International Journal of Teaching and Learning in Higher Education
http://www.isetl.org/ijtlhe/

2022, Volume 34, Number 1, 1-6
ISSN 1812-9129

Enhancing Student Outcomes: Peer Mentors and Student Transition

Michael Graham, Ivan Wayne, Stephanie Persutte-Manning,
Stephanie Pergantis, and Angela Vaughan
University of Northern Colorado

College students who engage in first-year programs such as peer mentorship are correlated with increased achievement, subjective enjoyment of their university experience, sense of belonging, and campus participation. While the effects of peer mentorship have been consistent, there has been little information shared considering the characteristics of peer mentor programs nor the implementation of these programs in a strategic and effective way. Thus, the need for a controlled peer mentorship program arose. This mixed-methods study assessed a class leader (CL) peer mentor program, which showed up to 10% difference in persistence and up to a 0.4 increase in first-term GPA for students who had a CL during their first semester versus those who did not. Qualitative data was also collected to examine the impact of the CL program. Information presented outlines the results, subsequent recommendations, and implemented changes over the course of two years, including recommendations made for year three.

The transition from high school to college is filled with challenges for many incoming first-year college students. Students who struggle to transition effectively into college tend to experience higher rates of drop-out from their programs within the first year (Claybrooks & Taylor, 2016), not graduate within four years (Miller & Lesik, 2014), have a lower GPA (DeMarinis et al., 2017), and have less campus engagement (Colvin & Ashman, 2010). Students are often shocked at the discrepancy of academic expectations between high school and their first year in college (DeMarinis et al., 2017). Within the past decade, only about 60% of full-time students within the United States tend to graduate within six years (National Center for Education Statistics, 2014). Despite needing assistance acclimating to college, many first-time students possess a level of anxiety when asking for help from others (Woosley & Shepler, 2011), further impacting their ability to adjust during their undergraduate experience. Almost half of first-time students report needing specific targeted advice for social-emotional adjustment during their first semester (DeMarinis et al., 2017). The need for assisting transitioning students is apparent, but the effective solutions are equally as challenging to implement.

Many universities offer first-year programs that are effective in aiding students in this transition such as first-year seminar (FYS) courses (Permzadian & Crede, 2016) or peer mentor programs (Holt & Fifer, 2018). Although FYS courses have been widely researched (Vaughan et al.2019), there is limited research about formal peer mentor programs, despite their ability to reduce costs across the university and increase collegiate retention of new students (Collier, 2017). Particularly, there remains a lack of literature examining the relationship between peer mentor designs and student achievement, as well as the characteristics of effective programs (Gershenfeld, 2014; Johnson et al., 2010). This comprehensive study contributes to the understanding of peer mentor program success by examining student achievement outcomes (i.e., first-term GPA and persistence) and gathering interview evidence from three main stakeholders (i.e., participating students, class leaders, and instructors).

Peer Mentors

Peer mentorship is having a more experienced student engaging with a less experienced student to focus on performance, academic growth, knowledge, support, and advice (Falchikov, 2001; Kram, 1985). Peer mentorship often positively impacts students' performance (DeMarinis et al., 2017) and satisfaction (Colvin & Ashman, 2010) as they transition to college. However, additional investigations are needed to further explore which components best enable an effective peer mentorship program or how to implement peer mentorship in a structured and evidenced-based way. Quality peer mentorship can consistently support incoming college students in a multi-faceted approach, leading to greater retention, higher GPA, and improved feelings of connection between students and their campus community (Colvin & Ashman, 2010).

Peer mentorship enhances positive self-reported college experiences as students learn both social and academic skills from peer-to-peer interactions (Colvin & Ashman, 2010). Students often look to other students for guidance on how to navigate the world around them (Colvin & Ashman, 2010), including navigating an intimidating transition like the first year of college. Hall (2004) found that students who were struggling to transition into college used other students as resources for support more frequently than university-supplied resources. Utilizing college students' preferences for assistance from other students at their institution, peer mentor programs have been established on campuses to increase academic measures, peer involvement, and interaction with the campus community (Asbee & Woodall, 2000). Additionally, retention rates can increase for both the students and peer mentors involved

in these programs (Colvin & Ashman, 2010), benefitting all students involved. However, questions remain about the optimal structure for mentor implementation.

Mentorship may help students feel better-connected to others, leading to a higher sense of attachment in college (Evans & Peel, 1999). Additionally, mentorship helps new students gain access to resources, support, and engagement opportunities (Clark & Crome, 2004; Pope & Van Dyke, 1999), and it increases the time and energy students spend on their academic careers (Astin et al., 2000). Peer mentor interactions enhance students' sense of investment in their college activities, ultimately leading to greater successes in performance and perseverance through college. Peer mentorship programs aim to teach students applicable and necessary information for success in their college career (DeMarinis et al., 2017). Mentors who take an active approach to teaching success strategies rather than adopting a "sink or swim" mentality for first-year college students, elicit student feelings of connection, self-efficacy, and sustainable motivation (Colvin & Ashman, 2010).

A few investigations have presented characteristics for peer mentors that enable them to better support students. Peer mentors with higher self-efficacy and approachability (Holt & Fifer, 2018), and mentors with a timely sense for when advice is most effective during the semester (DeMarinis et al., 2017), garner better results for their advisee students. Students claim peer mentors are more relatable than faculty members and state they would be more likely to implement advice from a peer mentor than a faculty member (Collier, 2017), especially for emotional support or connecting with academic support programs (DeMarinis et al., 2017). Additionally, students report their ability to build their own identity as a college student is enhanced when working with a peer mentor who can model their own identities for students (Collier, 2017). When peer mentors elaborate on their own student identity strengths and weaknesses, students are able to learn from direct trial and error experiences of other students (Colvin & Ashman, 2010). Students also rate peer mentors as more effective if they contact students more frequently (Holt & Fifer, 2018), with DeMarinis and colleagues (2017) suggesting more than one to five contacts per semester would lead to the strongest results. Although individual peer mentor characteristics have been analyzed, empirical data is lacking validating training regiments or the formal structure of peer mentor programs producing optimal results for students.

First-generation college students are a population increasing within university settings (Petty, 2014). Due to systemic issues impacting success and persistence (Claybrooks & Taylor, 2016), first-generation college students are at an increased risk for drop-out during their first year (Engle & Tinto, 2008). Effective peer mentor programming increases persistence rates, particularly for first-generation students (Mahan et al., 2014). The impact of peer mentors on first-generation students is imperative to understand alongside all students who may benefit from academic and social-emotional support during their first semester in college.

While the impact of a peer mentor has been shown to improve connection and persistence into future semesters (DeMarinis et al., 2017), administrators also must be aware that the implementation of a peer mentor program may come with resistance from students if training and support for mentors, students, and faculty is insufficient (Colvin, 2007). Students may also perceive their peer mentors as annoying if the provided support is untimely or overbearing (DeMarinis et al., 2017). Therefore, there is a need for a roadmap on how to best implement a peer mentorship program so that all students may be sufficiently supported as they transition into the university setting (Cornelius et al., 2016).

Most of the research previously conducted on effective peer mentorship has been performed in the field of business and the necessity to provide evidenced-based peer mentorship curriculum in higher education is evident (Hamlin & Sage, 2011; Johnson et al., 2010). Although a few recent studies have examined the benefits of a formalized academic peer mentorship program or ideal personal characteristics of individual peer mentors, more rigorous research is needed that includes longitudinal effects and information that provides the "how and what" behind the effective elements (Crisp & Cruz, 2009). If universities agree student retention and connection to the campus community is paramount for transitioning students, best practices should be in place so that all colleges can rely on empirical research to best support their students via a peer mentor program. This study contributes to the existing literature by including peer mentorship's specific relationships to subsequent student benefits such as achievement and belonging, and this investigation also includes information about the design and delivery of a supported peer-mentor program.

Purpose

In this study, the effects of a new peer mentorship program initiated at a medium-sized four-year public research university in the mountain west were assessed over the course of two years. Through the university, the class leader (CL) program was implemented within an introductory level general education course providing students instruction and support in both academic and social-emotional avenues. Each course section included a CL, who was responsible for a variety of actions including leading icebreaker activities, providing personalized anecdotes about their experiences as a new student, coordinating activities outside of the classroom

to promote connection, and being available as a resource for students to use if they had questions or were struggling in any avenue. This paper addresses the impact of CLs on persistence rates, first-term GPA (including first-generation students), and provides interview evidence of the stakeholders' experiences of participating in the peer mentors program. The following were the research questions for the study:

(1) What is the relationship between first-time students' persistence to the second semester and their enrollment in a course with a class leader? What is this relationship for first-generation students?
(2) What is the relationship between first-time students' first-term GPA and their enrollment in a course with a class leader? What is the relationship for first-generation students?
(3) What were the experiences for CL program participants (i.e., students, class leaders, and instructors)?

Methodology Rationale

Improving undergraduate learning experiences requires intentional programmatic development and improvement. This study uses a pragmatic theoretical approach to mixed-methods design (Patton, 2012). Patton's Utilization Focused Program Evaluation (2012) requires researchers to follow specific steps to ensure that outcomes are reported and utilized by the recipients of the results. Patton's (2012) work informed the structure and question development in the focus groups as well as the dissemination of results in the form of practical recommendations. There were two phases of this research, and a concurrent triangulation mixed-methods design was chosen for each phase. This design strengthens the practitioner recommendations by using both participant experiences and numerical outcomes to inform results reporting. The triangulation of two years of both quantitative and qualitative data enhances the trustworthiness and rigor of the results and allows researchers to get a better understanding of both the qualitative and quantitative results through cross analysis with each other (Teddlie & Tashakkori, 2009). Figure 1 provides a visual representation of each phase of the concurrent mixed-methods design in the form of a flow chart.

Methods

CL Program Years 1 and 2

Table 1 provides an overview of the program in year 1 and year 2 including training and CL responsibilities. CL candidates were recruited from the full-time students who were enrolled in the introductory course in their first semester. At the end of the fall semester, instructors (of the introductory course) nominated students based on their academic performance and their instructor's belief in the student's potential success in the role. CL candidates were then invited to apply for the position and participate in group and individual interviews. Selections were based primarily on communication skills and leadership potential. Additionally, to participate in the role of CL in their second fall semester, they needed to be classified at least as a full-time sophomore student.

Quantitative Design

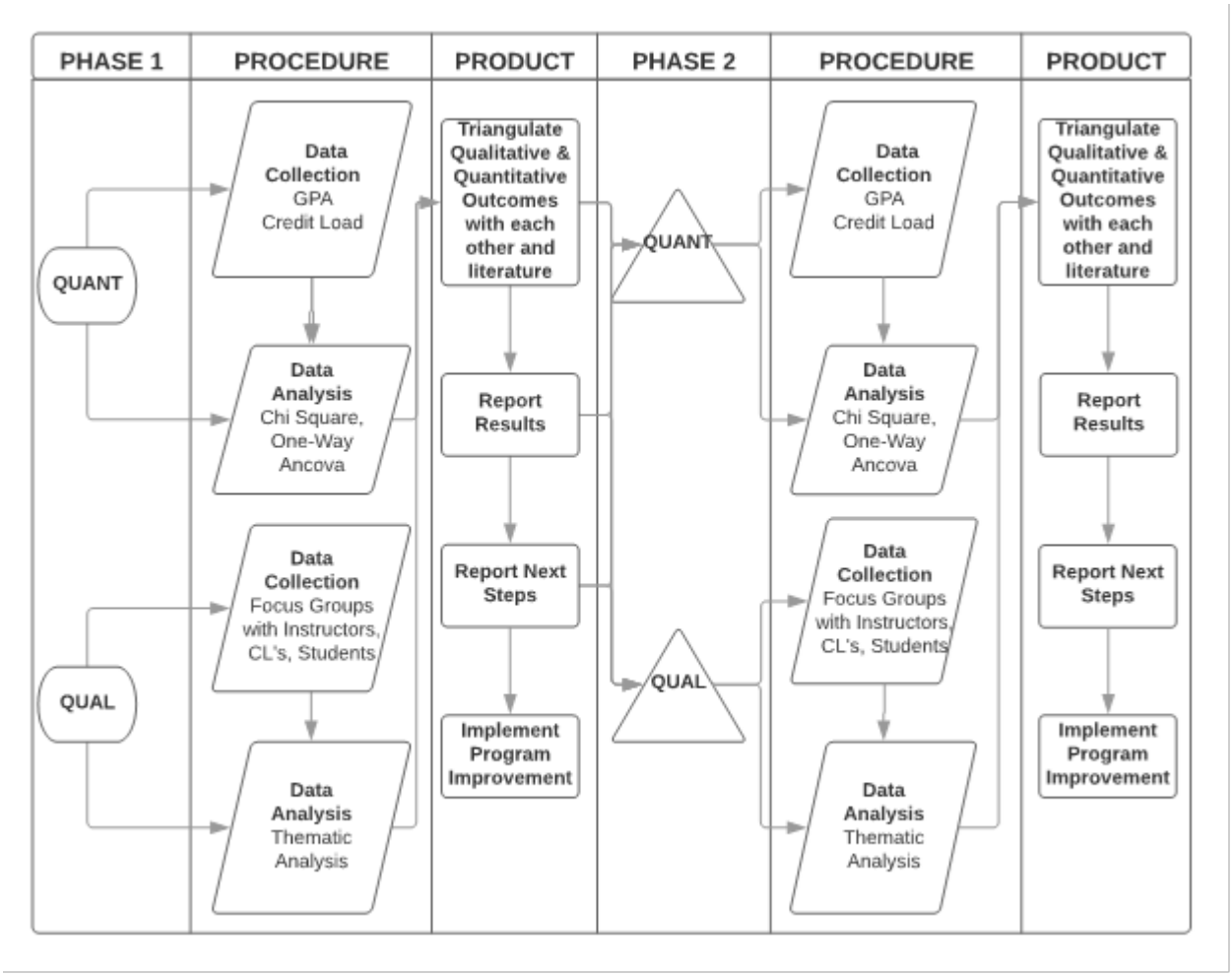
Participants. After receiving approval from the Institutional Review Board, information from university data sets were collected from two cohorts of entering first-time, full-time students in Fall 2016 (N = 2097) and Fall 2017 (N = 2077). The number of CL participants in Fall 2016 was 176 students and in Fall 2017, there were 208 students (see Table 2 for all details).

CLs were included in sections of a single introductory course, which utilized a coordinated curriculum across all sections and included instructors who participated in comprehensive and ongoing training. Students self-selected into the introductory course including the CL during summer orientations. Instructors and CL pairings were assigned prior to the beginning of the semester.

Demographic data and first-term GPA were collected from the university data sets at the end of each first semester. Credit loads were collected at the census date (end of the add/drop period) during each of the following spring semesters (beginning of students' second semester) to show continued enrollment at the university.

Data Analysis. The first analyses compared the proportion of students who persisted to the spring semester based on whether they had a CL in their fall semester. For the percentage of students who persisted, a chi-square test of homogeneity was used to assess differences between the proportions in the two groups (i.e., CL group and non-CL group). Analyses were completed for all students and for first-generation students. Students were identified as first-generation during the application process. If students selected that neither parents nor guardians earned a four-year degree, then they were identified as a first-generation student. The second set of analyses used a one-way between subjects ANCOVA to assess the differences in first-term GPA between the CL and non-CL group. A covariate was used due to students self-selecting into the introductory course with the CL. Index score was the covariate and represents a combination of high school GPA and college entrance exams (e.g., ACT) calculated

Figure 1
Visual Representation of Concurrent Mixed-Methods Design with Two Phases



by the state and is used by institutions state-wide to assess entering academic preparedness. The average index scores each semester for the Fall 2016 and 2017 population was 107 ± 13.90. Fall 2016 range was 68 to 144 and Fall 2017 range was 72 to 144 where a score of 94 was the minimum required for standard admissions. As described above, the CL group included students who participated in sections of a single introductory course and the non-CL group included entering first-time students who did not participate in this particular course and, therefore, did not have a CL.

Qualitative Design

Participants. Purposeful sampling was utilized to recruit student, class leader, and instructor participants for both years of focus groups. Student participants were enrolled in a course section that was comprised of a class leader and instructor. Recruitment of student participants entailed email notifications through the course management system and instructors relaying focus group information during class time. CLs were recruited via verbal announcement by the class leader coordinator and email invitation. Instructors participating in this sample were recruited verbally at the team meetings at which all instructors of this introductory course were present and were invited via email announcement.

All focus groups consisted of a 60- to 90-minute semi-structured interview where participants answered questions about their experience as a student, class leader, or instructor. The same researcher conducted all focus groups. Specifically, participants were asked about the potential benefits and drawbacks of the class leader program and their perceptions of the implementation of the program.

Table 1
Class Leader Program Description Year 1 and Year 2

Year 1				
Responsibilities	Examples	Training	Resources	Communication
• Participate in one class per week • Use course management systems to provide reminders and announcements • Lead at least one substantial discussion or activity during the semester • Plan at least one on-campus event	• Do icebreakers, share personal examples and stories, answer questions, etc. • Provide reminders about an assignment due • Plan out a 15-minute discussion including specific questions • Coordinate the class attending a football game together	• 4-hour training prior to the semester • Trained with course management system enabling them to assist students • Refer to responsibilities and examples listed for other training supports	• Training handouts on mentorship, leading discussions, etc. • Course textbook	• Weekly emails between instructors and CLs • Mid-semester team meeting
Year 2				
• Participate in two classes per week • Use course management systems to provide reminders and announcements • Lead at least one substantial discussion or activity during the semester • Coordinate and plan “Poster Night” for section • Plan one social/campus event in the first two weeks of the semester • Plan at least one additional on-campus event	• Do icebreakers, share personal examples and stories, answer questions, etc. • Provide reminders about an assignment due • Plan out a 15-minute discussion including specific questions • For “Poster Night”, set budgets for snacks, gather poster examples, etc. • Coordinate the class attending a football game together • Plan mid-term exam review	• 8-hour training prior to the semester ○ Began with 4-hour team building with course instructors at the ropes course • Monthly team meetings with CL coordinator • Further training information included in Table 4.	• Training handouts on mentorship, leading discussions, etc. • Course textbook • Lesson plans with suggested activities for each week of the semester	• Weekly face-to-face meetings between instructors and CLs • Monthly team meetings with CL coordinator

Table 2
Participant and Non-Participant Information

	Combined Fall 2016 and 2017		
	All	CL group	Non-CL group
All students	4174 (100%)	384 (9%)	3790 (91%)
Female students	2735 (66%)	265 (69%)	2470 (65%)
First-generation students	1815 (43%)	171 (45%)	1648 (43%)

For the first year, focus groups were conducted at the end of the Fall 2016 semester where students (n = 6; female students = 4; students of color = 3; first-generation students = 3), class leaders (n = 4; female students = 4; students of color = 2), and instructors (n = 7; female instructors = 5; person of color = 1) agreed to participate. Focus groups were held separately for the three subgroups (i.e., students, CLs, and instructors). For the second year, recommendations from the previous year's data collection methods were implemented and interviews were conducted again with all three groups based on further refinement of the internal structuring of the class leader program. Second year interviews were held at the end of the Fall 2017 semester where students (n = 13; female students = 10; students of color = 7; first-generation students = 7), class leaders (n = 9; female students = 7; students of color = 2; first-generation students = 6), and instructors (n = 10; female instructors = 7; person of color = 1) participated in separate focus groups.

Data Analysis. All focus groups were audio recorded. The audio recordings were transcribed using a professional transcription service. Identifying information was removed from the transcriptions. Transcriptions were uploaded to the data analysis computer software NVivo 11 where open coding was conducted by two members of the research team.

Given that this was a first-year implementation, and the experiences of participants could not be well hypothesized, the researchers followed the recommendation of Braun and Clarke (2006) in using thematic analysis. Open coding consisted of taking raw data and creating themes by saturation of a particular theme in the data. Themes were created based on the largest occurrences of articulation by the participants. The researchers conducted the open coding together in order to ensure that themes were agreed upon and to provide opportunities for cross-checking. Qualitative themes were collapsed to enhance findings that were saturated. Results were reported using data extracted from data items that accurately represented the entire data set (Braun & Clarke, 2006), and that ensured representation of the texture and structure of the data set (Merriam & Tisdell, 2016). Thematic results were sent to student, class leader, and instructor participants as a form of member checking to ensure rigor. In addition, the lead researcher served as internal auditor for verification of data handling procedures and data analysis process.

Results

Quantitative

For the first set of analyses, all assumptions for the chi-square test of homogeneity were met including that all expected cell counts were greater than five. The chi-square test of homogeneity showed significant differences ($p < .001$) in proportion of students who persisted to the spring semester. A higher percentage of students and first-generation students persisted in the CL group as compared to the non-CL group. See Table 3 for the results.

For the between-subjects one-way ANCOVA, all assumptions were met. There was a linear relationship between index score and first-term GPA for each group as assessed by visual inspection of a scatterplot, and there was homogeneity of regression slopes as the interaction term was not statistically significant ($F(1, 4189) = 2.975$, $p = .085$). There was homoscedasticity, as assessed by visual inspection of the standardized residuals plotted against the predicted values, and there was homogeneity of variances, as assessed by Levene's test of homogeneity of variance ($p = .091$). Lastly, there were no outliers in the data, as assessed by no cases with standardized residuals greater than ±3 standard deviations.

Table 3
Persistence to Spring Chi-Square Results and First-Term GPA ANCOVA Results for All Students and First-Generation Students

	N	Persist		
	All students			
CL group	385	332 (92%)		
Non-CL group	3815	3285 (86%)		
	First-generation students			
CL group	172	332 (93%)		
Non-CL group	1667	1395 (83%)		
	N	*Adjusted M*	*SE*	*95% CI*
	All students			
CL group	384	3.02	0.048	[2.93, 3.11]
Non-CL group	3790	2.64	0.015	[2.61, 2.67]
R^2	0.29			
	First-generation students			
CL group	171	2.83	0.076	[2.68, 2.97]
Non-CL group	1644	2.41	0.025	[2.36, 2.46]
R^2	0.24			

Adjusted means are presented, unless otherwise stated. First-term GPA was greater in the CL group compared to the non-CL group for all students and for first-generation students. In the ANCOVA analysis for all students, there was a significant main effect for CL group [$F(1, 4171) = 57.84$, $p < .001$, model $R^2 = .29$]. Similarly, for the first-generation students, there was also a significant main effect for CL group [$F(1, 1812) = 26.83$, $p < .001$, model $R^2 = .24$]. See Table 3 for the results.

Qualitative

To review the qualitative data collected over the two-year study period, the results are divided into "strengths" and "areas of improvement." However, consistent with the purpose of this study, discrepancies of results are identified between the two years while also providing information on how improvements for discrepancies were implemented. Each section includes information distinguished from year one and year two of the class leader program. The areas of strengths and improvement identified were used to inform and refine the class leader program in each subsequent year. The themes identified as strengths in year one of the class leader program were found to be strengths of the program again in year two analysis demonstrating the consistency of positive effects of the program across time. Ultimately, based on the refinements, an emerging model is proposed of a successful peer mentorship program based on the longitudinal data of lessons learned.

Strengths

Relatability. One of the primary goals of implementing the CL program was to improve students' perception of the course content using social modeling. For both years, a theme that arose in all groups was the impact of class leaders on students' connection to the course and to implementing the skills learned in the college environment. An instructor described, "…I think

they appreciated having and seeing someone who was in their shoes just last year." Students echoed many instances of feeling connected to their class leader. A student described how her CL demonstrated the utility of course content: "She gave us examples of what happened with her last year and how she got through it and how she studied and all that kind of stuff." Students also described the strengths of the CLs in helping them settle into the university culture and aiding in connections both in and out of the classroom. As one student put it, "…[she] was like a friend to have in classroom, to talk to." A CL echoed, "It was cool that we met outside of classroom… I think that helped her throughout the semester. I was just someone she could come to talk to."

Class Leader Experience. For both years, class leaders cited a desire to mentor and support new students in a teaching capacity: "…I grew in certain areas especially since I want to be a teacher, so, just getting more classroom experience, even though it was at the college level, just getting to interact with other people, it was very helpful."

In year two, class leaders and instructors echoed the strengths of the program in developing class leaders' teaching and mentorship skills similarly to what was expressed in year one. One class leader described her growth process: "As I went on I felt more comfortable…I kind of felt like I grew from just like the mentor part into more of like the class leader slash teacher's assistant kind of thing, which I thought was really cool." Instructors noted these changes as well: "I felt like the experience was really helpful for my class leader. I felt like they grew a lot in their ability and their public speaking ability, and their comfortable-ness…speaking in front of others and learning how to share things about themselves with other people."

Activities. The class leader role proved to have an impact on students when CL's planned and led activities during year one. One student explained the impact on learning and participation when CLs led learning games in the classroom: "My favorite by far was the trivia to review for the final." Along with in-class learning activities, several students noted the impact of "poster night." Poster night was a class leader led supplemental activity held outside of class to help students prepare their poster for the required research night participation. When asked about the most impactful activity led, one class leader stated, "the one that really comes to mind is when it was the poster night when we all got together in the lab and they were able to work on their posters…" In this way, class leaders built in and out of class opportunities for students to learn and receive peer support with their course material.

Community building activities held outside of the classroom were another component discussed by participants. One class leader discussed a "Pack the Stands Night" event that invited students to attend a basketball game with their class leader and an instructor. The class leader reported, "Basketball, the game that everyone went to…because then they [students] get to interact, like they think it's for extra credit but they end up getting more involvement out of it in the end." It is clear that a combination of in-class and out-of-class activities were impactful for both students and class leaders.

Areas of Improvement

CL Role Enhancement and Relationship Building. In year one, the need for more time in the classroom was a difficulty that was noted by all participant groups. For all parties, this seemed to pose struggles with disconnect, communication errors, and role confusion. One CL stated, "… I was there once a week even though they met twice a week. So, I felt like that hindered it a little bit, especially, getting to know the students…" Students noted feeling disconnected from the leader or wondering what their purpose was because they came into the classroom one day a week. This sense of disconnect was noticed by students between CLs and instructors as well, as student participants discussed the consequences of feeling a disconnection between their CL and instructor.

A student explained this disconnect: "It felt like it was like her [the class leader] stepping on our teacher's toes and her [the teacher] stepping on the student aid's toes back and forth and it felt like they didn't really communicate."

Though more time to develop relationships was implemented between CLs and instructors during the second year, the theme of needing additional time to connect continued to permeate throughout year two as well. As part of the CL program, class leaders met with the program coordinator once a month (an increase from year one) to discuss how things were going for them and to help them come up with ideas of how to teach the material. One suggestion that was mentioned by class leaders was needing more time and support from these meetings. A CL said, "Maybe if we had designated meetings twice a month or something where we come in for an hour and a half or two hours and like plan things out and get things ready." This class leader's response was echoed by instructors with needing more time to develop better working relationships with class leaders and provide more support. Instructors also noticed this disconnect in lack of communication throughout the semester: "There were two different agendas. My class leader wanted to do these fun things, get to know each other, and my class was kind of over it, and so there was some disconnect at times for both the class and the class leaders." From the interviews, class leaders felt as though they needed more time around instructors to gain support, tips for classroom management, ensure that the

instructor and CL have aligning agendas, and to feel a part of the department team.

CL Skill Development. For both years, one salient suggestion that continued to emerge was needing to refine the training process for CLs. A class leader discussed the suggestion to have mock classroom scenarios that conveyed the information being presented to students while promoting student engagement by saying,

> Maybe do role playing and be like alright everybody act like apathetic people and try to like ease them or come up on the spot with ideas that would [be] good at engaging. A big problem we ran into was like we want to do fun activities but we also need it to apply what we are learning.

This class leader's response was further supported by instructors. One instructor mentioned, "I wish there was at least a little bit of training on classroom management. . . it would have been really nice for them to understand how to [perform their role] in a timely manner." Both class leaders and instructors mentioned needing more training around the struggle of working with resistance from students while trying to convey the information being taught.

Discussion

With limited literature on the subject, this study sought to investigate the efficacy and potential benefits of a formal peer mentorship model utilizing class leaders. If CLs can positively impact students, universities may feel inclined to include a formal peer mentorship program to best serve their undergraduate students. The primary research question tested in this study analyzed the implementation of a peer mentorship program benefiting both students and college campuses. As compared with the campus as a whole, students who participated in a class with a CL had higher persistence rates as compared to students who did not have a CL. For students without a CL, 86% persisted to the spring semester. For students with a CL, 92% of first-time students persisted. The impact of CLs for first-generation students was even more drastic with 93% of first-generation students who had a CL persisting to their spring semester as compared to 83% of students without a CL. Not only do CLs impact the tenacity of a college freshman to enroll in future semesters, but the effect size has the potential to be even larger for students who may already be struggling or unfamiliar with the idea of being a college student.

In addition to students with CLs persisting to future semesters of college at higher rates, these students are also earning higher first-term GPAs. For all first-time students without a CL, the average first-term GPA was 2.64. Students with a CL had an average GPA of 3.02 (a statistically significant difference). Similarly, for first-generation students, those without a CL had a first-term GPA average of 2.41, and those with a CL earned a 2.83. The quantitative data from this study demonstrates that peer mentor programs implemented in university communities are beneficial to college student academic success by improving their second-semester retention and first-semester GPA. These benefits seen for first-time students also positively impacts universities by increasing retention of newly admitted students and raising students' academic achievement.

Emerging Model

The secondary research questions within this study explored which aspects of the peer mentorship program were beneficial and which aspects continue to need improvement in order to cultivate maximum positive effectiveness. The data from this study show there are many benefits for students who are exposed to a peer mentoring program. Observed by both instructors and CLs, one of those benefits was a relatedness factor. The student voice made this result salient in the qualitative data. Students appreciated having someone their age they could relate with whom had already been through the class, and students appreciated a peer mentor who was able to offer valuable insight about both the specific course and campus life. This finding is consistent with the literature that suggests relativity increases when a peer mentor is similar in age and experience as their mentee (Christiansen & Bell, 2010). Similar to the increased relatability due to having a mentor around their age, students reported a higher feeling of connectedness. Students stated they found it helpful to receive emotional support from their CL as someone to listen when their first semester got difficult or when they were struggling with general life stressors. Students reported feeling a sense of connectedness to their CL, their classroom experience, and the university community at large. Student responses relating to activities CLs led inside the classroom and the events CLs coordinated outside the classroom illustrated the highest degree of this increased connectedness. Students were able to build relationships with others in their class and felt a sense of connectedness with at least one other person (their mentor) in the university community. This finding reinforces that engagement in peer mentoring programs promotes improved perceptions of learning environments (Simões & Alarcao, 2014) and increased connectedness to university communities (Collings et al., 2014; Yomtov et al., 2017). Additionally, our quantitative data duplicates previous findings suggesting when a student feels connected to at least one individual in a university community, there is an increased likelihood of intent to persist (Hernandez et al., 2017).

As the CL program is refined, the data suggests there are still areas of improvement to maximize the

implementation of peer mentorship. All parties involved in this study mentioned an element of confusion in understanding the intent behind the CL's presence in the classroom. This replicates previous reports of role confusion from instructors, peer mentors, and students around how peer mentoring relationships are utilized in educational settings (Colvin & Ashman, 2010). Second, there was a unanimous call for more interaction time with CLs in the classroom throughout the semester from all parties interviewed within this investigation. Both students and CLs noted feelings of difficulty when CLs were not consistently present and involved with the class. More contact may promote feelings of fondness from students toward peer mentors (Holt & Fifer, 2018), but may benefit from explicitly stated roles for CLs within this interaction. DeMarinis et al. (2017) suggested a small amount of interactions (e.g., 5 or less) as a threshold for positive effects; however, in the first year of the CL program, relationships that students developed with their CL were disrupted when CL attendance was less than that of students in the course. Accordingly, CLs were required to attend all classes in the second year of the program. Additionally, the program implemented "getting to know you" meetings between CLs and instructors to occur prior to the beginning of the semester and asked instructors to hold weekly CL meetings throughout the semester. These additions seemed to alleviate CL role confusion, communication errors, and the instructor-CL-student disconnect for all parties involved because this theme was no longer present or noteworthy in year two.

In the first year of this program, CLs were expected to attend a training before the start of the semester. However, CLs stated this training did not adequately prepare them for their role in the classroom. Both CLs and instructors agreed that training surrounding the purpose of the course, roles and expectations of CLs, and discussing classroom management skills would be important topics to cover in order to improve CL preparedness. Additionally, CLs stated ongoing training throughout the semester could also be helpful for a sense of preparedness and role clarity. Although these meetings were included during the second year once a month, suggestions were made for bimonthly CL meetings. These meetings could help CLs prepare for upcoming semester events and seek clarity around what was expected of them. During the semester, these meetings allowed CLs to continue their training and continuously improve their role within the course. Furthermore, these meetings were useful for building connection among CLs, creating an avenue to gather suggestions for activities and exercises CLs could lead. Peer mentors could also seek support from one another about their relationships with their students and instructors.

In summary, a lot was learned throughout the two-year implementation and initial refinement of the CL program. As a department, improved connection between CLs and their students and instructors was essential for an effective peer mentorship program. Specifically, having a unified team approach to the development of a peer mentoring program seemed to create a deeper connectedness for students to the university community. A unified team-based approach also helps stakeholders (i.e., instructors and CLs) understand the functionality of a peer mentoring program through individual role refinement and reflecting on the importance of establishing appropriate professional relationships among one another to further increase the effectiveness of the program.

As these findings both echo and extend the literature in various ways, this research adds a significant contribution to the field examining the implementation and development of a peer mentoring program. This study shares the challenges that were experienced alongside also posing adjustments that may be useful to other institutions when establishing an effective peer mentoring program. These changes may result in particular benefits for underrepresented populations (e.g., first-generation students). Table 4 summarizes the practical recommendations elicited from the data. This list includes suggestions for a CL program during year one, changes that were made for year two, and the suggestions for continued growth beyond year two. By continuing to collect feedback and studying the progress of the CL peer mentorship program in a longitudinal fashion, effectiveness of the program can continue to increase.

Limitations

The primary limitation of this study is that all data was collected within one institution. Despite this limitation, the mixed-methods longitudinal design provides comprehensive information about a sample peer mentor program. However, this institution is similar to many other mid-size universities with high populations of underrepresented students (e.g., first generation).

Table 4
Recommendations and Implementations

Recommendations after year 1	Implementation year 2
Increase clarity and transparency in expectations for CLs in the classroom	• CLs were provided more training around roles and job requirements • Additional materials and specific weekly lesson plans were provided • Began relationships between instructors and CLs earlier
Increase frequency of CL presence in classroom	• CLs doubled the amount of time in the classroom
Improve avenues for communication between CL, CL team, and instructors	• Training began with a 4-hour team building exercise between all instructors and CLs • CLs had monthly team meetings and were required to meet with their instructor weekly
Recommendations after year 2	**Implementation year 3**
Continue to clarify the role of the CL and support their skill development	• Will continue changes from year 2 and provide more role-playing and instruction around technology during training • Will provide additional reading resources prior to training • Will incorporate specific training for instructors to help them effectively communicate their expectations to CLs • Instructors and CLs briefly met prior to the summer to begin building their relationships • Will increase CL team meetings during the semester to support their roles
Provide opportunities for relationship development between CLs and CLs and instructors	• Instructors and CLs briefly met prior to the summer to begin building their relationships • Training will again begin with a 4-hour team building exercise between all instructors and CLs • Will continue weekly meetings between instructors and CLs • Will increase CL team meetings during the semester to support their roles
Provide resources for social activities and classroom activities to CLs to promote connection to students	• More role-playing will be included in training to support classroom interactions between CLs and students • Lesson plans will be expanded to include campus events and opportunities

Another limitation is the lack of randomization and the self-selection of students into these peer-mentor courses. Some of this effect was mitigated by controlling for entering academic preparedness (i.e., using index score in the quantitative analysis). However, this self-selection bias is still not to the level of rigor of a truly experimental design. The addition of the qualitative analyses does provide more comprehensive results as compared to a strictly quantitative design. Lastly, more student participation in the interviews and focus groups could have provided more widespread information about people's experiences within the CL program.

Future Research

Our findings suggest that continued longitudinal data surrounding the implementation and growth of the class leader peer mentor program would be beneficial. It would be insightful continuing to study the ways in which the program implements feedback and suggestions from year to year and how these alterations impact the effectiveness of the CL program. Examining the consistency factor associated with CL and student relationships needs further exploration, as this was not previously mentioned in the literature. Future research could also explore how the consistency factor is present in the relationship-building component associated with mentoring relationships at varying levels (i.e., between CL and student, CL and instructor, and CL and CL). Collecting additional longitudinal achievement data such as graduation rates or retention beyond the first year would also provide evidence for the long-term effects of including peer mentors in the students' first semester. Furthermore, using quasi-experimental designs with matched control groups to analyze achievement data could add rigor and confidence to findings related to peer mentorship.

Conclusion

With increasing enrollments of underrepresented students, universities must continue to find effective and efficient means to support these students in both the short and long term. This study provided both quantitative and qualitative evidence that a peer mentor program can impact student achievement outcomes (such as first-term GPA and persistence) and provide students an avenue to establish relationships and connections to the university. Furthermore, this study provided some of the "how" and "what" behind the design and implementation of a peer mentor program. As other universities seek to develop their own programs, this information can be useful to provide an effective starting point. Peer mentorship has repeatedly shown to be beneficial for incoming students, and ongoing research can lead to additional recommendations and programmatic decisions that can lead to the best outcomes for first-time college students.

References

Asbee, S., & Woodall, S. (2000). Supporting access in distance education through student–student mentoring. *Journal of Access and Credit Studies*, *2*(2), 220–232.

Astin, A. W., Alexander, W., Wogelgesang, L. J., Ikeda, E. K., & Yee, J. A. (2000). *How service learning affects students.* Higher Education Research Institute, University of California at Los Angeles.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101.

Christiansen, A., & Bell, A. (2010). Peer learning partnerships: Exploring the experience of pre-registration nursing students. *Journal of Clinical Nursing,* 19, 803 - 810. doi:10.1111/j.1365-2702.2009.02981.x

Clark, W. A., & Crome, W. W. (2004*), Personalising the transition experience: Induction, immersion or intrusion?* Retrieved from http://www.atem.org.au/pdf/ClarkW_CromeB_ATEMpaper.pdf

Claybrooks, G., & Taylor, F. P. (2016). Student persistence and use of a college success course in proprietary postsecondary education. *College Student Journal, 50*(2), 199-211.

Collier, P. (2017). Why peer mentoring is an effective approach for promoting college student success. *Metropolitan Universities*, *28*(3), 9-19.

Collings, R., Swanson, V., & Watkins, R. (2014). The impact of peer mentoring on levels of student wellbeing, integration and retention: A controlled comparative evaluation of residential students in UK higher education. *Higher Education*, *68*(6), 927-942.

Colvin, J. W. (2007). *Peer tutoring and the social dynamics of a classroom*. VDM Verlag Publishing Company.

Colvin, J. W., & Ashman, M. (2010). Roles, risks, and benefits of peer mentoring relationships in higher education. *Mentoring and Tutoring: Partnership in Learning, 18*(2), 121-134.

Cornelius, V., Wood, L., & Lai, J. (2016). Implementation and evaluation of a formal academic-peer-mentoring programme in higher education. *Active Learning in Higher Education*, *17*(3), 193-205.

Crisp, G., & Cruz, I. (2009). Mentoring college students: A critical review of the literature between 1990 and 2007. *Research in Higher Education, 50*(6), 525–45.

DeMarinis, M., Beaulieu, J., Cull, I., & Abd-El-Aziz, A. (2017). A mixed-methods approach to understanding the impact of a first-year peer mentor program. *Journal of The First-Year Experience & Students in Transition*, *29*(2), 93-107.

Engle, J., & Tinto, V. (2008). *Moving beyond access: College for low-income, first-generation students*. The Pell Institute. http://www.pellinstitute.org/files/COE

Evans, M., & Peel, M. (1999). Transition from secondary to tertiary: A performance study. *Higher Education Series,* 36, 1-12.

Falchikov, N. (2001). *Learning together: Peer tutoring in higher education.* Routledge Farmer.

Gershenfeld, S. (2014). A review of undergraduate mentoring programs. *Review of Educational Research, 84*(3), 365–91.

Hall, R. (2004). *Peer mentoring programs for first year undergraduate students* (Faculty papers, No. 2). The University of New South Wales, Faculty of Arts and Social Sciences.

Hamlin, R. G., & Sage, L. (2011). Behavioural criteria of perceived mentoring effectiveness: An empirical study of effective and ineffective mentor and mentee behaviour within formal mentoring relationships. *Journal of European Industrial Training, 35*(8), 752–78.

Hernandez, P. R., Bloodhart, B., Barnes, R. T., Adams, A. S., Clinton, S. M., Pollack, I., . . . Fischer, E. V. (2017). Promoting professional identity, motivation, and persistence: Benefits of an informal mentoring program for female undergraduate students. *PLoS One, 12*(11).

Holt, L. J., & Fifer, J. E. (2018). Peer mentor characteristics that predict supportive relationships with first-year students: Implications for peer mentor programming and first-year student retention. *Journal of College Student Retention: Research, Theory & Practice*, *20*(1), 67-91.

Johnson, W. B., Rose, G., & Schlosser, L. Z. (2010). Student-faculty mentoring: Theoretical and methodological issues. In T.D. Allen & L. T. Eby (Eds.), *The Blackwell handbook of mentoring* (pp. 49–70). Blackwell Publishing.

Kram, K. E. (1985). *Mentoring at work*. Scott, Foresman.

Mahan, D., Wilson, K., Petrosko, J., & Luthy, M. (2014). Is retention enough? Learning and satisfaction of first generation college seniors. *Kentucky Journal of Higher Education Policy and Practice*, *3*(1), 1-31.

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). San Jossey-Bass.

Miller, J. W., & Lesik, S. S. (2014). College persistence over time and participation in a first-year seminar. *Journal of College Student Retention*, *16*(3), 373-390.

National Center for Education Statistics: Institute of Education Sciences. (2014). *The condition of education. U.S. Department of Education* (NCES 2014-083). Retrieved from https://nces.ed.gov/pubs2014/2014083.pdf

Patton, M. Q. (2012). *Essentials of utilization-focused evaluation*. Sage Publications.

Permzadian, V., & Credé, M. (2016). Do first-year seminars improve college grades and retention? A quantitative review of their overall effectiveness and an examination of moderators of effectiveness. *Review of Educational Research, 86*(1), 277-316.

Petty, T. (2014). Motivating first generation students to academic success and college completion. *College Student Journal*, *2*, 257-264.

Pope, G., & Van Dyke, M. (1999). Mentoring value adding to the university. *Journal of the Australian and New Zealand Student Services Association*, *13*, 15-27.

Simões, F., & Alarcão, M. (2014). Promoting well-being in school-based mentoring through basic psychological needs support: Does it really count? *Journal of Happiness Studies*, *15*(*2*), 407-424.

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research.* Sage.

Vaughan, A. L., Pergantis, S. I., & Moore, S. M. (2019). Assessing the difference between 1, 2, and 3credit first-year seminars on college student achievement. *The Journal of The First-Year Experience & Students in Transition, 31*(2), 9 – 28.

Woosley, S. A., & Shepler, D. K. (2011). Understanding the early integration experiences of first-generation college students. *College Student Journal*, *45*(4), 700-714.

Yomtov, D., Plunkett, S. W., Efrat, R., & Marin, A. G. (2017). Can peer mentors improve first-year experiences of university students? *Journal of College Student Retention: Research, Theory & Practice*, 19(*1*), 25–44.

MICHAEL GRAHAM is Director of First and Second Year Experience at Mount Marty University. Prior to this, he spent five years in a variety of leadership roles at the University of Northern Colorado's First-Year Seminar department. During this time, Michael was the lead instructor and Class Leader Program Coordinator. Also, he is a licensed professional counselor which provides him a unique lens to view supporting students during their transition to higher education settings. Michael has contributed to existing literature and presented at the national level for program development, persistence, mentorship, and self-determinism.

IVAN WAYNE earned his PhD in educational psychology from the University of Northern Colorado (UNC). Having taught courses across several departments at UNC and a nearby community college, Ivan enjoys the ability to teach and mentor students in multiple avenues. His research area of interest includes how the usage of real-time humor may alleviate academic anxiety and increase academic performance for undergraduate students. Ivan also runs an EdPsych collaboration firm by the name of Voyagerr to assist schools and businesses with applied interpersonal and self-awareness seminars.

STEPHANIE L. PERSUTT-MANNING is a PhD candidate at the University of Northern Colorado (UNC). She has taught in UNC's First-Year Seminar Program for three years. Additionally, she is a licensed professional counselor and has her own private practice.

STEPHANIE I. PERGANTIS is a PhD candidate at the University of Northern Colorado (UNC). She has taught in UNC's First-Year Seminar Program for three years. In previous years, she has been a school psychologist and much of her research focuses on high school and college student success.

ANGELA VAUGHAN holds a PhD in Educational Psychology from the University of Texas at Austin. She is the First Year Seminar Director at the University of Northern Colorado. She began her 20 plus year career as an educator as a United States Air Force Officer. From there, she has taught and developed curriculum at the high school, community college, and university levels. Her textbook, national conference presentations, and juried publications focuses on undergraduate student success and teacher professional development. Additionally, Dr. Vaughan helps other universities develop effective first-year and teacher training programs.