

# Discussions on University Science Teaching: Proceedings of the Western Conference on Science Education

Volume 1 *Proceedings of the 2015 Western Conference on Science Education*

Article 7

2017

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### Recommended Citation

Hobbins, Justine; Eisenbach, Mildred; Jacobs, Shoshanah; and Ritchie, Kerry (2017) "Do Students Who Live in Residence Learning Communities Perform Better Academically than Those Who Live in Traditional Residence and Off-Campus?," *Discussions on University Science Teaching: Proceedings of the Western Conference on Science Education*: Vol. 1 , Article 7.  
Available at: <http://ir.lib.uwo.ca/wcsedust/vol1/iss1/7>

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## **Do Students Who Live in Residence Learning Communities Perform Better Academically than Those Who Live in Traditional Residence and Off-Campus?**

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### **Abstract**

Residence learning communities (RLCs) refer to intentional groupings of students living together in residence with shared academic and/or non-academic interests. The present research study sought to determine if living in a RLC improved student academic performance compared to other living scenarios at the University of Guelph, specifically for students in the College of Biological Science (CBS). A complete cohort of students was followed from admission through the following five years. Results demonstrated that RLCs improved student academic performance at Guelph for all students, and specifically for CBS students.

**Keywords:** residence, learning community, residence learning community, biological science

### **Introduction**

Residence learning communities (RLCs) refer to intentional groupings of students living together in residence with shared academic and/or non-academic interests (Luna & Gahagan, 2008). Given that a significant amount of what students learn in post-secondary education comes from their experiences of daily living, RLCs may offer a unique opportunity to enhance undergraduate education (Shapiro & Levine, 1999). The 2004 National Study of Living-Learning Programs (NSLLP) showed promising results regarding the impact of RLCs on undergraduate education, including higher grade point averages (GPAs), compared to students not in RLCs (Inkelas Kurotsuchi, Soldner, Longerbeam, & Brown Leonard, 2008). Although the NSLLP was comprehensive in design, it is exclusively based on American institutions. Furthermore, most other published works supporting the use of RLCs are also out of the United States, and are based on anecdotal evidence or program evaluations rather than rigorous assessment research (Blimling, 1998; Buch & Spaulding, 2008; Kuh, Schuh, & Whitt, 1991). Moreover, despite the growing number of RLCs in Canada, the data describing their impact in the Canadian context are lacking (Hobbins, Eisenbach, Ritchie, & Jacobs, 2016). Therefore, there remains a need for more rigorous research assessing the impact of RLCs, specifically within Canada.

This extended abstract will outline the research study at the University of Guelph that was conducted to assess the impact of living in a RLC on several student academic outcomes compared to other living scenarios. Specific attention will be given to the College of Biological Science (CBS) students living in a RLC because CBS RLCs have anecdotally been the most successful at Guelph; furthermore, students from the CBS comprise the largest portion of RLC participants at Guelph. The Guelph RLC program has been established as representative of Canadian Comprehensive Institutions offering RLCs (Hobbins et al., 2016), and therefore this study's design and results may be applied to other Canadian Comprehensive Institutions offering RLCs.

### **Purpose and Hypothesis**

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The purpose of this research was to determine if living in a RLC improves students' academic performance, measured as first year GPA, registration in 2<sup>nd</sup> year (retention), and graduation status as of summer 2015 (5-year graduation rate), compared to other living scenarios (traditional residence, off-campus) in Guelph. The CBS RLC program was also investigated separately.

It was hypothesized that RLCs at Guelph improve FY GPA, retention rate and graduation rate for all students compared to other living scenarios. Furthermore, it was hypothesized that CBS students living in a RLC would achieve significantly higher FY GPAs compared to CBS students in other living scenarios.

### **Methods**

In collaboration with Student Housing Services and the Registrar's Office, the complete 2010 cohort of students at Guelph (n=4805) was followed from admission through the succeeding five years of their undergraduate studies.

### **Data**

Variables of interest included students' sex, admissions average, first year living scenario (RLC, traditional residence, off-campus), first year program and major, final grade by course for fall 2010 and winter 2011, registration status in 2<sup>nd</sup> year (retention), and graduation status as of summer 2015 (5-year graduation rate). From these variables, first year GPA was calculated and first year part-time/full-time status was determined based on the number of courses a student completed by the end of first year (part-time:  $\leq 3$  courses/semester). Lastly, students were identified as belonging to one of six colleges at Guelph based on their program and major: College of Biological Science (CBS), College of Social and Applied Human Science, College of Physical and Engineering Science, College of Arts, College of Management and Economics, and Ontario Agricultural College.

### **Statistical Analyses**

An ANCOVA followed by a Bonferroni corrected pairwise comparison was conducted to determine the impact of living scenario on first year GPA while controlling for sex, admissions average and part-time/full-time status. Chi-squared tests were conducted to determine the impact of living scenario on 2<sup>nd</sup> year retention rate and 5-year graduation rate. Students were then categorized by college, and an ANCOVA followed by a Bonferroni corrected pairwise comparison was conducted for each College to determine the impact of living scenario on first year GPA, while controlling for sex, admission average and part-time/full-time status.

### **Results**

In the 2010 cohort, 60% of students chose to live in traditional residence (n=2910), 22% chose to live off-campus (n=1030), and 18% chose to live in a RLC (n=865).

There was a significant difference in first year GPA between students living in RLCs, traditional residence and off-campus when controlling for admissions average, sex and part-time/full-time status. Students living in RLCs had a significantly higher first GPA compared to students living in traditional residence and off-campus, while no statistically significant

differences existed between students living in traditional residence and off-campus (Mean first year GPA  $\pm$  SE: 71.8 $\pm$ 0.4%, 69.3 $\pm$ 0.2%, 69.3 $\pm$ 0.4% respectively,  $F_{2,4189}=12.8$ ,  $p<0.001$ ) (Figure 1).

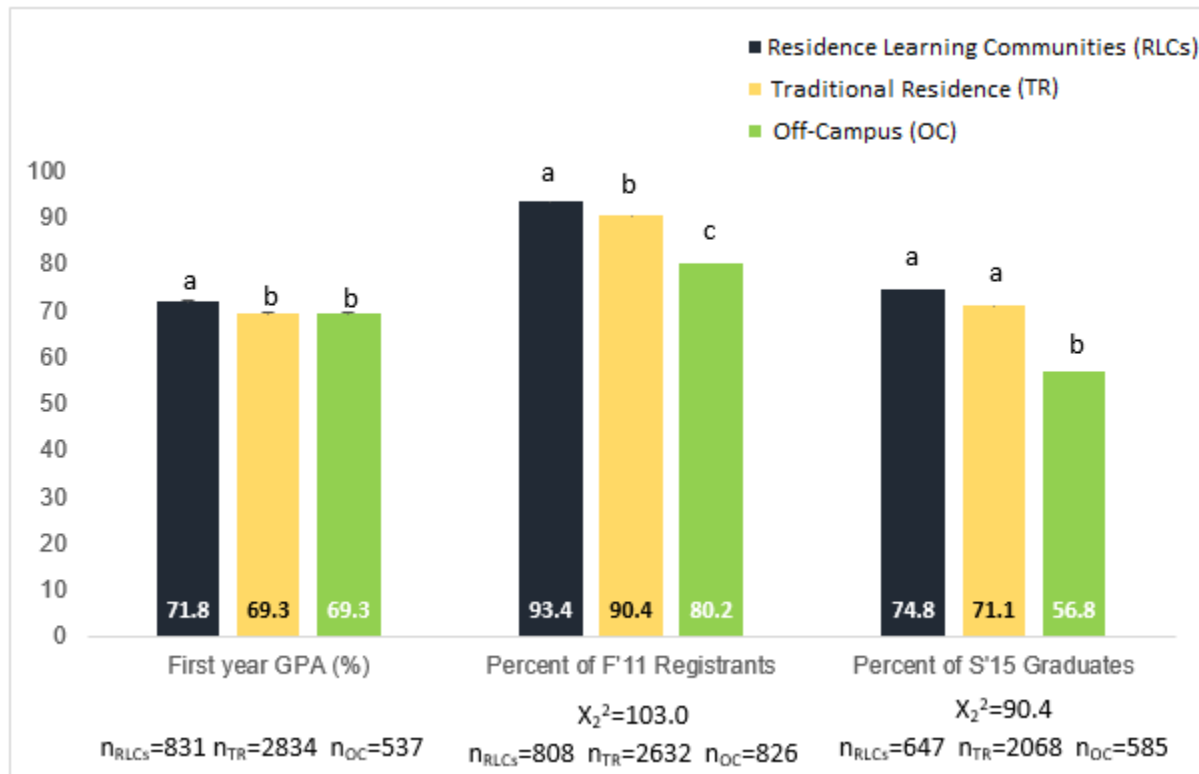


Figure 1. The impact of living scenario on first year GPA, registration in fall 2011 and graduation as of summer 2015, of all students within the 2010 cohort. First year GPA data are mean  $\pm$  SE. Variables not sharing a letter are significantly different from each other.

There was a significant association between first year living scenario and retention ( $X^2_2=103.0$ ,  $p<0.001$ ). Specifically, there was a significantly higher retention rate for students who lived in RLCs compared to students who lived in traditional residence and off-campus, and a significantly higher retention rate for students who lived in traditional residence compared to those who lived off-campus (Mean proportion of fall 2011 registrants: 93.4%, 90.4%, 80.2%, respectively, adjusted  $p$ -value=0.017) (Figure 1).

There was a significant association between first year living scenario and 5-year graduation rate ( $X^2_2=90.4$ ,  $p<0.001$ ). Specifically, there was a significantly higher 5-year graduation rate for students who lived in RLCs and traditional residence compared to those who lived off-campus, but no difference in 5-year graduation rate between those who lived in RLCs and traditional residence (mean proportion of students graduated by 2015: 74.8%, 71.1%, 56.8%, respectively, adjusted  $p$ -value=0.017) (Figure 1).

There was a significant difference in first year GPA between CBS students living in RLCs, traditional residence, and off-campus when controlling for admissions average, sex and part-time/full-time status (mean first year GPA  $\pm$  SE: 73.2 $\pm$ 1.5%, 66.6 $\pm$ 0.7%, 70.4 $\pm$ 1.4% respectively,  $F_{2,936}=9.9$ ,  $p<0.001$ ) (Figure 2).



Figure 2. The impact of living scenario on first year GPA of CBS students within the 2010 cohort when controlling for sex, admissions average and part-time/full-time status. Data are mean  $\pm$  SE. Variables not sharing a letter are significantly different from each other.

Specifically, students living in RLCs and off-campus had a significantly higher first year GPA compared to students living in traditional residence, while no statistically significant differences existed between students living in RLCs and off-campus. There was no significant difference in first year GPA between students in any living scenario for any of the other 5 colleges at Guelph.

### Discussion

The overall purpose of this research study was to determine if living in a RLC improved student academic performance compared to other living scenarios, and specifically we sought to determine if this were the case for CBS students at Guelph. This is the first study to rigorously investigate the impact of RLCs in a Canadian Comprehensive university. Consistent with existing American literature, we show that living in a RLC significantly improves first year GPA, retention and graduation rates, compared to other living scenarios. These significant findings remain even after controlling for several potential confounding variables, most notably admissions average, which is not always clear in other published reports (Blimling, 1998; Hyman & Haynes, 2008). Our results extend the current body of published literature to suggest that RLCs may be particularly effective for science students. College of Biological Science students in RLCs performed significantly better than College of Biological Science students who lived in another environment, but this pattern was not seen with any other college. The reasons for this difference are not immediately clear, but may be due to courses taken or academic support provided. Future research should further explore the elements of RLCs (e.g., academic study sessions, structured social support) responsible for this improvement in academic performance.

Given that Guelph is a representative site of investigation for Canadian comprehensive institutions offering RLC programs, researchers outside of Guelph may be interested in

replicating the present study's design to produce results that further support the impact of their specific RLC programs. Furthermore, Canadian comprehensive institutions considering implementing a RLC program may be interested in the RLC programming and design at Guelph.

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