
Different political views	0.74	0.44	0.71	0.46	0.79	0.41	0.75	0.43

Fraction responding Have Participated in High-Impact Practice Activity ___								
Internship	0.72	0.45	0.72	0.45	0.75	0.44	0.73	0.45
Research	0.45	0.50	0.60	0.49	0.41	0.50	0.37	0.48
Study Abroad	0.42	0.49	0.41	0.49	0.41	0.50	0.43	0.50
Leadership Position	0.69	0.46	0.74	0.44	0.71	0.46	0.65	0.48
Culminating Experience	0.68	0.47	0.72	0.45	0.71	0.46	0.65	0.48
# of HIP, Full list	2.96	1.55	3.17	1.52	3.00	1.53	2.83	1.55
# HIP, Excluding CulminatingExperience	2.28	1.26	2.46	1.23	2.29	1.25	2.18	1.27

Source: Authors' calculations from 2014 & 2017 Institutional NSSE responses.

The Bucknell RLC program consists of several themed "colleges." There are two to four distinct first-year seminars taught by different faculty members in each themed college. These courses include an additional weekly "common hour" during which students across all of the thematically linked courses meet together with the group of faculty who teach each individual seminar. The curricular component of the residential learning program is therefore the time-equivalent of one and a half courses in the fall semester of the first year. Students in the program develop relationships not only with their instructor but also with the one to three additional faculty members teaching in the college. The faculty in most of the colleges are from a variety of departments, creating an interdisciplinary experience. Faculty in the RLC also serve as formal academic advisors to the arts and science students until their sophomore year when students declare a major. They serve as informal advisors to the Bachelor of Science and Engineering students who also have designated formal advisors in their major.

Students in each themed college are housed in close proximity to one another on two to four floors in one of two designated residence halls. Each floor houses a Resident Assistant (RA) plus a "Junior Fellow" (JF). JFs work closely with the faculty to implement the curricular and co-curricular activities associated with the college and provide additional peer mentorship above and beyond the RA presence. Peer mentors have been shown to have positive effects in an RLC setting (Rieske & Benjamin, 2015) and the presence of an upper-class student in the JF role provides a peer mentor for the students.

Structurally, there are two faculty Co-Directors and a full-time professional staff Program Director who report to the Provost. The Program Director works closely with Housing and Residential Education to coordinate day-to-day operations. There is dedicated program-wide budget for peer mentor training, and each themed college has a budget for programming. Using Inkelas and Soldner's (2011) summary of the characteristics across definitions of living learning community types, this RLC fits with the "Large, Comprehensively Resourced Student/Academic Affairs Collaboration" definition (Inkelas & Soldner 2011 p. 10).

Students enroll in the program by voluntarily choosing one of the first-year seminar classes offered in one of the themed colleges instead of a seminar outside the RLC program. Enrollment in the program ranges from 23% to 38% percent of all first-year students during the period of the study. In terms of demographic diversity, like the general study body, most participants are White; however, students from other racial-ethnic groups are over-represented in the RLC relative to the rest of the student body. Specifically, 30% of RLC participants are students of color, whereas for the general population, only 19% are (see Table 1). This finding seems to be unique to the program since national trends do not find much difference in participation rates in HIPs based on race or ethnicity (Finley & McNair, 2013). All other first-year students at the university, our comparison group, are housed in traditional residence halls on campus without regard to their first-year seminar placement.

Due to housing constraints and enrollment numbers, there are a small number of students who do not participate in the RLC but who are also housed on these floors. These students have some exposure to the program as they are invited to the co-curricular activities and have access to the mentorship of the JFs. Within the scope of our study, we can therefore test whether there are spillover effects from the program on these resident non-participants using the data.

Data

The data are from the 2010, 2013, and 2016 BCSSE and are matched to the individual student records using the student ID number from the 2011, 2014, and 2017 NSSE. We note here that the measure of participation is not the self-reported participation in a learning community variable from the NSSE data, but, rather, identifiers for participation in the RLC and for resident non-participants using the student ID. The study received Institutional Review Board approval. In accordance with IRB guidelines, the data were de-identified by the Office of Institutional Research before distribution to the authors to maintain the anonymity of the student respondents. The data allow us to examine the impact of the RLC at the end of the first year for 2011, 2014, and 2017, and for seniors in the classes of 2014 and 2017. For the samples of first-year students, 936 participated in the NSSE, and 1,960 participated in the BCSSE. Of these, the 610 respondents who participated fully in both surveys are included in our analysis. For the senior samples, there are 995 participants in the NSSE surveys, 1,340 in the BCSSE surveys, and 699 who participated fully in both surveys.

We are primarily interested in whether participation in the RLC leads to subsequent participation in other HIPs. The NSSE survey instrument includes questions about whether the student plans to or is in progress/has completed one of the following HIP's: an "internship, co-op, field experience, student teaching or clinical placement"; "study abroad program"; "a formal leadership role in a student

organization or group";[2] work "with a faculty member on a research project;" "a culminating senior experience (capstone course, senior project or thesis, comprehensive exam, portfolio, etc.)"; or "participat[ion] in a learning community or some other formal program where groups of students take two or more classes together." For first-year students, we examine the impact of the RLC on the probability that a student indicates they plan to—or have completed or are in progress—toward each of the first four HIPs listed above separately. For seniors, we examine the probability that they are in progress or have completed the activity. We calculate the total number of activities that the first-year students reported that they plan to do or had completed as well as the total number of activities the senior self-reported that they had completed or were in the process of completing.

There are complicating issues with two of these self-reported measures of HIPs. Our analysis uses institutional records to identify participation in the RLC, but the NSSE data also asks for self-reported participation in a learning community. The question text is about whether the student plans to "participate in a learning community or some other formal program where groups of students take two or more classes together," which does not precisely match the structure of our RLC program. We therefore do not include the NSSE self-reported measure of learning community participation as an *outcome* measure in the analysis. Second, we note that all majors at Bucknell are required to have a senior culminating experience of some kind; therefore, regardless of whether a student participates in the RLC or not, they will eventually participate in this HIP. However, in the data, there is not universal reporting of participation or planned participation in a culminating experience. We therefore create two measures of the total number of HIPs. Both omit the RLC participation indicator; the second also omits self-reported participation in a senior culminating experience.

Because the student body is primarily White, high-income students, we are also interested in the program's effect on the probability that a student has had serious conversations often or very often with fellow students of different racial/ethnic, economic, political, and religious backgrounds. Furthermore, the presence of resident non-participants combined with the over-representation of students of color in the RLC creates an experimental condition that allows us to test the impact of increasing diversity among students separately from the program's effect on students' interactions with diverse others.

Issues with Sampling Bias

The 2010 and 2013 BCSSE response rates are very high, at 98% and 90% of the incoming classes respectively. In 2016, the response rate for the BCSSE

[2] While a leadership position is not a designated high-impact practice, Kuh (2009b) notes that those students holding a leadership position are likely to experience similar positive effects from this activity.

subsequently fell to 25%. Porter et al. (2004) find that competing surveys in the higher education context, particularly those that are administered within a short time period, depress response rates. In 2016, a second, competing survey was administered by the administration of Bucknell University, which is the likely cause of the decrease in response rates in the 2016 BCSSE relative to the 2010 and 2013 years. The participants in the RLC are somewhat *underrepresented* in the BCSSE samples, likely due to the fact international and underserved students are more likely to participate in the RLC but may have more difficulties accessing the BCSSE instrument.

The NSSE response rates are 18%, 41%, and 40% in 2011, 2014, and 2017 respectively. The response rates in 2014 and 2017 are very close to the national average response rate to the NSSE in 2000, which was 42% (Woosley, 2005 citing Carini et al., 2003). Prior research has established that students who are less engaged academically may be more likely to drop out of the survey (Dey 1997; Hutchison et al., 1987; Porter & Whitcomb, 2005; Sax et al., 2003; Woosley, 2005). If the RLC increases student engagement, fewer RLC students will drop from the NSSE compared to their non-participating counterparts. Furthermore, those non-RLC students who continue to participate in the NSSE will represent the most engaged students in that latter group. Therefore, comparisons of outcomes between participants and non-participants may under-estimate any positive impact of the program since the students in the sample are less representative of the control group. In analyses conducted separately and not presented here, this bias is very likely to be present since RLC participation is highly predictive of subsequent participation in the NSSE surveys in our samples.

Analysis

Multivariate regressions using outcomes from the NSSE data are conducted. The general form of these regressions is:

(1) $$Y_i = \alpha + \beta_1 RLC_i + \beta_2 Resident, nonparticipant_i i + \beta_3 X_i + u_i$$

where the subscript i indicates the individual student, Y is the measure of student engagement; in one set of analyses these are indicators for participation or planned participation in other HIPs and the total number of HIPs, and in the other set, they are measures of engagement with diversity. RLC is an indicator for full participation in the residential learning community. Resident, nonparticipant is an indicator for a student housed on the program halls but who was not enrolled in the academic coursework, X is a vector of other student characteristics, and u is the error term. The coefficient $\beta_1$is the estimated impact of the program on the outcome, and we hypothesize that it will be positive. Because we also have a group of students who were housed in the same floors but did not participate in the academic program, we can test for any impact from the residential component of the program. This impact will be captured in the coefficient β_2.

A methodological issue in this framework is selection bias. Students who are more engaged prior to college may be more likely to opt in to this voluntary program (Inkelas & Weisman, 2003). Any measured correlation between participation in the program and the measures of engagement will therefore include both the program's independent, environmental effect and the underlying inputs associated with the student. Wawrzynski and Jessup-Anger (2010) argue that, in addition to measures of academic achievement, it is important to include students' expectations about their college experience and other non-cognitive characteristics of the student.

Therefore, we also conduct a second comparative set of regressions of the following form:

$$(2) \quad Y_i = \alpha + \beta_1 RLC_i + \beta_2 Resident, nonparticipant_i i + \beta_3 X_i + \beta_4 HS_i + u_i.$$

These regressions add a vector of control variables from the BCSSE data, noted as HS. The effect of the RLC is still denoted as the β_1, but if there is selection bias that is captured by the student before-college characteristics, the size of the effect will be smaller than in estimates from the equation (1) form. However, to the extent that the BCSSE measures do not fully capture students' underlying propensity for engagement, some positive selection bias may remain in the analysis. We are unable to control for the downward bias related to non-participants being less likely to remain in the NSSE sample than participants.

We examine the effects of the program at both the end of the first year and at the senior year. We pool the respondents from the spring 2011, 2014, and 2017 NSSE data with the matched characteristics from the prior fall's BCSSE data for the first-year analyses, and the 2014 and 2017 NSSE data matched with the 2010 and 2013 BCSSE data.

Logistic regressions models are used for the binary outcomes, and a Poisson count regression model is used for the total number of HIP measures. All of the regressions include controls for the student's demographic characteristics (gender, race/ethnicity, intended major, first generation status, Pell grant receipt, and an indicator for sample year).

Descriptive Statistics

Selected demographic characteristics from the NSSE sample of first-year students are presented in Table 1, and the graduating senior data is shown in Table 2. As noted above, 42% of the first-year student sample are participants in the RLC, which is a higher percentage than participated in the program at the university (23%–38%), showing strong overrepresentation among this group in the NSSE. The university population as a whole is predominately White, but racial and ethnic minorities and international students are more likely to be participants in the RLC than are their White counterparts. In terms of major/intended major, Engineers and Arts & Humanities students are more likely to be program participants, while

Management, Social Sciences and undeclared students are less likely to participate in the program. Pell grant recipients are less likely to participate in the program. The planned and actual participation in HIPs is similar to the national rates for other students at Baccalaureate Arts & Science focused institutions (Center for Postsecondary Research, 2019).

To examine the potential for selection bias due to the pre-existing differences in engagement level between students who opt in to the RLC versus others, Table 3 shows selected pre-college measures from the BCSSE by program participation status. The picture largely shows that selection bias is likely to be an issue; compared with non-participants, program participants have a slightly higher high school GPA, higher expectations about interacting with other students who are different from them on several dimensions, and higher expectations about working closely with faculty members. Since our measures of HIPs include activities involving high student-faculty interaction, in particular participating in research, this bias is potentially large. They also expect to study even when there are other interesting things to do, find additional information for assignments when they don't understand the material, finish something they started after encountering challenges, stay positive even after a poor performance, and ask instructors for help.

Table 3

Beginning College Characteristics, by Program Participation Status

	Participants		Resident, non-participants		Non-resident, Non-participants	
Variable	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
High School GPA	3.73	0.30	3.66	0.31	3.65	0.30
Fraction Responding "Often/Very Often"						
Come to class unprepared	0.05	0.22	0.04	0.20	0.04	0.20
Prepare two or more drafts	0.18	0.38	0.22	0.42	0.16	0.36
Expect to work with faculty outside of class	0.27	0.44	0.16	0.37	0.20	0.40
Expect to have serious conversations with people of different race/ethnicity	0.60	0.49	0.43	0.50	0.39	0.49
Expect to have serious conversations with people of different religion, political views	0.60	0.49	0.42	0.50	0.42	0.49

Fraction Responding certain/very certain will__						
Expect to Study even when there are other things to do	0.51	0.50	0.49	0.50	0.43	0.50
Find information	0.72	0.45	0.65	0.48	0.61	0.49
Participate in class	0.55	0.50	0.56	0.50	0.47	0.50
Ask for help	0.77	0.42	0.74	0.44	0.73	0.44
Finish even when discouraged	0.79	0.41	0.76	0.43	0.73	0.45
Positive attitude	0.56	0.50	0.43	0.50	0.51	0.50
First generation student	0.19	0.39	0.10	0.30	0.13	0.33
Also in NSSE	0.69	0.46	0.63	0.49	0.56	0.50
	N=632		N=121		N=1,207	

Source: Author's calculations from 2010, 2013 & 2016 institutional BCSSE data.

Results

There are positive impacts of full participation in the RLC program on most of our measures of student engagement. These results are detailed below and represent evidence on new measures of engagement in the small liberal arts college context that is less well studied than RLCs at larger research institutions. In particular, RLC participation as a first-year student increases the likelihood of participating in additional HIPs by the senior year.

In contrast, we find little evidence of positive spill-over effects of the RLC on resident nonparticipants after controlling for variation in the student characteristics in the sample. The indicator for resident non-participating students is included in all of the regressions, but due to their lack of statistical significance, we omit reporting the coefficients in results tables measuring HIPs. We do report the coefficients in the engagement with diversity tables since there is some weak evidence of a program impact here. However, these results are not robust once we control for before-college student characteristics, and, further, they do not persist to the senior year. This lack of impact of the program on the resident non-participants could be due to the fact that the small sample size of resident nonparticipants makes finding statistically significant differences more difficult. It may also suggest that merely living in a community does not produce the desired impact on HIPs or on engagement with diverse others and that the academic component of the program is critical to its success.

High-Impact Practices

The most compelling evidence for a positive impact of the RLC is shown in Tables 4 and 5, which present the results of the subsequent HIP participation and expected participation. Table 4 shows the logistic regression results for each activity individually, and Table 5 shows the Poisson count regression results for the total number of HIP activities.

Interestingly, the first-year RLC participants only report higher levels of expected participation in a leadership position after the student input variables from the BCSSE are included in the analysis. RLC participants are indistinguishable from non-participants in the total number of planned HIPs. When we reexamine the descriptive data in Table 3, we see that there are high rates of expected participation in these activities for the first-year students. These rates are consistent with the stereotype of the small, liberal arts colleges, where the expectations are that all students will be participating in these types of activities.

However, when we turn to the measures of actual participation in HIPs in the senior sample, RLC participants are 2.55 and 2.30 times more likely to report having engaged in research and having held a leadership position. These differences are large and statistically significant at the .01 level. They are equally likely to have participated in an internship type experience and a study abroad program. Students in the RLC also completed a higher total number of HIPs by their senior year. The coefficients of a Poisson regression do not represent the marginal effects; a coefficient of 0.15 represents a prediction of an additional 1.15 activities on average. All of these results are robust to the inclusion of the student input measures, indicating that selection bias may not be a significant problem in this case.

Table 4

Predicted Impact of Residential Learning Community Program on Participation in Additional High-Impact Activities

	Without BCSSE Controls Odds Ratio (95% CI)	With BCSSE Controls Odds Ratio (95% CI)	Pseudo R^2 w/o w/ BCSSE
First-year Students			
High-Impact Activity Student Plans to do/Has Done			
Internship	0.99	0.59	0.18
	(0.35 2.79)	(0.19 1.83)	0.22
Research	**1.50***	1.40	0.10
	(1.01 2.20)	(0.94 2.10)	0.13
Study Abroad	**1.48***	1.48	0.07
	(1.00 2.07)	(0.99 2.22)	0.08
Leadership Position	**1.99***	**1.90***	0.06
	(1.16 3.41)	(1.08 3.35)	0.09
N	610		

Senior Sample: High-Impact Activity Has Done/In Progress					
Internship	1.03		1.10		0.05
	(0.67	1.57)	(0.70	1.73)	0.06
Research	**2.47†**		**2.55†**		0.13
	(1.71	3.57)	(1.72	3.81)	0.15
Study Abroad	1.07		1.13		0.10
	(0.75	1.53)	(0.77	1.65)	0.11
Leadership Position	**2.24†**		**2.30†**		0.05
	(1.47	3.43)	(1.46	3.61)	0.07
N			699		

Source: Logistic Regressions from Institutional NSSE & BCSSE data. Regressions also include demographic controls, not shown, available upon request. †,* Statistically significant at the 1%, 5% level. †No estimates for Resident, non-participants were statistically significant in the senior samples.

Table 5

Predicted Impact of Residential Learning Community Program on the Number of High-Impact Activities Student Plans to do/Has Done

	Without BCSSE Controls		**With BCSSE Controls**		**Pseudo R^2 w/o BCSSE**
	Coefficient (95% CI)		**Coefficient (95% CI)**		**w/ BCSSE**
First-year Students: Plans to/has done					
Number of High-Impact	0.08		0.08		0.006
Practices	(-0.03	0.20)	(-0.04	0.02)	0.009
Excluding Senior	0.09		0.07		0.006
Culminating Experience	(-0.03	0.20)	(-0.05	0.19)	0.009
First-year Students: Has done					
Number of High-Impact	0.27		**0.31***		0.17
Practices	(-0.01	0.54)	(0.03	0.60)	0.19
Excluding Senior	**0.30***		**0.32***		0.17
Culminating Experience	(0.008	0.58)	(0.03	0.62)	0.18
N			610		
Senior Sample: Has Done					
Number of High-Impact	**0.14†**		**0.14†**		0.02
Practices	(0.05	0.23)	(0.05	0.24)	0.02
Excluding Senior	**0.14†**		**0.15†**		0.02
Culminating Experience	(0.03	0.25)	(0.03	0.26)	0.02
N			699		

Source: Poisson Regressions from Institutional NSSE & BCSSE data. Regressions also include demographic controls, not shown, available upon request. †, * Statistically significant at the 1%, 5% level. No estimates for Resident, non-participants were statistically significant in the samples, results not shown.

The fact that large numbers of students, regardless of RLC participation, are planning in their first year to participate in future HIPs is consistent with both groups of students having similar underlying engagement and motivation. However, the RLC participants are more likely to follow through and actually complete more HIPs by their senior year. This difference in completion rates by

their senior year, in combination with the similar expectations at the end of students' first year, is consistent with a causal, program effect. The magnitude of the effects on participating in research and holding leadership positions are also large. Even if there is selection bias remaining after the inclusion of the student input measures from the BCSSE, it is unlikely to explain all of the differences between RLC participants and nonparticipants, which is again suggestive of a programmatic impact. These results are consistent with the literature that finds that LCs broadly benefit students through the indirect effect of increasing engagement in other ways (Pike et al., 1997; Pike, 1999; Stassen, 2003; Zhao & Kuh, 2004).

Engagement with Diverse Groups of Students

Students who participate in the Bucknell RLC program are more likely to engage in serious conversations with students of different racial/ethnic backgrounds from their own as shown in Table 5. The effect is present for first-year students of all races, even after controlling for the inputs. For seniors of all races, there is not a statistically significant difference between RLC participants and nonparticipants.

Given the predominantly White student body, students of color will find it difficult to avoid having conversations with students of a different race/ethnicity, while White students may not have the same level of exposure to students of color. When the regressions are run separately on the sample of White students only, the RLC program has a persistent, statistically significant effect. White RLC program first-year and senior participants are 66% and 72% more likely than non-participants to report engaging often/very often in conversations with students of different race/ethnicity respectively. There is not a robust effect of RLC participation on engaging with peers who are different on economic, religious, or political backgrounds.

Table 6

Predicted Impact of Residential Learning Community on Student Engagement with Diverse Groups

	Without BCSSE Controls Odds Ratio (95% CI)	With BCSSE Controls Odds Ratio (95% CI)	Without BCSSE Controls Odds Ratio (95% CI)	With BCSSE Controls Odds Ratio (95% CI)	Pseudo R^2 w/o w/ BCSSE
	Residential Learning Community Participant		**Resident, Non-Participant**		
First-year Students					
Often/Very Often Talk with a Person of a Different ____ than my own					
Race/ethnicity	**2.04†**	**1.68***	**2.07***	1.60	0.07
	(1.39 2.99)	(1.11 2.53)	(0.92 4.68)	(0.68 3.75)	0.11
Race/ethnicity, only White respondents (N=491)	**2.12†**	**1.66***	**2.12***	2.03	0.06
	(1.39 3.22)	(1.05 2.61)	(1.39 3.22)	(0.78 5.27)	0.12
Economic, religious, political background	**1.80†**	1.51	**3.84***	3.06	0.09
	(1.18 2.76)	(0.96 2.37)	(1.27 11.6)	(0.98 9.53)	0.13
N	610		610		
Senior Students- Results shown for RLC Participants only‡					
	Without BCSSE Controls		**With BCSSE Controls**		
Race/ethnicity	1.43		1.38		0.05
	(0.97 2.08)		(0.92 2.06)		0.07
Race/ethnicity, only White respondents (N=556)	**1.65***		**1.72***		0.05
	(1.10 2.47)		(1.13 2.62)		0.08
Economic, religious, political background	1.03		0.90		0.02
	(0.64 1.66)		(0.55 1.48)		0.04
Economic background	**1.58***		1.42		0.03
	(1.03 2.43)		(0.91 2.25)		0.05
Religious background	1.28		1.19		0.01
	(0.86 1.91)		(0.79 1.82)		0.02
Political Background	0.97		0.91		0.03
	(0.66 1.41)		(0.61 1.36)		0.04
N	699		699		

Source: Logistic Regressions from Institutional NSSE & BCSSE data. Regressions also include demographic controls, not shown, available upon request. †, * Statistically significant at the 1%, 5% level. ‡No estimates for Resident, non-participants were statistically significant in the senior samples

First-year resident non-participants are more likely than non-participants to report engaging in conversations with students of different race/ethnicity and with students from different economic, religious, and political backgrounds. However, these impacts are not robust to the inclusion of the student input controls. There are no effects on these measures for the resident, non-participants in the senior samples (results not shown but are available upon request). These reported impacts are, of

course, contingent upon the nature of the Bucknell program; it differentially attracts the students of color at the university.

Because students of color in our institution (see Table 1) are more likely to opt in to the RLC, the White students who participate will naturally be more likely to engage often/very often with students from a different race/ethnicity in their first year simply through mere proximity. Because students of color are under-represented in the student population as a whole, regardless of their participation in the program, one would not expect as strong a program effect on these students on this measure. The striking result that this effect remains strong in the senior sample of White RLC students, who are three years removed from the residential environment, speaks to a persistent effect of the program.

Discussion

The results augment the previous literature in several ways. First, our measures of completion of additional HIPs as an outcome are, to our knowledge, unique in the literature. Second, the inclusion of controls for student engagement from before college to account for selection bias problems improves on the methodology of some of the previous literature. Third, our results show that a first-year RLC can have additional benefits separate from increasing retention rates and GPAs, even in a small liberal arts institutional context where many other HIPs are offered and encouraged. Finally, demonstrating that the impact of this first-year RLC carries through to the senior year provides new evidence on the potential long-term benefits of an RLC on students.

Our findings that the Bucknell RLC students are more likely to participate in HIPs is consistent with the literature that shows that LCs and RLCs often increase student engagement through indirect, or mediating influences (Pike, et al., 1997; Pike, 1999; Stassen, 2003; Zhao & Kuh, 2004). In contrast to Pascarella et al. (2004), who find that the bulk of the impact of HIPs occurs in the first year, we find that the positive impact of the Bucknell RLC on HIPs not only occurs in the first year but also has an accumulated impact by senior year. Our results are also consistent with Brownell and Swaner (2010) and Purdie and Rosser (2011) who provide evidence that more comprehensive, higher quality programs are more effective, as we find positive impacts for the students who participated in the academic, residential, and social programming but find no positive impacts on the resident, non-participants.

There is not a strong consensus in the literature about the impact of LCs and RLCs on interactions with diversity. These results suggest that an RLC with a disproportionally diverse student participation can have a positive impact at a PWI, consistent with Inkelas et al. (2007) and Inkelas et al. (2018). However, a program that simply houses students from diverse backgrounds together and does not include additional programming does not appear to be sufficient to increase interactions between students of different race/ethnicities.

Caveats/Further Work

As explained in detail, there are two sources of potential bias in our results, each working in different directions. To the extent that more innately engaged students are differentially selecting the RLC program, the estimates of the program's impact are biased upwards. When we control for the student inputs by including the BCSSE data, some of the estimates of the program's impacts are reduced or are no longer statistically significant. If these controls do not adequately capture their underlying propensity for engagement, bias in the estimates of the program's impact may remain.

On the other hand, if student engagement is associated with the probability of retention and of participating in the subsequent NSSE surveys and with participation in the RLC, the sample selection issues created will tend to bias estimates of the program's impact downwards, making it more difficult to measure any positive program effects. The exact magnitude of the estimated effects should therefore be taken with a grain of salt. Some of the estimates, however, are large enough that they provide strong evidence of a positive impact of the program on subsequent student engagement. Finally, because this study examines one program at one institution, there will be limits to the generalization of these results to other programs.

Conclusion

The results show that a well-structured RLC can have positive benefits for students even at a small, liberal arts college with high retention rates. Students in the program report on average participation in 3.6 of the HIPs included in the NSSE survey instrument. This average is an underestimate, given the under-reporting of participation in senior culminating experiences. As Kuh (2008) recommends availability of at least one HIP per year in the curriculum, the RLC students clearly are taking advantage of these opportunities at higher rates than their peers. The finding that students who participate in RLCs are more likely to engage in other HIPs, despite having similar expectations about participation as first-year students, illustrates one strategy for institutions to intentionally build on students' first-year experience and prepare them to continue to deepen their level of engagement to their senior year.

White RLC participants in this program are more likely than nonparticipants to interact with students of color, an effect that diminishes but persists to their senior year when they are no longer in the first-year residential environment that places them in close proximity to students of color. The combination of findings of positive impacts for full program participants but no estimated impact on resident non-participants who did not participate in the program suggests that the combination of the academic content and the living community is the important driver of the positive outcomes.

As a whole, these findings may be particularly interesting to small, liberal arts schools who are looking for ways to improve student engagement on their campuses and are finding they cannot rely on their small size to ensure their student experience is engaging. Additionally, this study provides an example of how institutions can use the BCSSE and NSSE data to assess their programs and institutional initiatives. The results also indicate that first-year RLCs can prime the pump for long lasting student engagement at the institution.

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