Residence learning communities at Canadian Comprehensive Institutions

Abstract

‘ Learning Community’ is a ubiquitous term in higher education, and has been used in reference to a variety of programs, ranging from interdisciplinary group projects to on-line learning courses, and even the university campus as a whole.[1] More specifically, residence learning communities (RLCs) refer to intentional groupings of students living together in a dedicated residence space with shared interests (academic and /or non-academic), supported by various programming and support systems.

Several studies have demonstrated a positive impact of RLCs on student academic outcomes in the United States (U.S). However, this work is often limited in experimental design (lack of adequate control group), or dependent on variables that are not relevant to Canadian context (eg: degree of faculty involvement). At the University of Guelph (UoG) in particular, there are 21 RLCs offered across campus for approximately 800 first-year undergraduate students. At other Canadian institutions, the number of RLCs available to students continues to rise. However, objective data to support their impact on academic outcomes, and evidence-based best practices are non-existent in a Canadian context.

In this report, the value of RLCs will be discussed with supporting literature in the U.S context. This will be followed with a categorical principle component analysis (CATPCA) of over 80 RLC offerings at 9 Canadian Comprehensive Institutions. The CATPCA will allow us to place UoG RLCs in the context of RLCs at these 8 other Canadian Comprehensive Institutions. In doing so, we will establish UoG as an appropriate case study to ultimately be able to extend the findings of the proposed RLC impact research to these institutions. The paper will conclude

[1] Anne Goodsell Love, “The growth and current state of learning communities in higher education,” *New Directions for teaching and learning* 132 (2012), 5-18.

with a discussion of the research teams' next steps to quantify the impact of UoG RLC participation on student academic performance.

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Introduction

'Learning Community' is a ubiquitous term in higher education, and has been used in reference to a variety of programs, ranging from interdisciplinary group projects to on-line learning courses, and even the university campus as a whole.[2] Most commonly, 'learning community' is used in the literature to describe curricular structures that link different disciplines around a common theme.[3] Learning communities typically include groups of students, faculty and staff, such as residence life and student affairs, who are organized for the purpose of achieving common learning objectives.[4] The reported flexible nature of learning community models allows institutions to enhance their approaches to meet the broader goals of higher education, while also achieving institution-specific learning objectives.[5] Residence learning communities (RLCs) are a subtype of this learning community model. Specifically, RLCs refer to intentional groupings of students living together in a dedicated residence space with shared interests (academic and /or non-academic), supported by various programming and support systems.[6] The distinguishing feature of the RLC model is the on-campus residence component.

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[2] Goodsell Love, "The growth and current state."
[3] Gene Luna and Jimmie Gahagan, eds. *Learning Initiatives in the Residential Setting*. Columbia, SC: University of South Carolina, National Resource Center for The First-Year Experience and Students in Transition, 2008.
[4] Luna and Gahagan, *Learning Initiatives.*
[5] Nancy S. Shapiro and Jodi H. Levine. *Creating Learning Communities: A Practical Guide to Winning Support, Organizing for Change, and Implementing Programs.* San Francisco: Jossey-Bass, 1999.
[6] Luna and Gahagan, "Learning Initiatives."; Shapiro and Levine, *Creating Learning Communities.*

It has been widely recognized that a student's educational experience encompasses both their in-classroom and out of classroom education.[7] In fact, for approximately 75% of students, out of classroom experiences contribute most significantly to their educational experience.[8] The researchers determined this through interviewing 149 upper-year students of varying races from 12 institutions in the United States (U.S). Students were selected for interview such that no more than half the sample were student leaders (e.g varsity athlete, president of a social organization); and the remainder were representative of typical involvement demonstrated by an undergraduate student.[9] The results of study demonstrate that experiences outside of the classroom make a substantial contribution to student learning. This idea that a significant amount of what students learn is a result of their experiences of daily life is the central belief supporting RLCs in the U.S.[10]

Given that RLCs offer more opportunities for educationally purposeful activities as well as for social interaction and extracurricular involvement, they may contribute to improving student academic outcomes such as higher retention and graduation rates.[11] Promising results regarding the effect of RLCs on undergraduate education are supported with the 2004 *National Study of Living-Learning Programs (NSLLP)*, such as higher critical thinking abilities, easier transition to college from high school, and higher grade point averages compared to students not in RLCs.[12] Given that apart from the NSLLP, much of the published research to support the use

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[7] Naidoo, Jordan. "Making Education a Priority in the Post-2015 Development Agenda: Report of the Global Thematic Consultation on Education in the Post-2015 Development Agenda." United Nations Educational, Scientific and Cultural Organization – 2013, accessed November 2014, http://www.unicef.org/education/files/Making_Education_a_Priority_in_the_Post-2015_Development_Agenda.pdf

[8] George D. Kuh, John Schuh, J.E.Whitt, and Associates. *Involving Colleges: Successful Approaches to Fostering Student Learning and Development Outside the Classroom.* San Francisco: Jossey-Bass, 1991.

[9] George D. Kuh et al. *Involving Colleges: Successful Approaches.*

[10] Shapiro and Levine, *Creating Learning Communities.*

[11] George D. Kuh et al. *Involving Colleges: Successful Approaches.*

[12] Karen Inkelas Kurotsuchi. *National Study of Living-Learning Programs.* Columbus, OH: Association of College and University Housing Officials – International, 2008.

of RLCs in the U.S is based on anecdotal evidence or program evaluations, there remains a need for more rigorous research.[13] Most notably, in Canada, the data to support the impact of RLCs are non-existent. In fact, critical variables through the U.S research may not be relevant to the RLC models in Canada. For example, faculty involvement is greatly variable in U.S RLCs such that faculty could have no involvement, minimal involvement, mid-level involvement, or their involvement may be extensive such that they live in residence with the students.[14] In comparison, faculty involvement in RLCs in Canadian Comprehensive Institutions does not vary to such a high degree; faculty are either involved in the RLCs informally, or they are not at all involved. Therefore, degree of faculty involvement is not a relevant variable in assessing Canadian RLCs. Furthermore, given that RLCs in Canadian Comprehensive Institutions are largely offered for first year students only, participant year of study is not relevant in assessing Canadian RLCs. In regards to participant year of study in the U.S RLC research, there is variability such that RLCs offered are solely to support the first year transition, whereas others are multiyear, or four-year residence programs.[15]

In this report, the value of RLCs will be discussed with supporting literature in the U.S context. This will be followed with a categorical principle component analysis (CATPCA) of several RLC offerings at 9 Canadian Comprehensive Institutions. The CATPCA will allow us to place UoG RLCs in the context of RLCs at these 8 other Canadian Comprehensive Institutions to effectively establish UoG as representative of Canadian Comprehensive Institutions offering RLCs. The paper will conclude with a discussion of the research teams' next steps to quantify

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[13] George D. Kuh et al. *Involving Colleges: Successful Approaches.*; James MacGregor. "What differences do learning communities make?" *Washington center news,* 6 (1991): 4-9.
[14] Levine Laufgraben and Shapiro. *Sustaining and Improving.*
[15] Jodi Levine Laufgraben and Nancy S. Shapiro. *Sustaining and Improving Learning Communities.* San Francisco: Jossey-Bass, 2004.

the effect of UoG RLC participation on student academic performance in 2016. This report is intended for several audiences. Residence Life and Student Affairs staff may be interested to learn how UoG's RLCs compare to RLCs at other Canadian Comprehensive Institutions. Faculty may be interested to learn about the motivation behind implementing RLCs, perhaps finding the RLC model to be in line with the learning objectives they have outlined for their students. Finally, prospective students may be interested to learn how their undergraduate education experience may be enhanced through participating in a RLC.

Residence Learning Communities in the United States

The earliest RLC model in the U.S was piloted by the University of Michigan in 1962, during a time when the number of students in higher education nearly doubled.[16] This increase in student numbers contributed to a perceived lack of community across university campuses.[17] Given that learning communities are a way to make a large university feel smaller, this RLC initiative at Michigan was developed by several faculty members and housing staff to attenuate the anonymity experienced by students at a large institution in first year.[18] In this context, the RLC serves to remodel curricular structures to link different disciplines around a common theme, effectively eliminating feelings of anonymity. Additionally, more institutions have come to recognize that the first year of post-secondary education is a transitional year that serves as a foundation for subsequent years.[19] This transition is influenced by various factors, including

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[16] Shapiro and Levine, *Creating Learning Communities.*; Barbara Leigh Smith, Jean MacGregor, Roberta S. Matthews, and Faith Gabelnick. *Learning Communities Reforming Undergraduate Education*. San Francisco: Jossey-Bass, 2004.
[17] Nancy Schmidt, "Learning in the context of community, the academic experiences of first-year arts and science students in a learning community program" (Thesis Ed.D, University of Toronto, 2000)."
[18] Shapiro and Levine, *Creating Learning Communities.*
[19] Luna and Gahagan, "Learning Initiatives."; Betsy O. Barefoot. "The first-year experience. Are we making it any better?" *About Campus* 4, no. 6 (2000): 12-18.

social support structures.[20] RLCs in particular offer students the opportunity to develop relationships with like-minded, supportive peers in a small community that may help students ease into this transition to university.[21] Furthermore, students often pursue social activities at the cost of academic work; RLCs offer students a model to integrate both social and academic experiences.[22] Common objectives of learning communities, such as the RLC program, include easing the transition to first year university, to subsequently promote academic success and improve retention and graduation rates. More specifically, these objectives are reinforced through the RLC program's support of student involvement, social integration and academic engagement, and the linking of the curriculum and co-curriculum.[23]

*Characteristics of US RLCs***:**

Models of RLCs vary within and between university campuses in the U.S.[24] Shapiro and Levine (1999) describe four important characteristics shared among all RLCs in the U.S, in varying capacities: 1) curricular structure, 2) faculty role, 3) co-curricular opportunities, and 4) opportunities for leadership.

1) Curricular structure describes how courses and students are organized to form communities. RLCs are structured such that they include scheduled academic and/or co-curricular community activities in residence. In cases where a RLC is focused on academic support, students are often enrolled in several of the same courses, and they may even attend these classes in classrooms

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[20] Terry Lynn Gall, David R. Evans, and Satya Bellerose. "Transition to First-Year University: Patterns of Change in Adjustment Across Life Domains and Time." *Journal of Social and Clinical Psychology* 19, no. 4 (2000): 544-567.
[21] Faith Gabelnick, Jean MacGregor, Roberta S. Matthews, and Barbara Leigh Smith. *Learning communities; Creating connections among students, faculty, and disciplines.* San Francisco: Jossey-Bass, 1990
[22] Shapiro and Levine, *Creating Learning Communities.*; Vincent Tinto. *Building Learning Communities for New College Students: A summary of research findings of the Collaborative Learning Project.* Pennsylvania: National Center on Postsecondary Teaching, Learning, and Assessment, 1994.
[23] Maureen S. Andrade. "Learning Communities: Examining Positive Outcomes." *Journal of College Student Retention* 9, no. 1 (2007): 1-20.; Betsy O. Barefoot, "The first-year experience."
[24] Jodi Levine Laufgraben and Nancy S. Shapiro. *Sustaining and Improving Learning Communities.* San Francisco: Jossey-Bass, 2004.

located in the residence halls. These students are often in the same lecture, seminar and lab sections as other participants in their community. In cases where students are enrolled in a RLC focused on a theme other than academics, such as community involvement or outdoor recreation, there can be great variability in the level of academic content incorporated into the RLC.

2) Faculty role describes the ways faculty are involved in learning communities, and how they may collaborate to integrate the curriculum in a learning community. Faculty involvement may be non-existent in the RLC, or minimal such that faculty attend occasional scheduled programs in the residence hall, or join students for a meal in the dining hall. Mid-level involvement may include faculty having offices in the residence halls. The highest level of involvement includes faculty to live in residence where they are engaged in teaching, advising and having meals with the students.[25] In some cases, faculty are a part of the residence life structure such that the upper-year peer leaders are supervised collaboratively by the faculty-in-residence and residence life. In other scenarios, the faculty-in-residence supervises the residence life staff, who in turn supervise the upper-year peer leaders. Thus, the faculty-in-residence has varying supervisory authority over the upper-year peer mentors.[26]

3) Co-curricular opportunities describe the ways that a learning community encourages the integration of in- and out-of-classroom learning, reinforcing the students' involvement in the community. RLC students can participate in a semester-long service project, and/or in a series of theme-related activities. Co-curricular activities may include student-faculty retreats, career workshops, and study abroad opportunities.[27] Faculty may come into the community on a

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[25] Levine Laufgraben and Shapiro, *Sustaining and Improving.*; Shapiro and Levine, *Creating Learning Communities.*

[26] Luna and Gahagan, "Learning Initiatives."

[27] Karen Inkelas Kurotsuchi, Matthew Soldner, Susan D. Longerbeam, and Jeannie Brown Leonard. "Differences in Student Outcomes by Types of Living-Learning Programs: The Development of an Empirical Typology." *Research in Higher Education* 49, no. 6 (2008): 495-512.

onetime basis for a lecture, mentoring, or discussion.

4) Opportunities for leadership describe the leadership roles available to learning community members and/or upper-year students. Students typically are highly involved in their communities through activities such as participating on RLC councils or committees. There are also opportunities present for upper-year students to be involved in the RLC, such as through peer-teaching a weekly seminar or tutoring.

The literature has reported some promising associations between RLCs and improved performance outcomes in the U.S including higher grades, involvement and participation in extracurricular activities, gains in intellectual and social development, and higher persistence and graduation rates.[28] The most comprehensive investigation into the effect of U.S RLCs on undergraduate student academic outcomes is the 2007 *National Study of Living-Learning Programs (NSLLP)*. This study surveyed nearly 24,000 students from 34 U.S post-secondary institutions, comprised of a random sample of RLC students, along with a comparison sample of students who lived in traditional residence halls. Analysis of survey responses demonstrate that RLC students experience a smoother transition from high school to college, higher critical thinking abilities, and higher self-reported grade point averages compared to students in traditional residence. To our knowledge, the comprehensive *NSLLP* is the only study investigating the impact of U.S RLCs on undergraduate student outcomes that includes a meaningful control group where comparison students were matched to RLC students by gender, race or ethnicity, and year in school.

The impact of RLCs on the first year student experience has continued to be recognized in the U.S since the University of Michigan piloted the first RLC in 1962, demonstrated by the

[28] Chun-Mei Zhao and George D. Kuh, "Adding Value."

rise in the number of schools participating in this initiative – by the mid-1990s, more than 24 U.S universities offered RLCs, and by the year 2008, more than 73 U.S universities offered RLCs.[29] A brief search into U.S university student housing pages reveals that there are more than 100 universities offering RLCs as of 2015. A great diversity exists in the form and function of these RLC programs, and as such it can be difficult to generalize the findings of the available RLC research within and between all American institutions.[30] Most notably for the purposes of the current study, key variables used to define a RLC program and to distinguish among different RLCs in the U.S, such as degree of faculty involvement, and participant year of study, are irrelevant to the RLC programs at the University of Guelph and other Canadian institutions. Therefore, not only are the findings of the available U.S RLC research limited in their generalizability to American institutions, they are also limited in their generalizability to Canadian institutions due to irrelevant variables included in U.S RLC assessment models.

How do Canadian RLCs compare to one another?

In order to place the UoG RLC programs in a Canadian context, we considered RLC offerings, if any, from 14 other top Comprehensive Institutions in Canada (as ranked by Maclean's Magazine[31]) as a comparison group. Of these comparable institutions, 9 openly advertise a form of RLC. While there is a lack of consistency with the terminology used to refer to RLCs across institutions (i.e. RLCs may also be referred to as living-learning programs, living-learning clusters and theme houses or floors), for the purpose of this paper, the single term RLC will be used to cover all the terminology. In reviewing each of these universities' student

[29] Karen Inkelas Kurotsuchi et al., "Differences in Student Outcomes."; Shapiro and Levine. *Creating Learning Communities.*
[30] Levine Laufgraben and Shapiro. *Sustaining and Improving.*
[31] "University Rankings 2015: Comprehensive," *MacLean's*, November 6, 2014.

housing webpages and by contacting Residence Life Coordinators at each institution, variables for 86 different RLC offerings were collected (Table 1). These variables were selected based on the characteristics of RLCs described by Inkleas and Soldner (2008) and Shapiro and Levine (1999). Given the long term goal of this study to investigate living status and first-year academic performance, only RLCs offered for first year students were considered in this analysis. Therefore, the University of Waterloo's Second-year School of Accounting and Finance RLC was excluded from analysis. Furthermore, only RLCs with full data available were included in analysis, therefore all RLCs at the University of Regina, and two RLCs from Carleton University, were excluded from analysis due to incomplete data. In these cases, data was considered incomplete if we were unable to obtain specific information for RLCs at that institution, such as 'faculty involvement', 'leader type', or 'average number of participants per community'. Our completed data set therefore allows for UoG RLC programs to be compared to 65 RLC programs at 8 Canadian Comprehensive Institutions.

In order to extend future findings of the larger proposed research project (as described below in "Future directions") at UoG to other Canadian Comprehensive Institutions, it is of importance that UoG's RLCs be placed in the context of these other institutions, such that we determine if UoG RLCs are similar, or greatly different, to RLCs at comparable institutions. To do so, a categorical component analysis (CATPCA) has been conducted. CATPCA is a statistical tool used to reduce categorical variables into a smaller set of uncorrelated principle components (PC), allowing for the interpretation of a few PCs as opposed to a large number of variables. Variables included in this analysis are ordinal and nominal. In CATPCA, non-numerical data are optimally quantified into numerical categories, creating the variance in nominal and ordinal variables that is required for dimension reduction. This CATPCA quantified the 11 variables

(Table 2) that describe the programming and structure of RLCs in these Canadian Comprehensive Institutions (Table 1). CATPCA was performed using the 'CATPCA' tool in SPSS (version 23). Two components were chosen for extraction, using the "screen criterion". Principle components 1 (40%) and 2 (15%) accounted for 55% of the variance in the dataset. Variables with contributions less than 0.3 in either component were not considered significant.[32]

Table 1. Names and significant variables of institutions from MacLean's 2015 Top Comprehensive Institutions in Canada that offer some form of RLC included in the CATPCA.

Institution	# of RLC Types Offered	Faculty Involvement (Y/N)	Study Sessions (Y/N)	Career Night (Y/N)	Themed Activities (Y/N)	Average # Participants
UVictoria	7 Social	N	N	Y	Y	35
	3 Academic	N	Y	Y	Y	35
UWaterloo	0 Social	-	-	-	-	-
	11 Academic	Y	Y	Y	Y	12
Guelph	10 Social	Y[a]	Y[a]	Y[a]	Y[a]	35
	11 Academic	Y	Y	Y	Y	48
Carleton	6 Social	N[b]	N	N	N	245
	0 Academic	-	-	-	-	-
Memorial	3 Social	Y	Y	Y	Y	25
	2 Academic	Y	Y	Y	Y	25
Ryerson	2 Social	Y	N	Y	Y	48
	3 Academic	Y	N	Y	Y	48
Windsor	1 Social	N	Y	N	Y	33
	8 Academic	N[c]	Y	N	Y	33
Laurier	4 Social	Y	Y[d]	Y[d]	Y	23
	5 Academic	Y	Y	Y	Y	23
Brock	5 Social	N	N	N[e]	Y	23
	5 Academic	Y	Y	Y	Y[a]	23

Y=Yes, N=No. [a] Excluding Themed Living Communities. [b]Excluding Creative Arts & Design RLC. [c]Excluding Business, Drama and Nursing RLCs. [d]Excluding Singer and Songwriter RLC. [e]Excluding Career Exploration RLC

[32] Marielle Linting, Jacinthe Jacqueline Meulman, Patrick John Groenen, and Anita J. van der Koojj. "Nonlinear principal components analysis: introduction and application." *Psychology Methods,* 12, no. 3 (2007): 336-358.

Description of the variables included in the CATPCA

The variables used in the analysis are identified in Table 2. The community type was included in the analysis as "academic" or "social". Broadly speaking, academic RLCs are largely comprised of students who are in the same academic program of study, but may not necessarily share extra-curricular or lifestyle interests. In contrast, social RLCs are comprised of students who share non-academic interests, but may not necessarily be in the same program of study. Social RLCs may also include students who wish to live a particular environment, for example alcohol-free or study-intensive. Co-Ed ("yes" or "no") indicates whether the RLC was mixed or single gendered. Faculty involvement in RLCs can be non-existent ("no"), or typical ("yes") such that a faculty member is involved in the programming of the RLC. Since the purpose of RLCs is largely to integrate students' in and out of classroom experiences, faculty familiar with in-class material serve an important role in achieving curriculum integration in the RLCs. Academic activities, career nights/advising, study sessions, themed activities, and group projects were included to assess the intentional program options available to RLC participants, intended to achieve co-curriculum integration in the RLCs. "Yes" indicates this type of programming is in place, and "No" indicates this type of programming is not in place. Academic activities could include supplementary lectures, or academic support workshops for time management and study tips. Career nights/advising could include a guest lecture, a night of networking, workshops for resume writing and interviewing, and one-on-one advising with a career counselor. Study sessions consist of a facilitated session by an upper year peer mentor to help students navigate common course material. Themed activities are based on the common interests of a RLC, such as a night of artwork, poetry and musical performances in an arts-based RLC. Group projects offer the opportunity for students to collaborate on a project that epitomizes the theme of their RLC,

such as a final performance at the end of the term for a music themed RLC, or a final debate for a politics themed RLC. Average number of participants per community was included to assess the size of each RLC. Given that another purpose of RLCs is to make a large university feel smaller, a RLC with fewer participants may achieve this. Finally, the variable peer leader indicates whether the RLC is led by a peer mentor ("peer") or no leader ("none"), and further, the leader's minimum year of study (1-2) indicates whether they have experience with first year university.

Table 2. Categorical PCA scores and descriptions of fourteen variables which were used to classify the characteristics of 100 offerings of RLCs in Canadian Comprehensive Institutions (2015).

Variable	Categories or numerical range	Principal Component 1 Score	Principal Component 2 Score
Community type	Social; Academic	-.65	-.38
Co-Ed	Yes (Y); No (N)	.53	-.41
Faculty involvement	Yes (Y); No (N)	.75	-.14
Academic activities	Yes (Y); No (N)	.90	-.06
Career night/advising	Yes (Y); No (N)	.81	-.36
Study sessions	Yes (Y); No (N)	.77	.50
Group project	Yes (Y); No (N)	.33	-.69
Themed activities	Yes (Y); No (N)	.85	.10
Average number of participants per community	12-245	-.70	-.10
Leader type	Peer; None	.03	-.32

Minimum year of study of leader	1-2	-.10	.63

Results

Using the Principal Component Analysis we identified two distinct types of RLCs at these Canadian Comprehensive Institutions; social and academic. Dimension 1 demonstrates this difference between the two community types with all academic RLCs to the right of the origin and all social RLCs to the left (figure 1). Along with cluster type, we see that the number of student participants is often associated with RLCs type where social RLCs are more likely to be larger (academic: average 30 students, social: average 65 students). The academic RLCs are characterized by having study sessions, themed activities, faculty involvement and career-related events. Along the second Dimension, a few RLCs are separated because they allow for first year students to be leaders, or because there is no group project. Ryerson University is the only institution that allows first-year students to peer lead a RLC, whereas all other institutions in this analysis require the peer leader to be at least a second-year student. In comparison to the U.S RLCs which are commonly led by a faculty member, all of the Canadian RLCs included in this analysis are led by an upper-year student. Faculty involvement, if any, is informal such that they may attend a career night event once per semester, for example.

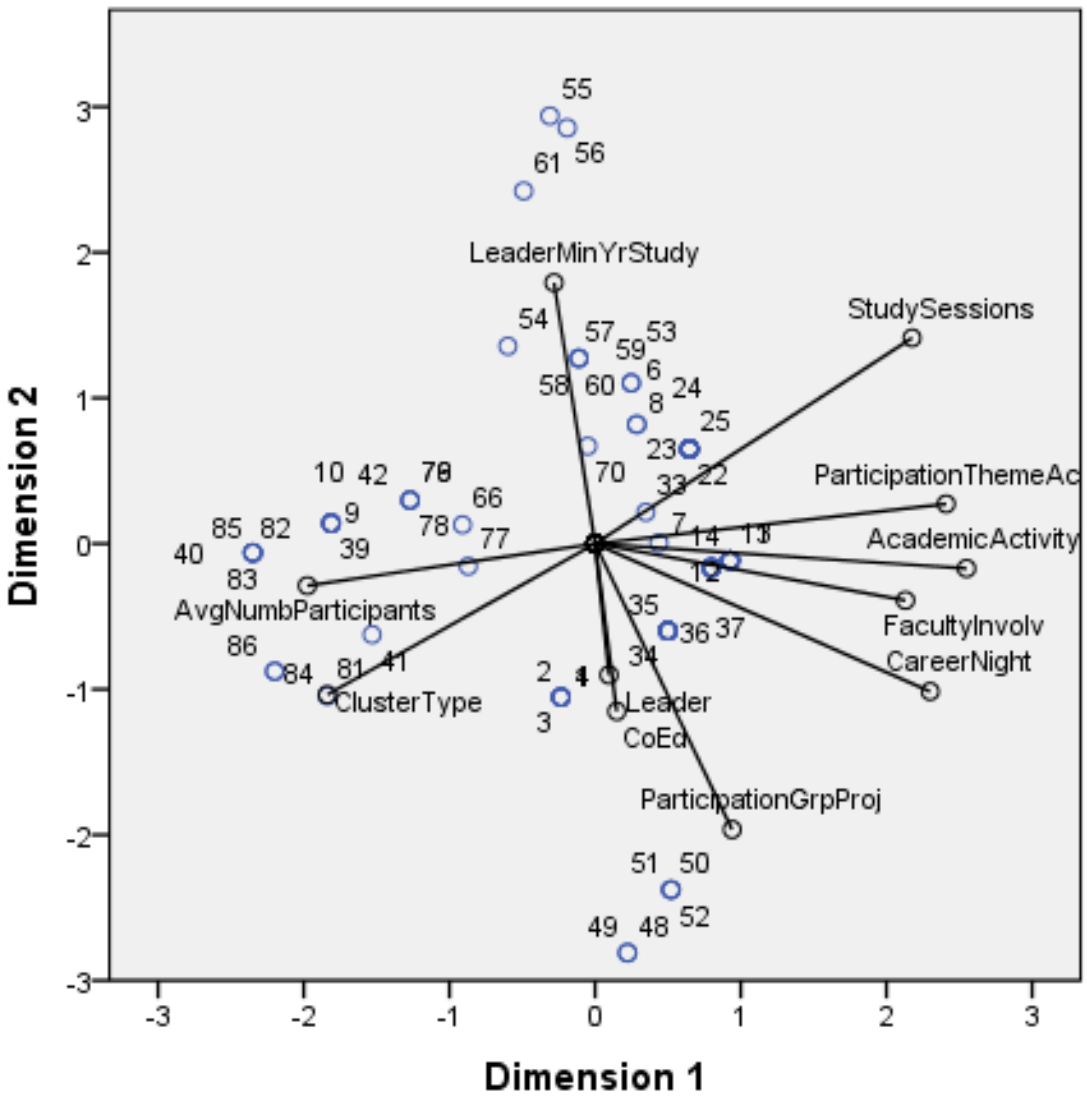

Figure 1: Relationships between RLC variables of 9 Canadian Comprehensive Institutions.

The RLCs at the University of Guelph are nested within both clusters along Dimension 1. Therefore, they can be used as a case study that represents the Canadian context as long as we distinguish which are academic and which are social residential communities.

How can UoG RLCs be described, and what does this mean for future research?

Given that the RLCs at the UoG are indeed an effective model for our larger proposed research project, we will now describe these UoG RLC offerings in more specific detail. At the

UoG, there are 21 different RLCs, each led by an upper-year peer mentor to 15-50 first year students. The size of each RLC is dependent upon the number of students who select to live in each type of community, and this may differ by cohort. These students are intentionally grouped in residence, sharing academic and/or personal interests. Typically, approximately 32% of students living in residence choose to participate in a RLC (figure 2). The overall objective of these RLCs at UoG is to help new students make a successful academic, social and personal transition to university, with each type of community programmed to suit the needs and interests of its participants. UoG offers 3 different RLCs: Living Learning Centers (LLCs), Academic Learning Clusters (ALCs), and Themed Living Communities (TLCs).

Beginning in 1969, LLCs were the first type of RLC offered at UoG for students interested in living in the Arts House or French House. Since 1969, the number of LLCs offered has expanded to include 7 different communities such as the Eco House, Leadership House and Innovation House. The defining element of each LLC is social programming and involvement in themed activities. Each LLC has a Program Facilitator (PF), who structures events to support the theme of the LLC such as an art gallery in the Arts House, and a conservation and tree planting project in the Eco House. Typically, approximately 22% of students who live in a RLC choose to live in an LLC (figure 2). Each LLC is comprised of 25-50 students who share similar social interests, but may not necessarily be enrolled in the same academic program. Students in LLCs register for their choice of academic courses according to the University of Guelph's Undergraduate Calendar, but since LLC participants are not necessarily in the same academic program, the courses they enroll in may vary greatly between one another. Additionally, students attend these classes in lecture halls outside of their residence. Faculty involvement in LLCs can typically be described as an out-of-classroom interaction, such as a career-orientated talk given

by a faculty member to the LLC once per semester.

In contrast to LLCs, ALCs were first offered in 1990 at UoG for 11 different academic programs such as Agriculture, Engineering, and Social Sciences. Since 1990, the number of sections for some ALCs have grown due to increases in demand and enrollment; such that there are currently 18 ALCs offered across campus. The Biological Sciences ALC is anecdotally the most successful, with 6 sections offered. Each ALC is comprised of 18-30 students who are enrolled in the same academic program. Typically, approximately 74% of RLC participants choose to live in an ALC (figure 2). The ALC is headed by a Cluster Leader (CL) who lives in the same residence and helps organize study groups and other activities to support the students' learning. Although they are in the same academic program, students in each ALC individually register for their academic courses, and may not necessarily be in the same lecture, lab, and/or seminar sections as other participants in their ALC. Furthermore, none of these course offerings take place in the residence hall buildings. Similar to LLCs, faculty involvement in ALCs can typically be described as an out-of-classroom interaction, such as a talk given by faculty to the LLC about careers and students' futures in their academic program.

In contrast to both ALCs and LLCs, there is no designated programming for TLCs, for example there are no faculty talks or study sessions. The TLCs currently offered include Study Intensive Area and Alcohol-Free. Similar to LLCs, the Study Intensive Area is comprised of 25-50 students who desire to live in a community of like-minded individuals. The Alcohol-Free LLC is comprised of approximately 8 students. Approximately 4% of students who live in a RLC choose to live in a TLC (figure 2).

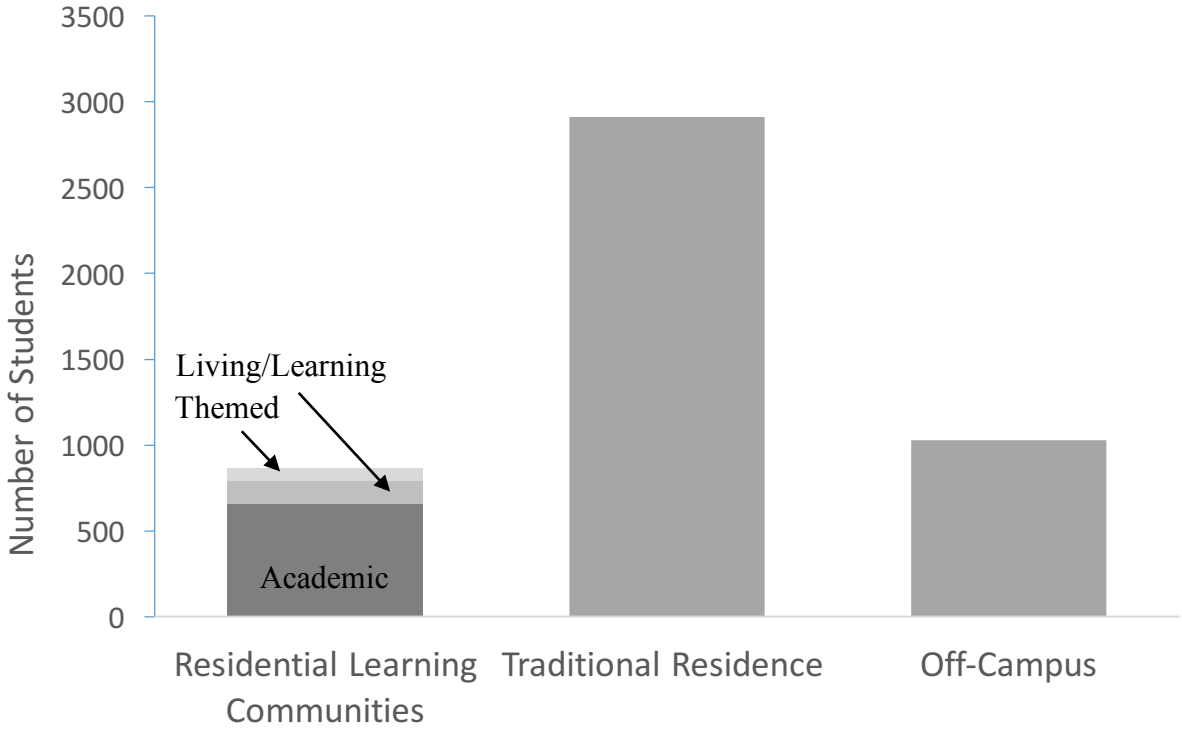

Figure 2: Typical distribution of first year undergraduate student residential situations

CATPCA was used to analyze 11 variables (Table 2) that can be used to describe a RLC and to see how different RLCs may cluster. From the quantitative CATPCA analysis, it is demonstrated that RLCs at these 9 Canadian Comprehensive Institutions are largely grouped by community type: academic or social. While some communities do indeed have larger number of participants or more experienced peer leaders, the RLCs cluster based on variables associated with an academic or social community. Given that the UoG offers both academic and social RLCs, UoG is a fitting example in our long-term case study investigating the impact of RLCs on academic performance.

Future Directions

In addition to the published research supporting the efficacy of RLCs being in the American context only, it is also frequently limited in experimental design. Although a true

experimental approach is impractical, only one study has acknowledged the need for a meaningful control by incorporating data from a small subsample population of students that were in traditional residence housing, that were also matched to RLC students by gender, race or ethnicity, and year in school.[33] For example, a study by Lenning and Ebbers (1999) compared students' academic performance in a RLC to other learning community models such as 'curricular learning communities', where curriculum is the common link among students. In this study, the authors acknowledge that the student groups may not have been comparable on all relevant variables such as gender or year in school.[34] Another common limitation observed in this type of research is the bias associated with student self-selection, given that students independently choose to live in RLCs.[35]

Based on the gaps in the available literature and need for more rigorous research in Canadian RLCs, our ongoing research into RLCs at UoG will address these limitations by determining what baseline differences exist among students who self-select to live in different living scenarios (RLC, traditional residence, off-campus), and by considering outcome measures for the entire first year undergraduate cohort according to each of these three living environments in order to provide a meaningful control group. Working with a team from the College of Biological Sciences (CBS), Student Housing Services and the Registrar's Office, our ongoing work will:

1) Describe UoG first year undergraduate students who select to participate in RLCs and identify

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[33] Karen Inkelas Kurotsuchi et al., "Differences in Student Outcomes."
[34] Oscar T. Lenning and Larry H. Ebbers. *The Powerful Potential of Learning Communities: Improving Education for the Future.* Washington: The George Washington University, Graduate School of Education and Human Development, 1999.
[35] Karen Inkelas Kurotsuchi and Matthew Soldner. "Undergraduate Living-Learning Programs and Student Outcomes." In *Higher Education: Handbook of Theory and Research*, edited by John C. Smart, and Michael B. Paulson, 1-55. Springer, 2011.

if a difference exists among them and between non-RLC participants (traditional residence or off-campus) using the demographic information and high school academic performance of this population. It is hypothesized that students who select to participate in RLCs have a higher admissions average compared to students in other living scenarios, and furthermore, that students who participate in academic RLCs have higher admissions averages compared to students who participate in social RLCs.

2) Determine whether first year living status affects students' first year academic performance, retention into second year, and graduation rates. We will more rigorously analyze the data to also evaluate academic performance in core courses versus elective courses in first year. It is predicted that students living in RLCs will perform better in core courses as compared to elective courses. Students living in RLCs have academic support for core courses such as study sessions held by a senior peer mentor who has previous experience with the course material. Furthermore, students in the same academic major are more likely to take core courses at the same time, allowing for study groups and shared class materials. It is predicted that this is less likely to be the case for elective courses.

The objectives of this research will be achieved using a longitudinal observational study design, following the fall 2010 incoming cohort of students from their final year in high school through 5 years of their undergraduate career. Our analysis will assess differences in students entering the three undergraduate living scenarios. Controlling for any difference found, we will assess student performance metrics among the three categories of living situations. We will then further investigate those data from students living in RLCs to determine whether there exist differences in academic performance, specifically between core courses and elective courses, within the spectrum of RLC categories. Finally, we will search for the relevant variables

responsible for the variation in student performance metrics to identify the key features of RLCs that lead to student success.

Conclusion

The number of highly varied RLCs in the U.S has continued to rise in the past several decades in attempts to improve first year learning and success. Despite this, the data to support their impact is limited. Similarly, in Canada, numerous RLCs are offered at many comprehensive universities, yet published data to support the impact of RLCs on academic outcomes is non-existent. In order to be able to generalize the findings of our ongoing work investigating the impact of UoG RLCs on academic performance to other Canadian universities, it was paramount that UoG RLCs be placed in the context of these other institutions. The data presented in this paper demonstrates that UoG RLCs are similar in programming to other Canadian RLCs in variables such as community type, academic and themed activities, study sessions and career advising. As such, the UoG RLC program is a representative model worthy of continued study. The proposed next steps of this research will include assessing the impact of UoG RLCs on several academic outcomes including first year GPA, and retention and graduation rates.

The results of the ongoing research project may be impactful in several ways. Our analysis will allow us to more definitively identify whether RLCs positively contribute to undergraduate student education. Additionally, the results of this study could inform other Canadian institutions considering implementing or expanding RLCs. Perhaps most importantly, the results of this study could be used to improve undergraduate education by better understanding the qualities that lead to success and the scale at which they should be implemented. Furthermore, if a stronger commitment to high-quality education with a focus on

learning is the most important priority of global education, RLCs may serve as the means to achieve this goal, specifically in Canada.[36]

[36]Naidoo, "Making Education."

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