Michael Frizell, M.F.A., Editor

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Editor, Layout, & Design

Michael Frizell, M.F.A., is the editor of *The Learning Assistance Review* and an editor of NCLCA's first book, *Learning Centers in the 21st Century*. He is the author of *Bende*r, a graphic novel about the first American serial killer family published by Oghma Creative Media, where he also writes the introductions for the re-releases of Harold Robbins novels. His creative nonfiction appears in numerous journals, and his poetry has been featured as part of "The Good Men Project." He recently co-authored an article on Supplemental Instruction's impact on first-year students that appeared in *The Journal of Experimental Education*.

As a writer with TidalWave Comics, he has written over sixty comics based on the lives of the famous and infamous. Recent publications include comics about Netflix's Tiger King, Prince, Miley Cyrus, Donald Trump, and Elizabeth Warren.

His fiction comics include *The Fantasy World of Bettie Page: Bettie Page and the Red Menace*, a Cold War era sci-fi action graphic novel featuring the authorized likeness of Bettie Page. He's also one of the writers of the upcoming *Stormy Daniels: Space Force*, a *Star Trek* meets *Barbarella* romp starring adult film star Stormy Daniels. His sci-fi fantasy comic, *Communion*, will debut in late 2020.

Michael currently serves as the Director of Student Learning Services at Missouri State University and holds an MFA in Creative Nonfiction from the University of Arkansas at Monticello. He lives in Springfield, Missouri with his wife, Julia, a high school English teacher.

About The Learning Assistance Review

The Learning Assistance Review is an official publication of the National College Learning Center Association (NCLCA). NCLCA serves faculty, staff, and students in the field of learning assistance at two- and four-year colleges, vocational and technical schools, and universities. All material published by *The Learning Assistance Review* is copyrighted by NCLCA and can be used only upon expressed written permission.

NCLCA's Definition of a Learning Center

The National College Learning Center Association defines a learning center at institutions of higher education as interactive academic spaces which exist to reinforce and extend student learning in physical and/or virtual environments. A variety of comprehensive support services and programs are offered in these environments to enhance student academic success, retention, and completion rates by applying best practices, student learning theory, and addressing student-learning needs from multiple pedagogical perspectives. Staffed by professionals, paraprofessionals, faculty, and/or trained student educators, learning centers are designed to reinforce the holistic academic growth of students by fostering critical thinking, metacognitive development, and academic and personal success.

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Letter from the Editor

Michael Frizell, M.F.A.
Missouri State University

This may surprise you, but I never intended to go to college.

College is expensive, and it's not for everyone. I wanted to follow in my father's footsteps and join the Navy. I remember speaking to a recruiter for hours. He seemed excited about my application and I was thrilled at the prospect of leaving Cherryvale, Kansas on a boat bound for anywhere and far away from rolling wheat fields and dimwitted cows. Maybe I'd even put a little muscle on my skinny frame. Perhaps I was finally going to meet my exotic foreign princess like Luke Skywalker did when he rescued a beautiful princess from Darth Vader. (Sadly, at that time in my life, I realized that Luke Skywalker had kissed his sister in *Empire Strikes Back*, so the allure of finding a space princess diminished like many childhood dreams). At the end of that long conversation, and after the recruiter had promised me the perfect position writing for the armed forces newspaper, he paused.

"Oh, man! I forgot to ask? Do you have any illnesses that would prevent you from doing physical activity?"

He couldn't get off the phone fast enough when I told him I had asthma.

Of course I had asthma, right? And big, tortoiseshell glasses, too. My father didn't like to spend money on something we needed to replace every year, so he had me purchase glasses from his place of

employment. He worked at COOP Oil in Coffeyville. My glasses were safety glasses. I was a walking, talking, skinny cliché. I was Anthony Michael Hall in *The Breakfast Club.*

At the time, I was working at the Shelton's place, a big house out on the highway. I mowed, painted windowsills, and cleaned the pool for five bucks an hour. I was sipping ice tea, my feet in the water, when Gayleen Shelton asked me if I was going to college.

"Why? I don't know if I want to go anywhere."

That was the truth. She had two beautiful daughters, Kersten and Gretl, who I got to see every day. At eighteen, I was "living my best life" as the kids say nowadays.

"Oh, you're too smart for that. I mean, you've thought about college, right?"

I told her I halfheartedly applied to Pittsburg State University (the ole' PU! as my friend Linda used to call it), Wichita State, the University of Kansas (but it was expensive), and the School of the Ozarks.

Her voice rising, she said she knew people and with a phone call, I was accepted to S of O, now called College of the Ozarks, in Point Lookout, Missouri

Back then, to graduate from C of O, you had to work 20 hours a week and three forty-hour workweeks a year to pay for tuition, room, and board. You had to attend church - their church - six times a semester. You had to attend three patriotic or spiritual convocations a year, and you had to maintain a B average. Visiting the room of the

opposite sex was forbidden. The campus was separated with girls on one side, boys on the other. They locked the gates to the entire campus at 11 p.m. on a school night, which meant that if you were lucky enough to make out with Amanda Hammock in the parking lot after a late movie in Branson, you had to jump a high fence topped with barbed wire, sneak across the pasture, hide in the bushes across from the dormitory, wait until the guy in the security van coughed or turned his head, dash across the street in front of his car and when he gave chase, dart into the building, choose a floor, and pound on every bedroom door yelling "Security!" until someone let you in.

Not that I ever did that.

And yet, despite the draconian rules, I graduated. I was the first person in my family to do so. I'm a trailblazer, I'm told, a first generation college student. I have three more degrees now, the diplomas framed in my office, the top edges collecting dust. My wife has two degrees. My daughter does, too. My son only has one, but he's a chemist and it seems that if you major in the sciences, you can make more money than in the humanities.

And it all started because someone saw something in me that I didn't see. I run into Gayleen Shelton every now and then. She smiles, hugs me, and tells me she's proud of me.

Maybe that's why I work in a learning center. I want to pay it forward. I want to help a drifting student follow her passions and find her place. On days when it feels like I'm holding the Bear CLAW (Center for Learning and Writing) together through force of will and

well-practiced smile, it's nice to remind myself that learning center leaders are there for students.

I'm proud to present articles by Richard Yao, Megan Cogliano, Hiram Ramirez, Charles Osiris, Isaiah Ball, Miriam Valencia, Jennifer Herrera, Courtney A. Lloyd, Jocelyn A. Manigo, Tiffany E. Jones, Kaitlyn M. Crouse-Machcinski, Terry O. Gibson, Jr., Jennifer Ann Morrow, Gary J. Skolits, Louis M. Rocconi, Paul J. Croft, Neva Lozada, Tara J. Lehan, and Ashley Babcock. I know they're helping students just like me "live the dream."

Support for Peer Support: Examining Peer Leader Stress in Academic Support Programs

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Abstract

While most research has focused on the benefits of peer leadership programs, there is limited research examining potential risks for peer leaders. This study examined stress in academic support peer leaders. Findings indicated that peer leaders experienced less depression, vulnerability and perceived stress, while reporting higher levels of belonging and support (academic, financial, and peer) when compared to non-peer leaders, students employed off-campus and unemployed students. While the demands facing peer leaders are substantial, these findings suggest that there are aspects of peer leadership that mitigate the adverse effects of these challenges and help develop adaptive coping strategies.

Support for Peer Support: Examining Peer Leader Stress in

Academic Support Programs

Higher education research has demonstrated the significant impact of peer interactions on a number of domains, including the ability to successfully navigate the transition into college, student satisfaction, learning and academic performance, and persistence and retention (Shook & Keup, 2012). As such, formal peer leadership programs have been extremely popular on college and university campuses; it is estimated that approximately 78% utilize some type of peer education/leadership programming (Sawyer et al., 1997). Peer leadership programs originated in residential life and orientation programs but have expanded to include areas such as judicial affairs, student activities, placement centers, religious centers, counseling centers, advising programs, and crisis intervention programs (Ender & Kay, 2010). In addition, peer leadership in academic support programs is now prominent (Tucker et al, 2020), which includes peer tutoring, Supplemental Instruction, co-instructors in first-year seminars, and academic coaching (Latino & Unite, 2012).

The benefits for students who are served by peer leaders have been widely documented and include positive effects on academic achievement, student retention, liking of the subject matter, increased engagement, and improved access to supports through referrals from peer leaders (Sharkin et al., 2003; Tucker et al., 2020). In addition, numerous benefits for the peer leaders themselves have been documented, indicating a mutual benefit for students who serve in these leadership roles (Shook & Keup, 2012). Research has demonstrated that peer leaders are overwhelmingly pleased with their involvement and role (Keup, 2010). In addition, peer leaders have shown an increased knowledge of campus resources; perceived changes in interpersonal communication, organization, time management, presentation skills, written communication skills, critical thinking, problem solving abilities, and group processing skills; and have experienced more meaningful interactions with faculty and staff (Ender & Newton, 2010).

While the benefits of peer leadership positions have been widely demonstrated, it cannot be assumed that peer leadership programs are free of complications and challenges. The popularity of peer leadership programs has grown, in part, due to the ability of colleges and universities to administer broad initiatives and interventions without having to hire full-time professional staff (Shook & Keup, 2012). As such, peer leaders are often asked to fulfill job responsibilities that would be expected of full-time professional staff (Shook & Keup 2012). Research has also helped identify potential risks for peer leaders, which include over-involvement resulting in adverse effects on grades, too much time devoted to peer leadership responsibilities, and stress associated

with the peer leadership role (Keup, 2010). In addition, questions of role clarification and self-presentation, perfectionistic tendencies, unrealistic workloads and a lack of guidance on how to manage the roles of peer leader and student have been identified as potential risks for peer leaders (Colvin, 2007; Colvin & Ashman 2010; Skipper & Keup, 2017).

Purpose of Research

While the large majority of attention has focused on the benefits of peer leadership programs for students, peer leaders, and their institutions, there has been limited attention and research examining the potential risks for peer leaders – this is especially true when examining academic support peer leaders. In addition, there has been no published research that has quantitatively measured stress in peer leaders. Thus, the purpose of this research was to examine the stress levels of peer leaders specifically working in academic support programs. Our research questions were as follows: 1) How does the stress level of academic peer leaders compare to non-peer leaders as measured by Dispositional Health, Types of Stressors, and Perceived Support scales? 2) Are there differences in stress levels between peer leaders, students with off-campus employment, and unemployed students? 3) Are peer leaders less likely to consider dropping out of college due to stress levels when compared to non-peer mentors?

Method

Participants

This research was conducted at a small, public regional college in the Western United States. The college is designated as a Hispanic Serving Institution (HSI) and serves a diverse student body population. 57% of the student body population identifies as coming from a "culturally diverse" ethnic background, and 64% are first-generation college students.

Participants in the experimental group were peer leaders in academic support programs, which included the following programs: course assistants (embedded academic peer support in high "Drop, Fail, Withdraw DFW" gateway courses), writing center specialists, and tutors and Supplemental Instruction leaders from the Academic Success Center (n=34). The comparison group consisted of non-academic peer leader students from a previously administered comprehensive mental health needs assessment (n=119). The demographic variables collected and the respective breakdown for both groups are found in Table 1. The means and standard deviations for both groups with regards to age, credit load, and hours worked are found in Table 2.

Table 1.

Participant Demographic Variables: Frequencies and Percentages

Demographics	Peer Leaders (%)	Non-Peer Leaders (%)
Gender		
Male	12 (35%)	18 (15%)
Female	22 (65%)	100 (84%)
Age		
25 and over	11 (32%)	48 (40%)
Under 25	23 (68%)	71 (60%)
First-Generation		
Yes	16 (47%)	53 (45%)
No	18 (53%)	65 (55%)
Caregiver Status		
Yes	15 (44%)	53 (45%)
No	19 (56%)	64 (54%)
Employment Hours		
Over 20	24 (71%)	65 (55%)
Under 20	10 (29%)	54 (45%)
Credit Load		
Full-time (12+)	21 (62%)	76 (64%)
Part-time (under 12)	13 (38%)	43 (36%)

Table 2.

Means and Standard Deviations for Age, Credit Load, and Work Hours

	Peer Leaders (SD)	Non-Peer Leaders (SD)
Age	24.21 (5.767)	25.87 (7.955)
Credit Hours	11.00 (4.105)	11.45 (4.435)
Work Hours	25.67 (10.222)	20.05 (16.661)

Apparatus and Materials

The survey utilized in this study consisted of a subset of scales and associated questions from a self-developed, previously administered, comprehensive mental health needs assessment. The initial survey was developed to specifically address campus-specific concerns regarding students' mental health and utilized a combination of self-authored questions and select items from previously established assessments. The following scales from the initial survey instrument were utilized as part of this study: Dispositional Health, Types of Stressors, and Perceived Support.

The Dispositional Health scale consisted of the following sub-scales: Depression, Vulnerability, Anxiety, and Perceived Stress. The Vulnerability, Depression, and Anxiety sub-scale questions consisted of chosen items from the NEO Personality Inventory-Revised (Costa & McCrae (1992). The Dispositional Health scale was utilized as the primary measure of overall stress, as indicators of depression, vulnerability, anxiety and perceived stress are likely to be associated with higher stress levels. The Types of Stressors scale was self-developed and categorized various types of stressors into the following sub-scales: Task Stressors, Social Stressors, and Financial Stressors. Lastly, the Perceived Support scale was also self-developed and categorized various sources of support into the following sub-scales: Academic, Financial, Peer, Family, and Campus Belonging. Cronbach's alphas for the Dispositional Health

and Perceived Support scales were .784 and .791, respectively, indicating acceptable scale reliability. The survey questions and respective scales and subscales can be found in Appendix A.

Procedure

This research project received Institutional Review Board (IRB) approval, which initially involved the previous mental health needs assessment research project, the subsequent modified use of the survey instrument for the current research project, and the recruitment and data collection of the academic peer leader group. The independent variable for this research was participation in an academic peer leadership role, and the dependent variables included dispositional health, types of stressors, and perceived support networks. A comparison of academic peer leaders v. students employed off-campus v. unemployed students was also conducted on the various dependent variable measures.

Recruitment efforts focused specifically on peer leaders in academic support programs, which included course assistants, writing center specialists, and tutors and Supplemental Instruction leaders from the Academic Success Center. The primary investigator attended program meetings to explain the purpose of the study, review informed consent, request their participation in the research, and answer any questions. Participants completed hard copy surveys, and the survey responses were coded for the purposes of the statistical analyses. The academic peer leader data

was examined with the comparison group data on the selected scales and subscales for the statistical analyses. Statistical analyses compared the academic peer mentor group with the comparison group on the Dispositional Health, Types of Stress, and Perceived Support scales and their respective sub-scales.

Results

Research Question 1: *How does the stress level of academic peer leaders compare to non-peer mentors as measured by Dispositional Health, Types of Stressors, and Perceived Support scales?*

The peer leader group presented with an average Dispositional Health scale score of 52.82 (SD=12.51) compared to 61.34 (SD=12.36) for the non-peer leader group. A one-way analysis of variance (ANOVA) indicated that the peer leader group had significantly lower Dispositional Health scale scores on average, when compared to the non-peer leader group, $F(1,151)=12.496$, $p=.001$. In addition, the peer-leader group presented with an average Perceived Support scale score of 63.12 (SD=9.19) compared to 50.76 (SD=7.78) for the non-peer leader group. A one-way ANOVA indicated that the peer leader group had significantly higher perceived support scale scores on average, in comparison to the non-peer leader group, $F(1,151)=61.449$, $p<.001$. These findings suggest that the peer leader group experienced significantly lower levels of stress when compared to the non-peer leader group (as evidenced by significant differences in Dispositional Health scores), and they also perceived

themselves as having more comprehensive support networks than the non-peer leader group (as evidenced by significant differences in the Perceived Support scores). There were no significant differences between groups on the Types of Stressors scale, $F(1,151)=.056$, $p=.814$, indicating that both groups experience similar types of stressors. However, while both groups experience similar types of stressors, the differences on the Dispositional Health scores indicate that the non-peer leader group experienced these stressors with more intensity/severity. Means and standard deviations for the main scales can be found in Table 3.

Table 3.

Means and Standard Deviations for Main Scales

	Peer Leaders	Non-Peer Leaders
Dispositional Health*	52.82 (12.51)	61.34 (12.36)
Types of Stressors	32.99 (15.17)	33.65 (10.37)
Perceived Support**	63.12 (9.19)	50.76 (7.78)

*p=.001   **p<.001

More specifically, when examining the Depression, Vulnerability, Anxiety, and Perceived Stress subscales of the dispositional health domain, the peer leader group fared significantly better on the Depression, $F(1,151)=4.695$, $p=.032$, Vulnerability, $F(1,151)=60.090$, $p<.001$ and Perceived Stress $F(1,151)=21.181$, $p<.001$ subscales. These findings indicate that the peer leader group reported lower levels of depression,

vulnerability, and perceived stress when compared to the non-peer leader group. There were no significant differences between groups on the Anxiety subscale, $F(1,151)=.341$, $p=.560$, indicating that both peer leaders and non-peer leaders experienced similar levels of anxiety. Means and standard deviations for both groups on the Dispositional Health subscales can be found in Table 4.

Table 4.

Means and Standard Deviations for Dispositional Subscales

	Peer Leaders	Non-Peer Leaders
Depression*	49.71 (15.86)	57.82 (20.09)
Vulnerability**	42.35 (16.89)	61.59 (11.35)
Anxiety	71.15 (19.21)	69.69 (17.97)
Perceived Stress**	49.41 (14.756)	60.92 (12.28)

*p=.032   **p<.001

With regards to the subscales on the perceived support domain, the peer leader group reported significantly higher levels of support in the areas of Academic Support, $F(1,151)=134.488$, $p<.001$, Financial Support, $F(1,151)=8.585$, $p=.004$, Peer Support, $F(1,151)=64.694$, $p<.001$), and Campus Belonging, $F(1,151)=11.953$, $p=.001$. These findings indicate that the peer leader group perceived themselves as having greater academic, financial, and peer support than the non-peer leader group, and they also have a greater sense of campus belonging when compared to the non-peer leader group. There were no significant differences between groups on the Family Support subscale, $F(1,151)=.059$, $p=.808$, indicating that both groups

reported similar levels of family support. Means and standard deviations for both groups on the perceived support subscales can be found in Table 5.

Table 5.

Means and Standard Deviations for Perceived Support Subscales

	Peer Leaders (SD)	Non-Peer Leaders (SD)
Academic Support*	72.35(10.46)	46.97 (11.47)
Financial Support**	57.06(16.61)	49.16 (12.99)
Peer Support*	71.18 (12.74)	53.28 (11.06)
Family Support	57.94 (19.81)	56.97 (20.61)
Sense of Belonging***	57.06 (25.05)	47.39 (9.43)

*p<.001   **p=.004   ***p=.001

There were no significant differences between the peer leader and non-peer leader groups on the Types of Stressors subscales, including Task Stressors, F(1,151)=1.339, p=.249, Social Stressors, F(1,151)=1.733, p=.190, or Financial Stressors F(1,151)=.035, p=.852. This indicates that the peer leader and non-peer leader group experienced the task, social, and financial stressors to a similar degree. Means and standard deviations for both groups on the Types of Stressors subscales can be found in Table 6.

Table 6.

Means and Standard Deviations for Types of Stressors Subscales

	Peer Leaders (SD)	Non-Peer Leaders (SD)
Task Stressors	52.65 (17.11)	48.15 (20.71)
Social Stressors	27.25 (14.34)	31.93 (19.22)
Financial Stressors	34.31 (17.46)	33.56 (21.68)

Research Question 2: *Are there differences in stress levels between peer leaders, students with off-campus employment, and unemployed students?*

One-way ANOVA indicated that the peer leader group had significantly lower Dispositional Health scale scores on average, when compared to the students with off-campus employment and unemployed students, F(2,150)=6.319, p=.002. In addition, one-way ANOVA indicated that the peer leader group had significantly higher Perceived Support scores on average, when compared to students with off-campus employment and unemployed students, F(2,150)=30.750, p<.001. These findings suggest that the peer leader group experienced significantly lower levels of stress when compared to students who were employed off-campus and unemployed students. The peer leader group also perceived themselves as having more comprehensive support networks than students who were employed off-campus and unemployed students. There were no significant differences between groups on the Types of Stressors scale, F(2,150)=1.144, p=.322, indicating that all three groups experienced similar types of stressors. However,

while all groups experienced similar types of stressors, the differences on the Dispositional Health scores indicated that the peer leader group experienced these stressors with less intensity/severity. The means and standard deviations for all three groups on the Dispositional Health, Types of Stressors, and Perceived Support scales can be found in Table 7.

Table 7.

Means and Standard Deviations for the Dispositional Health, Types of Stressors, and Perceived Support Scales

	Peer Leaders	Off-Campus Employment	Unemployed
Dispositional Health*	52.82 (12.51)	61.69 (11.68)	60.56 (13.96)
Types of Stressors	33.65 (10.37)	31.71(13.73)	35.94 (17.94)
Perceived Support*	63.12 (9.19)	51.04 (8.08)	50.11 (7.11)

*p=.002   **p<.001

When examining the Depression, Vulnerability, Anxiety, and Perceived Stress subscales of the Dispositional Health domain, the peer leader group fared significantly better on the Vulnerability and Perceived Stress subscales. One-way ANOVA indicated that the peer leader group had significantly lower Vulnerability subscale scores on average when compared to students employed off-campus and unemployed students, F(2,150)=30.230, p<.001, as well as significantly lower scores on the Perceived Stress subscale, F(2,150)=11.070, p<.001. These findings indicate that the peer leader

group reported lower levels of vulnerability and perceived stress when compared to the students employed off-campus and the unemployed students. There were no significant differences between groups on the Depression, F(2,150)=2.339, p=.10, or Anxiety subscale, F(2,150)=.205, p=.815. However, when examining just the peer leader group with students who are employed off-campus, the peer mentor group presented with significantly lower scores on the Depression subscale, F(1,115)=4.572, p=.035). Means and standard deviations for all three groups on the Dispositional Health subscales can be found in Table 8.

Table 8.

Means and Standard Deviations for the Dispositional Health Subscales (Peer Leaders vs. Off-Campus Employment vs. Unemployed)

	Peer Leaders	Off-Campus Employment	Unemployed
Depression	49.71 (15.86)	57.95 (20.05)	57.50 (20.4)
Vulnerability*	42.35 (16.89)	62.17 (11.16)	60.28 8 (11.83)
Anxiety	71.75(19.21)	69.39 (16.59)	70.37 (21.05)
Perceived Stress*	49.41 (14.76)	61.69 (12.38)	59.17 (12.04)

 *p<.001

With regard to the subscales on the Perceived Support domain, the peer leader group reported significantly higher levels of support in the areas of Academic Support, F(2,150)=67.909, p<.001, Financial Support, F(2,150)=4.441, p=.013, Peer Support, F(2,150)=32.445, p<.001, and Campus Belonging, F(2,150)=5.941, p=.003. These findings indicated that the peer leader group perceived themselves

as having greater academic, financial, and peer support than the students employed off-campus and unemployed students, and they also had a greater sense of belonging when compared to the other groups. There were no significant differences between groups on the Family Support subscale, $F(2,150)=.153$, $p=.858$, indicating that all three groups reported similar levels of family support. Means and standard deviations for all three groups on the Perceived Support subscales can be found in Table 9.

Table 9.

Means and Standard Deviations for the Perceived Support Subscales (Peer Leaders vs. Off-Campus Employment vs. Unemployed)

	Peer Leaders	Off-Campus Employment	Unemployed
Academic Support*	72.35(10.46)	47.711 (10.63)	45.28 (13.19)
Financial Support**	57.06 (16.61)	48.67 (13.05)	50.28 (12.98)
Peer Support*	71.18 (12.74)	53.73 (11.55)	52.22 (9.89)
Family Support	57.94 (19.81)	57.59 (19.79)	55.56 (22.61)
Sense of Belonging***	57.06 (25.05)	47.47 (8.67)	47.22 (11.11)

*p<.001   **p=.013   ***p=.003

With regard to the subscales on the Types of Stressors domain, unemployed students had significantly higher Financial Stressor scores on average, in comparison to students with off-campus employment, $F(2,150)=3.548$, $p=.031$. There were no significant differences between the groups on the Task Stressor, $F(2,150)=1.314$, $p=.272$, or Social Stressors subscales, $F(2,150)=1.790$, $p=.171$. This indicates that the peer leader group, students employed off-campus,

and unemployed students experienced task and social stressors to a similar degree. Means and standard deviations for all three groups can be found in Table 10.

Table 10. *Means and Standard Deviations for the Types of Stressors Subscales (Peer Leaders vs. Off-Campus Employment vs. Unemployed)*

	Peer Leaders	Off-Campus Employment	Unemployed
Task Stressors	52.65 (17.11)	49.52 (19.37)	45.00 (23.48)
Social Stressors	27.25 (14.34)	30.44 (17.55)	35.37 (22.53)
Financial Stressors*	34.31 (17.46)	30.28 (20.04)	41.11 (23.66)

*p=.031

Research Question 3: *Are peer mentors less likely to consider dropping out of college due to stress levels when compared to non-peer mentors?*

A chi-square test was performed to examine the relationship between peer leader status and the consideration of dropping out of school due to stress levels. The relationship between these variables was significant, $X^2 (1)=10.279$, $p=.001$. This indicates that peer leaders were significantly less likely to consider dropping out of college due to their stress levels when compared to the non-peer leader group. An additional chi-square was performed to examine peer leaders, students employed off-campus, and unemployed students in relation to consideration of dropping out of school due to stress. The relationship between these variables was also significant, $X^2 (2)=10.787$, $p=.005$. This indicates that peer leaders

were significantly less likely to consider dropping out of school due to stress when compared to students with off-campus employment and unemployed students.

Discussion

The main findings of this study indicated that the peer mentor leader group experienced significantly lower levels of stress and significantly higher levels of overall support when compared to the non-peer leader group, students with off-campus unemployment, and unemployed students. More specifically, they experienced less depression, vulnerability, and perceived stress, while reporting higher levels of academic support, financial support, peer support and sense of campus belonging. In addition, peer leaders were significantly less likely to consider dropping out of college due to their stress levels when compared to the other groups in this study.

These findings are significant because colleges and universities are under pressure to improve student retention, persistence and graduation rates, as well as closing equity gaps for students from historically underrepresented groups and low-income families. As such, academic support peer leaders are becoming increasingly popular to meet these demands. While the demands, responsibilities, role expectations and systemic challenges for peer leaders are substantial, these research findings suggest that there are aspects of the peer leader experience that serve as protective factors that mitigate the adverse effects of these challenges and serve as a catalyst for the development of more adaptive coping strategies.

Our findings suggest that the peer leader group may have a better developed sense of self-efficacy (Bandura, 1986) as it relates to their ability to navigate the various responsibilities and stressors associated with the peer leader role. While the self-efficacy literature has primarily focused on performance accomplishments as the most influential learning experience that promotes self-efficacy (Lent et al., 2002), another experience that is directly relevant to this research and is often overlooked in the literature is the ability to navigate "negative" physiological and affective states. While the peer leader group experienced similar types of stressors as the other student groups, they experienced these stressors with less intensity and severity. In their development as peer leaders, they may have learned to normalize and embrace the stressors associated with the college experience and as a result, developed a greater sense of efficacy in how they navigate their professional, academic, and personal demands and responsibilities. As a result, peer leaders may have developed a higher "threshold" with regards to how many responsibilities and demands they can effectively navigate. In addition, peer leaders may have developed increased efficacy through observational learning and vicarious reinforcement. That is, since a significant aspect of their training focuses on identifying risk factors in their peers, they may have developed the ability to more

effectively self-assess their own needs and determine when to seek support. Peer leaders also experience vicarious reinforcement by engaging and interacting with their professional staff mentors, who can model how to effectively navigate high-level demands and various types of professional stressors.

These findings are also consistent with previous research illustrating the benefits of serving in the peer leadership role, with a specific emphasis on navigational capital and greater access to campus support systems (Austin, 1993; Eells, 2017; Shook & Keup, 2012). The peer leader group reported substantially higher levels of perceived academic support, financial support, peer support, and sense of campus belonging. The increased level of campus connectedness and various forms of campus support are essential in helping peer leaders successfully navigate the stress associated with the peer leader role and college experience. In addition, peer leaders may actually benefit from the "fishbowl effect," with their various campus touch-points and support systems "keeping an eye out" for the well-being of their peer leaders. Professional staff are likely to proactively engage peer leaders when they observe difficulties and can provide support and resources as deemed necessary.

The positive reinforcement peer leaders receive from the campus community related to their role may also contribute to their ability to more effectively navigate stress. As peer leaders, they serve as a model for other students, and this reinforcement and campus investment from a financial, professional, and psychosocial perspective may help foster a higher sense of personal commitment and accountability to serve in the peer leader role. This sense of personal commitment may facilitate a greater investment in adaptively coping with and persevering through the various stressors associated with the peer leader role.

Our findings have significant training implications for peer leaders in academic support programs. While many programs include a "self-care" component in their training programs, it is recommended that training include a more formal and comprehensive self-efficacy theoretical framework, with a specific emphasis on normalizing the negative affective states that are required for personal and professional growth and accompany the everyday demands and responsibilities of the peer leader role. In addition, training can emphasize the role of cognitive-behavioral strategies in the development of more adaptive coping strategies and information processing skills (Hollon & Beck, 2013). These research findings indicated no significant differences in the types of stressors experienced between the student groups, which suggests that the peer mentors have developed more adaptive cognitive strategies to reduce the intensity of the perceived stressors. This type of cognitive reframing is what then leads to more effective behavioral coping strategies. The combination of self-efficacy and

cognitive-behavioral theories can further strengthen the theoretical

foundations of training curricula for peer mentors.

Limitations and Future Research

The main limitation of this research was the small sample size of

the peer leader group, which inhibited the ability to examine group

differences based on various demographic variables. As such,

future research can expand the scope to include a broader and more

comprehensive array of peer mentors, which will allow for

comparisons between different types of peer leaders, as well as

group differences based on demographic variables. In addition,

there was a higher percentage of male peer mentors (35%) when

compared to the non-peer mentor group (15%), which may require

further examination into gender differences as it relates to

managing stress. The peer mentor group also presented with a

higher percentage of individuals who worked more than 20 hours

per week (71%) when compared to the non-peer mentor group

(55%). It is possible that various dynamics associated with increased

work hours could have an impact on how one manages stress, in

addition to an increased sense of campus belonging. Another

limitation is the absence of an additional comparison group

consisting of students who were employed on-campus, but not as

peer leaders. Further inquiry may discover whether being

employed on-campus in other positions may also contribute to

lower stress and higher perceived support, or if there are specific

aspects and/or characteristics of peer leadership positions in

academic support programs that better explain these findings.

From a methodological perspective, a mixed methods approach

may prove to be more beneficial, as a qualitative component will

provide more depth and understanding into the experiences of peer

leaders and better ascertain the differences in stress levels and

perceived support among student groups. In addition, research

examining intersectional identities as they relate to the peer mentor

experience will provide added knowledge about how historically

marginalized identities experience and navigate the peer mentor

role.

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Appendix A

Dispositional Health: During the course of this semester, how often have you: (Not at all, Infrequently, Sometimes, Often, Very often)

1. Felt like you were capable of coping with most of your problems (NEO Vulnerability)
2. Gotten stressed out easily (NEO Anxiety)
3. Felt discouraged and wanted to give up (NEO Depression)
4. Found that you could not cope with all the things you had to do (Perceived Stress)
5. Felt sad or depressed (NEO Depression)
6. Felt that you were able to manage all of the things you had to do (Perceived Stress)
7. Felt tense or anxious (NEO Anxiety)
8. Worried about things (NEO Anxiety)
9. Felt helpless and wanted someone else to solve your problems (NEO Vulnerability)
10. Contemplated dropping out or withdrawing from school (Withdrawing from School)

Types of Stressors: During the current semester, how frequently have you experienced stress or pressure due to: (N/A, Never, Rarely, Sometimes, Often, Always)

11. School responsibilities (e.g., meeting deadlines, successfully completing assignments) (Task Stressor)
12. Work responsibilities (e.g., scheduled hours, meeting deadlines, working overtime) (Task Stressor)
13. Caregiver responsibilities (e.g., children, parents/grandparents) (Social Stressor)
14. Transportation issues (e.g., unexpected auto repair, long commute) (Financial Stressor)
15. Lack of finances (e.g. money for auto repair, tuition, child care, etc.) (Financial Stressor)
16. No or inadequate employment (e.g., unemployed, underemployed, low wages) (Financial Stressor)

17. Poor physical health (e.g., extended sickness, health problems) (Other Stressor)

18. Issues in my romantic relationship (e.g., boyfriend/girlfriend, spouse partner) (Social Stressor)

19. Issues in my social relationships (e.g., difficult family, friends, coworkers) (Social Stressor)

20. Experiencing bias or discrimination (e.g., based on gender, race, sexuality, etc.) (Other Stressor)

Perceived Support: Do you feel supported? Please indicate your agreement with the following statements (Disagree, Mostly disagree, Mostly agree, Agree)

21. I know someone who could loan me money to help cover my tuition or books (Financial Support)

22. I don't know anyone at school who would help me study for an exam (Academic Support)

23. I belong to a group or club at school that meets regularly or does things together regularly (Campus Belonging)

24. I don't know anyone at school who I feel comfortable talking about problems with (Peer Support)

25. I feel comfortable talking about my problems with my family (Family Support)

26. Even if I needed it, my family does not have the means to give me money for tuition or books (Financial Support)

27. I know someone at school who would get assignments from my teachers if I was sick (Academic Support)

28. I am not a member of any social groups or clubs at my school (Campus Belonging)

29. I know someone who I see or talk to regularly who I feel comfortable sharing my problems with (Peer Support)

30. I get the emotional help and support I need from my family (Family Support)

Pathway to Leadership: The Peer Tutor Coordinator Role at West Chester University

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Abstract

Peer tutors at West Chester University's Learning Assistance and Resource Center have the opportunity to advance in their professional roles by becoming Peer Tutor Coordinators (PTCs). PTCs supervise peer tutors within the learning center and are instrumental to its overall success. PTCs acquire time management, communication, problem-solving, professionalism, and adaptability skills that are beneficial to their learning center roles as well as their professional endeavors. To help fill the gap in the literature, this article highlights the PTC role, competencies that promote professional development and leadership, learning center goals, and implications for future practice in this important area of research.

Pathway to Leadership: The Peer Tutor Coordinator Role at

West Chester University

Tutoring is a long-standing practice of providing academic support and enrichment to students and plays an instrumental role in student success at higher education institutions in the United States (Calma, 2013; Dvorak, 2004; Kim, 2015). It is a process in which an individual who is trained in an academic discipline, the tutor, provides instruction and remediation to students enrolled in discipline-related courses. Tutoring reinforces learning and encourages the academic growth of students. Kim (2015) noted most tutoring programs enhance students' math, reading, writing, communication, and leadership skills. Tutoring not only assists academically underprepared or at-risk students, but it also benefits the entire student population (Dvorak, 2004).

The Learning Assistance and Resource Center (LARC) at West Chester University of Pennsylvania (WCU) provides tutoring and educational support services to the entire undergraduate student population. In addition to supporting students' academic success, the LARC is also committed to the professional success of its peer tutors. The LARC provides opportunities for experienced tutors to advance to a leadership position, and this unique undergraduate leadership position is the driving force behind the learning center's success. This best practice article surveys the literature on peer tutoring, tutoring training, and the competencies that promote professional development and leadership while highlighting the Peer Tutor Coordinator (PTC) role and the necessary transferable skills required.

Background

The LARC at WCU was established in 1987. The mission of the LARC, which has not changed since its inception, is ultimately to promote autonomous learning. The LARC provides academic support services, such as tutoring and academic coaching, which assist students in becoming independent and active learners (Learning Assistance and Resource Center, n.d.). The main objective of the center is to assist students of the university with succeeding in their academic endeavors throughout their college career.

Like most learning centers, the LARC provides opportunities to cultivate the professional growth of tutors. For the past several years, the LARC has maintained a membership with the College Reading and Learning Association (CRLA), through which the department certifies tutors at three different levels: Level I - Certified, Level II - Advanced, and Level III- Master. The CRLA is internationally regarded as a credible agency to verify tutoring program credentials and set forth standards for learning centers in the United States and other countries (Dvorak, 2004). All levels of certification training provide an opportunity for tutors to focus on the various aspects of the tutoring experience. Common tutor

training topics include the initial tutoring session, cultural awareness, managing records, communication, problem-solving skills, etc. (College Reading & Learning Association, 2018).

An additional professional development opportunity for the LARC tutors, and the highlight of this article, is a unique position titled the PTC. PTCs obtain the CRLA Level III certification and become undergraduate supervisors of their undergraduate peer tutors. In the PTC role, tutors have the autonomy to supervise, facilitate training and meetings, and participate as a contributing staff member of the LARC. This article will further explore the PTC role, the competencies developed through this role, and implications for future practice in this important area of research.

Literature Review

Despite the abundance of literature regarding the experiences of tutors and tutor training, research regarding leadership development in tutors lacks breadth. Therefore, the following literature review presents relevant knowledge regarding student leadership and peer tutoring development as justification for the peer tutor coordinator role.

Student Leadership Development

While previous research describes leadership as a trait that individuals acquire at birth, current studies define leadership as "a process that can be learned" (Northouse, 2010, p. 15). In the same manner that an individual can improve in a task with proper

instruction and practice, leadership competencies can also be acquired through learned experiences. This skill-centered approach for understanding leadership also implies that leadership development is attainable for everyone, despite their inherent abilities, background, and knowledge. Individuals can potentially adopt these habits through a concerted effort to shift their thinking and actions.

Another central element of leadership, especially evident in peer leadership roles like the PTC position, is the bi-directional influence between a leader and followers.[1] Northouse (2010) defines leadership as "a process whereby an individual influences a group of individuals to achieve a common goal" (p. 5). In this sense, leadership is a transactional and interactive event that impacts both the leader and the members of an organization. A positive leader-follower relationship can enhance a sense of community and satisfaction within an organization (Hollander, 1992). A potential threat to the leader-follower relationship is the tendency for leaders to abuse positional power to coerce compliance. Such abuse of power, often fueled by threat and punishment, devalues the potential contributions of others.

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[1] The term *followers* is a broad term understood to be "those to whom leadership is directed" (Northouse, 2015, p.6).

Research points to the importance of context when considering effective leadership development (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000; Osteen & Coburn, 2012). Leadership is a concept addressed in the context of process, effect, audience, and purpose (Cansoy, 2017). The extent to which individuals master leadership skills relies heavily on the working environment. Career experiences, according to Northouse (2010), "have an impact on the characteristics and competencies of leaders" (p. 24). Individuals are more likely to develop knowledge and problem-solving skills, for example, when exposed to novel, challenging experiences (Mumford et al., 2000). The same is true for student leaders in higher education. College students benefit from serving in various leadership positions on campus (Hilliard, 2010). Students who hold leadership positions or who are employed as student workers on campus can develop their leadership skills from those direct experiences and by working with peers and other professional staff.

Benefits of Peer Leadership and Tutoring

There are several benefits associated with student leadership at the higher education level. Some of the benefits, related to the PTC position, gained while serving in leadership positions include a few of the following from Hilliard (2010):

- create a sense of ownership and responsibility
- equip their peers with knowledge related to team building and high importance of a team
- help to coordinate meetings, write reports, communicate important information about the university
- increase the impact on peer educational and personal development
- gain a sense of personal ethics and clarity of personal values
- gain improved conflict resolution skills and problem-solving at a broader level
- have ability to gain knowledge and process of better decision-making skills
- deal better with complex and uncertainties
- plan and implement programs better
- Use leadership theories and practices as they continue to develop (pp. 95-96)

Students in leadership positions have the opportunity to engage with peers, faculty, and staff, which allows the student leaders to enhance their leadership skills. Ford, Wilkins, and Groccia (2018) examined the role of undergraduate peer instructors (UPIs) in higher education and its benefits for students and institutions. Researchers found that UPIs experienced gains in communication skills, knowledge and understanding, problem-solving skills, attitudes, and confidence (Ford et al., 2018). UPIs also serve as powerful role models for other students, and they can "establish open and honest dialogues among peers and peer-instructors that

results in improved learning, an increased sense of accountability, and an increased sense of motivation and purpose" (p. 34).

Similar benefits are seen with students serving as peer tutors. The advantages of peer tutoring extend beyond the academic gains for students, as there is a correlation between peer tutoring and student academic success (Foran & Longpré, 2006). Cohen (1986) highlighted a social benefit of peer tutoring in that it "provides peers with an opportunity to interact, to get to know each other, and to develop the social skills of listening, understanding, soliciting and delivering help, and communicating clearly" (p. 179). Students who participate in tutor training enhance their leadership, communication, problem-solving, and decision-making skills, and "peer tutoring is an effective way to support students' academic success and intellectual development" (Kim, 2015, p. 5). Overall, peer tutoring has proven to be an effective method of providing quality services to students while enhancing both the tutors' and students' social and communication skills.

The Peer Tutor Coordinator Position

The PTC position is a vital role in the success of the LARC. To attract the most qualified candidates, the LARC professional staff incorporated a comprehensive application process. First, and most importantly, all applicants must have a minimum of a 3.0 or higher cumulative grade point average and have received the CRLA Level III certification. The PTC position attracts many of the Level III

certified tutors, as the position provides opportunities for tutors to expand their résumé, to enhance their transferable skills, and to gain new experiences in college. Students who are actively involved on campus and seek new educational experiences are the students who perform well academically and look for leadership opportunities (Miller, Rocconi, & Dumford, 2018). The PTC role gives undergraduate students opportunities to cultivate their leadership style and competencies.

Applicants complete an online application with questions about their interest in the PTC role since the LARC staff need to have a clear understanding as to why the applicants are interested in the position and to understand the students' strengths and weaknesses. In addition to the online application, PTC applicants must participate in the following activities to be considered as a candidate: shadow a current PTC on duty, assist a PTC with a prospective tutor interview, and complete three formal tutor observations. Finally, the applicants must interview with the professional staff and current PTCs.

The PTC position was created to assist the professional staff in the direct supervision of undergraduate peer tutors, and in this supervisory role, the five to six PTCs are the first point of contact for their 20-30 assigned peer tutors. PTCs are required to meet the competencies for effective leadership, and through this position, students are provided many opportunities to expand their

leadership skills when working one-on-one with tutors, as well as with the professional staff. Competencies developed through this position not only assist students during their undergraduate career but also enhance their résumé for future employers or applications for graduate or professional school. To foster the development of transferable skills necessary for future employers, universities are encouraged to provide students with appropriate opportunities to develop these skills (Dickinson, 2000). The PTC position provides such an opportunity for students at WCU to develop their transferable skills while gaining supervisory experience.

Some of the primary job duties of the PTC include the following: supervise assigned peer tutors, facilitate small group bi-weekly tutor meetings, facilitate tutor training sessions, conduct tutor observations, assist the professional staff with data collection and reporting, and participate in prospective tutor interviews. The PTCs have the autonomy to make decisions and as undergraduate students supervising undergraduate peer tutors, the PTCs must demonstrate the necessary professional competencies to be successful in this position.

Examination of the PTC Role and the Development of Professional Competencies

When the process of selecting new PTCs begins, transferrable skills like those noted in the previous section are necessary for the LARC staff to consider when making their final decisions. Previous tutoring experience, high CGPA, and other relevant work experience are important for this role, but certain leadership qualities are necessary. According to Mustafa (2013), it is a challenge for higher education professionals to foster leadership development, as students are developing certain competencies outside of the classroom. The LARC staff can foster this development, as PTCs conduct CRLA tutor training, facilitate tutor bi-weekly meetings, and complete specific job tasks and responsibilities. This article highlights five of the top professional competencies, with examples, developed through the PTC role.

Time Management

Each PTC is assigned certain tasks or duties throughout the semester, which allows the professional staff to dedicate more time to improving and expanding services provided by the learning center. The PTCs take on a heavy load of responsibility in addition to their coursework. PTCs are full-time students, which translates into attending at least 12 hours of class time each week. On top of class time, students should be studying at least two to three hours for every hour in class (Laitinen, 2013). On top of class time, coursework, and other obligations, PTCs are contracted to work 15-20 hours per week. PTCs must possess excellent time management skills, as they are unable to shirk their LARC responsibilities because of other obligations. PTC duties and responsibilities begin a

few weeks before the start of each semester and continue after the end of each semester.

The following job tasks are typically assigned to the PTCs: monitor tutor attendance, attend weekly staff meetings, lead bi-weekly meetings, hold drop-in hours for tutors and students, keep constant communication with supervisors and tutors, create resources, assist in prospective tutor interviews, and mentor new tutors. To complete all the assigned tasks promptly, the PTCs need to stay organized throughout the semester and prioritize responsibilities. In a study conducted by Talib and Sansgiry (2012), time management skills were significantly correlated with higher GPAs. Therefore, the skills the PTCs learn on the job enhance their potential for academic success.

Communication

Effective communication is critical because there is a constant exchange of information between the professional staff and the PTCs. PTCs act as a liaison for the department, communicating policy reminders, programmatic changes, and performance updates regarding peer tutors. Therefore, PTCs must listen effectively and express ideas both orally and in writing. For example, they must have the ability to represent the LARC during a university marketing event, yet also compose a clear and concise email message to their peer tutor team. Furthermore, they must critically discern which communication approach would be appropriate for the given task. Cansoy (2017) found that when students are exposed to leadership positions or programs, it improves their communication skills.

The LARC offers several opportunities through which PTCs can refine their communication skills. PTCs are responsible for conducting bi-weekly meetings with their assigned peer tutors. In the absence of the director or assistant director, the PTC is the sole facilitator and provides department updates, addresses tutor questions, and resolves tutor-related issues as a team. Similarly, PTCs are responsible for facilitating tutor training sessions for CRLA Level II trainees. Another task requiring effective communication skills is the tutor observation process, as "peer assessment is to be understood as an educational arrangement in which students comment on the quality of their fellow students' work, for formative or summative purposes" (van der Pol, van den Berg, Admiraal, & Simons, 2008, p. 1804). PTCs conduct formal tutor observations each semester to provide feedback on tutoring approach, style, delivery, and suggests how the tutor could improve or make changes to their tutoring approach. After conducting a formal observation, PTCs are required to review the evaluation form with tutors immediately following the tutoring sessions. In doing so, they must tactfully and professionally offer constructive criticism for improvement.

Problem-Solving

With so many components of the LARC office (i.e. tutoring, training, academic mentoring), problems in the department are inevitable. Oftentimes, the PTCs are at the forefront to triage the multiplicity of issues that arise among tutors. Whether addressing a student's concern that arises in a bi-weekly meeting or approaching a tutor to discuss his tardiness to sessions, PTCs must be ready to resolve issues and make appropriate referrals when needed. Therefore, as the first point of contact to address tutor issues, PTCs become adept in asking appropriate probing questions to resolve issues first-hand or to quickly redirect tutors to the appropriate staff member.

While problem-solving is a highly-utilized skill in the PTC role, it is one for which PTCs can never fully be trained. The LARC provides scenario-based training to expose PTCs to unique student and tutor situations. Additionally, PTCs are made fully aware of the support services at WCU in the event a referral is necessary. Despite these training efforts, however, the true skill-building occurs when students are handling issues. Such issues include but are not limited to: complaints regarding tutor performance, concerns regarding student academic readiness, tutors having difficulty conveying course content, or inappropriate tutor or student behavior. One issue that occurs annually is when a tutor has the desire to resign as a result of work and academic demands. PTCs are instrumental in assisting overwhelmed tutors either to reduce their tutoring load or develop time management strategies to more effectively balance responsibilities.

Professionalism

Professionalism is an important aspect of any corporation. The existence of a corporation demands the need for professionalism (Wilson, Åkerlind, Walsh, Stevens, Turner, & Shield, 2013). According to Wilson et al. (2013), there are three main characteristics of professionalism. The first is knowing to complete a task while using sound judgment. The second is building a community based on shared values and determining what behaviors are most appropriate for a given workplace. Finally, qualities such as obligation and responsibility, combined with a sense of purpose and dedicated service to an organization, complete the professional worker. Professionalism is a skill that, if learned while in college, enhances graduates' chances of being hired and adapting to the professional workforce.

One of the responsibilities of the PTCs is to conduct interviews of other undergraduate students for potential peer tutor positions, which requires a high level of professionalism. Tutor interviews are an important aspect of the learning center since it employs over 100 tutors per semester. Not typically expected from an undergraduate student, interviewing skills require the PTCs to act professionally and to be thorough during the process. Examples of this type of

professionalism include learning communication from an experienced interviewer, dressing appropriately, and responding to candidate questions.

Adaptability

Finally, as explained by Calarco and Gurvis (2006), leaders need to be adaptable and be able to respond effectively to changes within the environment. While the LARC professional staff provides leadership and structure to the daily activities, the PTCs must adapt to changing situations or events. For example, the LARC is in operation from Monday through Thursday until 9:00 p.m. even though the professional staff completes their official workday at 4:30 p.m. PTCs are responsible to close the LARC each night, and part of their duties is to answer the phone, register students for tutoring, and handle any situation that may arise. While most nights have no issues, they need to be ready for any situation and adapt accordingly.

Also, the PTCs are responsible for conducting the CRLA Level II training. A PTC needs to be adaptable to different types of tutors' learning styles, the various course subject matter, and varying personalities amongst the group. "Level 2 topics are more reflective than those of Level 1, and [the] outcomes and underlying activities and assessments should, therefore, provide more opportunity for reflection and introspection on the part of the tutor" (Schotka, Kondopoulos, O'Neil, & Sheets, 2015, p. 4). To develop competent

certified tutors, the PTCs must adapt training materials and instructional methods effectively to enhance trainees' tutoring skills.

Goals and Implications for Future Practice

The PTCs learn many skills they can transfer into their professional careers or continued education. This position creates opportunities for students to develop important transferable skills that can be applied beyond their undergraduate careers. "Universities are increasingly active in promoting higher education as an experience that develops generic and transferable understandings, skills and behaviors alongside disciplinary learning" (Wilson et al., 2013, p. 1222). The PTC position promotes learning outside the classroom and prepares recent graduates for the workforce or higher degree programs.

The team of authors who produced this article has presented on this topic and is currently working in WCU's learning center or closely partnering with it. They are committed to student success and understand the importance of creating student leaders and providing quality training experiences for tutors. As a future goal, the team would like to continue this research, with both qualitative and quantitative methods. The goal of this project would be to expand on this topic by researching multiple learning centers, tutor training programs, and leadership opportunities that exist for tutors to establish a model for other institutions while closing the gap in the literature.

An additional future goal of the learning center is to design and implement a leadership certificate program that would operate in conjunction with the CRLA certification. The leadership program would tie theory into practice to expand and improve the services offered by the LARC. A limitation of the PTC position is the transferable and leadership skills learned impact only five undergraduate students per year. By creating a leadership program, this would allow over 100 peer tutors to develop leadership competencies. If tutors are trained in leadership theory, the skills gained could extend beyond their current responsibilities. A few of the main challenges in creating and implementing this type of program would be time, funding, and participation.

Conclusion

In closing, the PTC role at WCU's LARC is instrumental to the learning center's success. This leadership role within this learning center is considered unique as compared to other higher education institutions. This role demonstrates PTCs' skill development in time management, communication, problem-solving, professionalism, and adaptability skills supports the mission and growth of the LARC when supervising the peer tutoring program. The literature on professional advancement opportunities for peer tutors and the peer tutor coordinator role is extremely limited. It is recommended that research be conducted in this area to highlight leadership and professional development opportunities for peer tutors. Quality

instruction and academic support are linked to successful learning outcomes in higher education learning centers (Koselak, 2017). The PTC's position serves as the glue that binds and promotes the academic success and leadership development of undergraduate students at WCU.

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Students' Experiences Learning in the Emporium Model: A Conceptual Analysis

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Abstract

The purpose of this paper is to capture and analyze students' experiences learning within an Emporium Model (E-Model) of both learning support and introductory college-level mathematics courses. Participants (n =163) were asked their perceptions regarding the E-model approach. Contextual analysis was used to code participants' responses. Participant comments revealed overwhelming favorability of the E-Model while highlighting the ramifications of learning in a more self-directed learning environment. The paper concludes with applicable recommendations for enhanced sustainability of the E-Model design for course instruction.

Students' Experiences Learning in the Emporium Model: A Conceptual Analysis

Course redesign initiatives at two-year and four-year colleges and universities across the country have been growing in popularity over the past two decades (Twigg, 2015). Institutions of higher learning have been seeking effective ways to close achievement gaps and improve student retention and success rates in Learning Support Mathematics (LSM) courses and high-enrollment college introductory courses (e.g., College Mathematics, English, Introductory Psychology) which affect historically underrepresented, low-income and first-generation groups at a disproportionate rate (Nietzel, 2020). One of the earliest course redesign initiatives was developed through the National Center for Academic Transformation (NCAT) in 1999 (Twigg, 2011). NCAT was a non-profit organization that focused on using information technology to enhance learning at reduced costs (Twigg, 2011). NCAT's resources are currently managed by the University of Central Florida (Nietzel, 2020).

Low retention and high failure rates, particularly in mathematics courses, motivated postsecondary institutions across the country to seek alternative ways for improving student performance (Bonham & Boylan, 2012; Schak, 2017). Of particular focus in the current study is the Emporium Model (E-Model) design for course

instruction. Examination of the E-Model methodology is of great significance because the model or elements of the model are embedded within the structure of some Learning Centers (e.g., the Academic Success Center at the University of South Florida). The E-Model is one of the six course redesign models endorsed and further streamlined through NCAT. The unique aspect of the model was the required elimination of lecture-based instruction by transforming learning environments into A*ctively-Engaged Learning Spaces* (AELS). The E-Model was designed to be more student-centered, which included the incorporation of educational technology as a central component to enhance the learning experience of students.

The E-Model was demonstrated to be an effective course delivery approach within the *Changing the Equation* (CTE) program initiative designed specifically to help two-year colleges with redesign efforts of LSM sequence courses and programs (Twigg, 2011). In the past decade, a growing number of empirical research studies have shown promising evidence of the effectiveness of the E-Model design in comparison to the traditional lecture-based approach, primarily through the analysis of completion rates and end, of course, test scores (Eckhardt, 2016; Krupa et al., 2015; Webel, Krupa, & McManus, 2017; Vallade, 2013; Williams, 2016) as well as positive psychological outcomes (Helming & Schweinle, 2014; Pachlhofer, 2017). Additionally, existing literature has expounded

on the relationship between students' attitudes toward mathematics and technology and how these attributes affect students' achievement (Korobili, Tioga, & Malabari, 2010; Ku, Harter, Liu, Thompson, & Cheng, 2007). Notably, Bonham and Boylan (2012) recognized the rise in the use of technology to engage students on formative and summative assessments by indicating that "a major disadvantage can be an overreliance on the technology to deliver instruction with little or no intervention, even when students are experiencing difficulty" (p. 16).

While there is literature indicating positive results using the E-Model design, the format of the learning environment alone can have adverse effects on some students' performance (Kargar, Tarmizi, & Bayat, 2010). For example, some of the challenging issues that arise in self-directed learning environments are psychologically related (e.g., affective, low self-esteem, self-efficacy, or motivational), and these challenges are particularly relevant for students who struggle with learning mathematics (Gibson, 2019). These students tend to have initial preconceived negative notions about their abilities to perform, which can be magnified in computer-assisted learning environments (Miranda, 2014). Typically, these students have lower levels of intrinsic motivation (i.e., the highest level of autonomous or self-determined motivation) and are more likely to be motivated by extrinsic factors (i.e., lower levels of autonomous controlled forms of motivation) (Cho & Heron, 2015).

For some marginalized groups of students, racial disparities may provide some insight into their preconceived negative perceptions. Research has found that motivational predispositions of Black Americans stem, in part, from internalized racial oppression (Brown, Rosnick, & Segrist, 2017). These authors found that Black males, in particular, were more prone to have an unfavorable view of their higher education values (i.e., beliefs about the role of the educational system to support their academic aspirations or expectations) than their counterparts and tend to have a more external locus of control and believed external factors in their social environments influenced their goal aspirations. Other research suggests this disparity for Black males may be a product of "academic disengagement", most notably, at community colleges stemming from their perceptions of possibly being perceived as "intellectually inferior" (Woods, 2014). In general, research has found that "multidimensional layers" of racism (i.e., individual, institutional, and cultural) has influenced the educational aspirations of Black and Brown students of color (Reynolds, Sneva, & Beehler, 2010).

Learning in the E-Model can present students with challenges that may affect their motivation to succeed that may stem from previous negative experiences using computers or interactive

software (Miranda, 2014) and other factors that continue to plague marginalized populations of students. These challenges can be exacerbated in learning environments that are designed to be self-directed (Gibson, 2019). Interestingly, courses or programs developed within a theoretical framework are more likely to be effective and sustainable (Mireles, 2010). The purpose of the current paper is to further understand students' perceptions of learning in the E-Model design for course instruction that represents a learning environment that is more suitable for students who are autonomous and self-directed.

Background and Theoretical Framework

According to Liaw (2002), examining students' perceptions of learning in a web-based or computer-aided instructional environment would be an asset to the implementation and sustainability efforts of course delivery. Since 1999 institutions of higher learning have typically used the six course redesign models (i.e., supplemental, replacement, emporium, buffet, fully-online, and linked workshop) to create high-quality learning environments using technology at reduced costs (Gibson, 2019). The current study seeks to augment this literature by focusing on students' perceptions and insights as a result of learning experiences with the E-Model design for course instruction.

The E-Model

The E-Model requires complete replacement of the traditional instructional approach (i.e., lecture-based) in a computer learning environment using a Computer Learning System (CLS) as the central component to deliver and enhance the learning experience (Twigg, 2011). The E-Model design was adopted from the *Math Emporium* model originally developed at Virginia Tech during the initial redesign efforts of a linear algebra course in Fall 1997 (Twigg, 2011). Additionally, the E-Model design relied on a CLS, internet-based activities, and assessments with on-demand and personalized assistance (Twigg, 2011). Although computer-based, the model design was flexible. Some designs included a one-hour face-to-face meeting in a classroom once a week to reinforce concepts or to meet and discuss progress as well as any other student concerns. For example, one redesign approach included a classroom learning component that was more student-centered and focused on discussing "big ideas" in engaging collaborative-group settings where course delivery was primarily within a computer learning space (e.g., lab classroom or learning commons; see Etheridge, Monroe-Ellis, & Tankersley, 2014). As such, students used a CLS to complete their individualized mathematics curriculum.

E-Model Components

The success of the E-Model design depended on the implementation of ten essential elements (Twigg, 2011, 2015). These

essential elements could be divided into two categories: those that consisted of the *Core Structural Elements* (CSEs) of the redesigned model and the *Strategic Operational Elements* (SOEs) of the model. These two components describe the foundational aspects of the E-Model and the activities that took place to support active-student engagement to maximize discourse between the student, instructor, or tutor. Table 1 lists the ten essential elements of the E-Model. More information regarding the implementation of the E-Model methodology can be found at https://www.thencat.org/Guides/Math/TOC.html.

Table 1.

The 10 Essential Elements of the E-Model Design

Core Structural Elements	Strategic Operational Elements
• Redesign whole course learning environments.	• Ensure active student engagement.
• Modularize the course content.	• Provide ongoing assessment with computerized feedback.
• Require mastery learning.	• Provide one-on-one access to trained professionals
• Measure learning outcomes, completion rates, and cost-efficiency.	• Ensure the availability of adequate time on tasks.
• Computerize all learning environments using a CLS.	• Monitor student success and provide needed assistance.

Theoretical Framework

Several theories provided a framework for assessing the effectiveness of the E-Model design to support students' *Basic Psychological Needs* (BPN) for learning in student-directed learning spaces (Gibson, 2019). The overarching theoretical framework was rooted in Self-Determination Theory (SDT; Ryan & Deci, 2017). SDT asserts that all humans have an innate desire to strive for a sense of *autonomy* (i.e., the need to feel free and self-directed), *competence* (i.e., the need to feel capable of performing), and *relatedness* (i.e., the need to feel a sense of belonging) – the BPN to function and grow within unique social settings. Notably, autonomy in SDT is volitional behavior (i.e., a willingness to do or perform). In AELS, students have a choice to be autonomously independent (i.e., having the choice to work alone) or autonomously dependent (i.e., having the choice to seek out guidance or assistance).

The Principal Investigator's Relationship to the Study

The qualitative analysis and interpretation of findings were carried out by the Principal Investigator (PI) (i.e., the first author of the study). The PI has been an educator of introductory college-level mathematics courses since 2006 and has taught LSM courses and co-requisite college-level introductory mathematics courses since 2009. For the past eleven years, the PI has been interested in, taught, and developed AELS as an alternative to the lecture-based approach to improve student learning outcomes. Since 2014, the PI has used SDT

as a theoretical foundation for developing AELS to create learning environments where the less autonomous learners have the opportunity to become more autonomously-natured in non-lecture-based learning experiences. Additionally, the PI has an interest in learning more about students' perceptions of learning in AELS, such as the E-Model and evaluating whether these types of learning environments are autonomy-supportive of students' BPN to improve students' learning potential.

Methods

Participants

There were 463 adult participants from a Midwestern community college and a four-year public university and a Southeastern four-year public who consented to participate in a broader study (Gibson, 2019). The broader study focused on the beginning phase of the development and validation process of items of a survey instrument designed to identify constructs that could be used to assess whether the E-Model methodology supports students' BPN. Exploratory Factor Analysis results yielded four parsimonious factor solutions representing autonomous learning needs, valuing educational technology, instructor/tutor relatedness, and the use of metacognitive self-regulated learning strategies.

In the current paper, participants at the community college were LSM students, who were predominately non-traditional (i.e., at least 25 years of age). Participants at the public university were a mix of

LSM students and those enrolled in college-level introductory mathematics courses (e.g., College Algebra, Finite Mathematics, Pre-Calculus) and were predominately more traditional students – those 24 years of age or less. The E-Model design was implemented at both institutions. Of the 463 participants, 35% (n = 163) responded to the open-ended prompt regarding their personal experiences within the E-Model curricular approach.

Materials and Procedure

The current paper seeks to understand students' perceptions of learning in a self-directed learning environment presented through the E-Model. The research design consists of a "qualitative mixed" paradigm that incorporates qualitative and quantitative data analytic techniques (Johnson, Onwuegbuzie, & Turner, 2007). The study is semi-sequential – in that, the qualitative data were further quantified to illustrate the quantitative depth of the derived themes and to provide supportive descriptive information of specific demographics. The data collected were comments from participants who responded to an open-ended survey prompt assessing the effectiveness of the E-Model to be autonomy-supportive, which required using qualitative data analysis to capture individual participant's perspectives. More specifically, *representational thematic text analysis* was used to assign themes to the text of respondents, which is a version of *context analysis* (Popping, 2015). The process of carrying out the text analysis was *inductive coding* (Thomas, 2003).

The PI followed the guidelines discussed in Popping (2015) and the inductive approach in Thomas (2003) for identifying themes and coding specific text. In addition to inductive coding, numerical codes were used to quantify themes given that all responses could be categorized in one of the identified themes.

Participants responded to the following open-ended question embedded in the broader study: "Is there anything else that you would like to share regarding your learning experiences in the E-Model environment?" The reason for including the open-ended prompt was to obtain additional information that would not be attainable from the closed-ended responses of the survey (Popping, 2015). Participants responded to the survey electronically through their institutional e-mail accounts. Following this approach, the goal for analyzing the comments was to use the theoretical framework (i.e., SDT) to assess whether the E-Model design was supportive of students' BPN, given the derived themes.

Item Analysis Procedure

According to Popping (2015), open-ended responses from surveys were often filled with grammatical errors and other textual problems. The author suggested that in some cases, corrections could be made without changing the meaning of the participant's comments. For transparency purposes, there were a few bracket-enclosed corrections made within comments that contained grammatical, or punctuation errors, or symbolic errors that occurred while exporting the data (e.g., changing *didnâ€™t* to [didn't]). Comments were exported to an Excel file for analysis. The analysis process was three-fold: 1) derive emergent themes from students' responses, 2) determine whether derived themes represented an impediment of students' BPN; and 3) assign numerical code to derived themes and BPN impediment traits to compute demographics, attitudinal, and BPN impediment percentages.

To begin the process of identifying themes, the PI read through all responses. During this initial read, it was apparent that the responses could be categorized into three overarching themes. The responses either expressed *negative attitudes* (e.g., "I did not like this at all, was a terrible way to teach and try to understand math."), *positive attitudes* (e.g., "I enjoyed the pace and how on task I became."), or responses that suggested *needs improvement* or *change* (e.g., "More tutors in the lab would be helpful to the students."). Following the initial read-through, the PI read through the responses a second time to assign numeric codes and connect participants' responses with respective themes.

Before a third and final read, the negative responses were further analyzed to determine whether a response was associated with an impediment of autonomy, competence, or relatedness – that is, the three BPNs to function and grow within social settings as defined by SDT. Furthermore, negative comments were associated with

specific aspects of the E-Model learning experience that potentially disrupted students' BPNs (e.g., not liking the CLS, not connecting with the instructor/tutor, or hated taking quizzes in the lab). These comments were coded based on whether students' dislike was related to *impeding autonomy* (e.g., "I am not a huge fan of the e-learning environment. I prefer to be tutored one on one with an instructor or a tutor with math."), *impeding competence* (e.g., "Honestly I felt a little bothered by the whole thing. I grasped the importance of the class and its substance, but the E-model did not do that great for me. I still felt intimidated and unprepared), or *impeding relatedness* (e.g., "In the E-Model learning environment, I had a tutor say, "You [don't] know how to do this?" Then I said no, and he just told me the answer[,] which [doesn't] help at all."). Otherwise, the comments were coded *autonomy-supportive* – indicating no hindrance to students' BPN. For example, one respondent stated:

"This way of taking the class benefits everyone in the class. Everyone in the class is able to work in the way that suits them best and work at their own pace. You don't have to wait for the class to move on to the next lesson. You can work ahead and work as fast or slow (to an extent) whatever is best for you."

Furthermore, the needs improvement responses were further analyzed to determine if they were associated with an impediment by referring to the closed-ended responses provided by respondents. If the average of the response scores provided by a respondent for a BPN was less than 4 (i.e., on a Likert type 7-point scale), the needs improvement response was categorized as an impediment of the BPN construct.

Results

Figure 1 displays the demographic and impeding BPN attitudinal results for the percentages of negative, positive, and needs improvement themes. There were more than twice (2.2 times) as many positive comments (59%) than negative comments (27%) while the rest of the comments (14%) suggested needs for improvement or a notion of change for $n = 163$. From a visual inspection of Figure 1, female respondents provided the most comments for each category (i.e., negative [61%], positive [76%], and needs improvement [74%]), while at most 36% of comments per category were from male respondents (i.e., 36%, 23%, and 26% respectively). The age group 18 – 24 provided the most comments (i.e., negative [71%], positive [65%], and needs improvement [74%]), while less than 16% of comments were from participants at least 25 years of age. Of the ethnic groups, White respondents provided the most comments (i.e., negative [77%], positive [58%], and needs improvement [52%]), while less than 22% of comments were from the other ethnic groups represented. Respondents who needed one semester to complete course work provided more comments (i.e.,

negative [48%], positive [72%], and needs improvement [70%]) than those who needed more time to complete course work, which was less than 23% overall. Notably, results in the current paper were similar to the demographic results in the broader study in which more participants were female, young, White, and those who completed their coursework in one semester.

Figure 1.

Demographics and Impeding BPN Attitudes
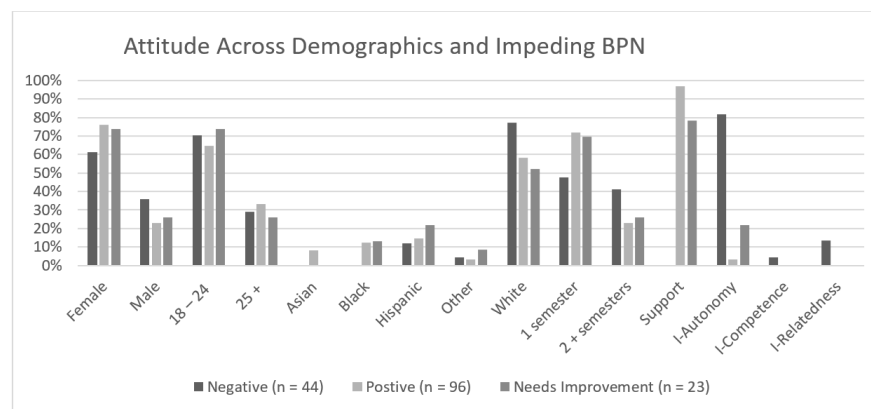
Lastly, an inspection of the "Support" variable in Figure 1 shows that approximately 97% (*n* = 96) of respondents provided positive comments and 78% (*n* = 23) provided needs improvement comments from the respective themes. Notably, the needs improvement comments under the support variable were from respondents who responded favorably with a response scale score greater than 4 on the closed-ended response items in the broader research study regarding their BPN. Moreover, the impeding BPN results (i.e., I-Autonomy, I-Competence, and I-Relatedness) in

Figure 1 provide additional information regarding the challenges faced by respondents who overwhelmingly felt that their autonomy was hindered (i.e., negative [82%], positive [3%], needs improvement [22%]. Further analysis of the negative comments, expressed by respondents, indicated a hindrance of competence (5%) and relatedness (14%).

Tables 2 and 3 provide additional context highlighting emergent themes, and example comments identified from students' responses. The themes in Table 2 consist of sample negative, positive, and needs improvement responses. Table 3 consists of the impeding BPN themes that are representative of negative comments specific to a BPN construct, while the support theme consists of all other comments that did not suggest a hindrance of a BPN construct.

Table 2.

Description of Attitudinal Themes and Sample Comments

Themes	Comments
Negative Attitude	Comments that indicated a dislike for any aspect of the E-Model learning experience. For example, *"I did not like the limited hours we could do the homework. I usually felt rushed and forced to go there..."* *"I truly hate it. I understand the need for it. I still think it de-personalized math and took any semblance of enjoyment out of it."*
Positive Attitude	Comments that indicated praise of any aspect of the E-Model learning experience. For example, *"I much preferred the E-Model over the traditional way of learning mathematics!"* *"I liked that each module was broken down into sections and allowed us to master a concept before moving on to the next one ..."*
Needs Improvement	Comments that suggested a need for improvement or general statement eluding to change. For example, *"Attendance should only be required for taking tests and quizzes."* *"I liked the [Lab], but I believe we need more qualified tutors in there. So many times I would wait 20 [minutes] for a tutor, who did not know Pre Calc then I had to wait another 20 [minutes] for another tutor."*

Note. All comments labeled as needs improvement were further analyzed and were placed in one of the four subgroups in Table 3.

Table 3.

Support and Impeding Basic Psychological Needs (BPN)

Themes	BPN Descriptions
Support	All positive comments (i.e., representing autonomy-support). *"I was homeschooled during my elementary school years and then attended an online international high school - because of these experiences, I know that I excel in a self-motivated goal set environment where I may work alone a lot of the time, and problem solve until I need help. It isn't that I won't ask for help from my instructors - instead, it is simply that I am quite comfortable working in an environment where I guide the "ship" so to speak. :)"* *"E-model learning is mostly on your own. The only time I came into contact with an instructor was when I had a question. This may be beneficial to some or not to others. If [you're] looking to work mostly on your own and be responsible for your own learning, then E-learning is the right course for you."*
Impeding Autonomy	Negative comments that suggested general autonomy was affected or eluded to competence or relatedness as disruptors of BPN per the closed-ended responses of the constructs. For example, *"I did not like learning math this way. I liked the self-pace when it came to stuff I was familiar with, but with more advanced math it was a nightmare. It was no fun trying to teach myself something I did not know."* *"I did not like the modules. I thought they were hard. Mainly because learning a subject online is not my learning style. I prefer a face to face class where the teacher teaches you, not a computer. Also, the modules were very frustrating, to say the least."*

Impeding Competence	Comments that were negative and suggested competence as a potential disruptor. For example,
	"*E-Model [isn't] for everyone and I personally struggled. Not because the material was hard but because I limited myself and did not have the confidence I had when I first enrolled.*"
Impeding Relatedness	Comments that were negative and suggested instructor/tutor relatedness as a potential disruptor. For example,
	"*Usually the staff in the lab that I had to take those courses in looked bored or irritated to be there. I wasn't inclined to ask them questions because it looked like a chore when I still didn't understand something. Sometimes I'd need more explanation and the online course and lab instructor still left me confused, wondering what exactly I needed to do.*"
	"*The E-Model learning environment was terrible. Not only was I told different things by my professor, textbook, and computer software, but I also was told something different by every individual tutor in the lab.*"

Interpretation of Findings

The comments offered by participants in this study are informative. The comments either expressed the more autonomous or self-determined forms of motivational learning in the E-Model (e.g., "I was really scared trying it out since I hated math but it helped me be so confident now…") or signaled concern indicating how a learning environment that was designed for the more autonomous learner could impede an individuals' ability to succeed in the E-Model learning space (e.g., "Strongly dislike it. I never finish in time. Having to retake the course is extremely frustrating.").

Interestingly, while there were more comments from younger respondents, the comments from older respondents were slightly more favorable of a self-directed learning experience (e.g., "As a 43-year-old male, the E-Model feels more natural to my sense and allows me to absorb the information faster."). Research offers a possible reason for this trend – that is, younger respondents will more likely be less autonomous at the beginning of their academic careers and will more likely have difficulty adapting to self-directed learning environments, while older respondents will have gained more adult related responsibilities and will be more self-directed (Cullaty, 2011). Additionally, results in Figure 1 suggest that students who completed their course work in the first semester had a more favorable perception of learning in the E-Model (e.g., "I believed the class was very beneficial…" or "I had a very good experience with the E-Model learning environment…").

Study results were more aligned with research suggesting the E-Model learning environment was better suited to be autonomy-supportive (Brey & Tangney, 2017; William, 2016) and promoted positive outcomes (Gagne, 2003). The data presented in this study support this claim. Notably, several respondents expressed the importance of needed autonomy-support (e.g., "I think the E-Model is a great environment to learn with the help of the tutors. However, I think that having my professor be more hands-on would be helpful.").

Another respondent expressed the following:

"I believe teachers are very necessary in these classes to make them work. I've done a pace class without a teacher at another school and hated it, but I love these ones with set class, times, and the teacher."

On the other hand, the absence of needed autonomy-support can create unnecessary frustrating situations. One respondent stated the following:

"I have spent more time teaching myself this material than if I had access to a regular traditional course. It was frustrating and discouraging to me."

Additionally, results were consistent with other research studies suggesting that the E-Model methodology positively impacted students' motivation and performance (Eckhardt, 2016; Komarraju & Nadler, 2013). Respondents also indicated how the E-Model environment helped them gain confidence in their abilities to learn mathematics and set goals, which is a component of self-regulated learning. Another respondent stated, "I was able to move at my own pace and accelerate to the next level of math quickly. E-Model learning gave me the ability to set goals for myself." Statements similar to these reflected the idea that positive learning experiences in the E-Model environment can influence students' mindset and performance in a positive way (Eckhardt, 2016). "… As someone

who has always struggled with math, this was amazing. It really changed my opinion on math in general."

Discussion

The theoretical framework of the current research study was rooted in SDT. The applicability of SDT in the E-Model design required that students have the necessary skills and autonomy-support to be successful throughout the semester. Self-directed learning spaces cater to students with the right mindset. As discussed, there will most likely be students who have preconceived negative notions about their abilities to perform in more self-directed learning spaces (Kargar et. al., 2010; Miranda, 2014). Therefore, there must be in place a structured well-implemented process (SWIP) that will promote autonomy-supportive instructional behaviors to avoid the occurrence of psychological ramifications of learning in the E-Model. The following components are applicable and can function as a SWIP to enhance the learning experience in self-directed learning spaces. Notably, this is not an exhaustive selection of components, but recommendations based on SDT, students' responses, and ten plus years of experience by at least one of the authors of the current study working in AELS.

Benefits of Adopting an Applicable Theoretical Framework

Three indicators of success in the E-Model include: 1) students' *willingness* to be engaged, 2) performance indicators, and 3) BPN satisfaction. The E-Model appears to be better suited for supporting self-directed learners and can provide the opportunity for the less autonomous learners to become more autonomous (Ryan & Deci, 2017). Whole-heartedly adopting SDT provides a theoretical basis for assessing the effectiveness of the E-Model design to be autonomy-supportive of all students. Accommodating students' BPN can promote students' ability to become more self-directed, confident in their abilities, and comfortable with the learning experience, which can promote a willingness to succeed after failure (e.g., "…Although I have failed the module I'm on in the past, I have confidence in learning the material because of the E-Model Learning environment."). Numerous research studies in SDT have provided evidence-based empirical results supporting the fundamental essence of SDT – many of which are accessible on the website of the Center for Self-Determination Theory (CSDT) at https://selfdeterminationtheory.org/.

Providing a Rationale for New Innovations

A key recommendation in SDT research is to provide a rationale for innovative learning approaches to avoid frustrating students (Ryan & Deci, 2017). Our results suggest an issue with messaging or communicating the purpose for learning in AELS that could be

"…great for people that know how to pace themselves and enjoy learning on their own," as one respondent stated. When students are not prepared to learn in a self-directed learning environment, such as the E-Model, the leaning space becomes a hindrance and can create unnecessary frustrating learning experiences for students.

As previously stated, students attending college for the first time may be less autonomous at the beginning of their academics (Cullaty, 2011). Learning in an environment that requires self-regulation can create more frustrating situations for these students given that most will not have had prior learning experiences in learning spaces designed to prepare them to "…excel in a self-motivated goal set environment…" These students will most likely "…prefer a face to face class where the teacher teaches you, not a computer," according to one respondent. A working rationale could focus on expressing the benefits of the new learning approach. For example, 1) developing college-ready skills (i.e., becoming more self-directed using self-regulated learning strategies), 2) building confidence in one's abilities to perform, 3) developing a growth mindset about learning potential, and 4) helping students understand that learning takes place when they are actively engaged in the learning process. The E-Model design provides a learning space for students to develop the skill set necessary to achieve success academically and beyond.

Adopting Autonomy-Supportive Instructional Behaviors

Several responses from participants revealed another potential need – adding a new Core Structural Element (CSE) component (i.e., support a growth mindset to combat psychological barriers). According to Reeves and Jang (2006), autonomy-supportive instructional behaviors (e.g., listening to students, encouraging students' effort, offering progress-enabling hints, being responsive to students' comments and questions) were found to be positively correlated with students' autonomous motivation more so than more controlling forms of instructional behaviors (e.g., making demands and directives, using controlling words such as *should* or *have to*, or telling students answers without allowing them to formulate the solution on their own). At the root of SDT, one of the innate desires of all humans is to strive for relatedness (Ryan & Deci, 2017). Therefore, the success of students' transition into becoming more autonomous or self-directed, depends on the effectiveness of the support received. This support can come in the form of *emotional support* or *instrumental support* (Federici & Skaalvik, 2014). Emotional support comes in several forms that reflect emotion (e.g., caring or empathizing, gaining trust, or showing respect expressed through communication; Patrick, Kaplan, & Ryan, 2011). Instrumental support is usually related to forms of instruction (e.g., explaining concepts, instructor facilitation, or inquiry; Federici & Skaalvik, 2014).

Supporting the Use of Meta-Cognitive Self-Regulated Learning Strategies (MC-SRLS)

Learning in the E-Model requires students to be more self-directed, responsible, and gain more ownership of their learning (Cho & Kim, 2013). Evidence of the self-directed nature of the E-Model learning environment was expressed by one respondent stating: "…If you're looking to work mostly on your own and be responsible for your own learning, then the E-Model is the right course for you." Self-directed learners utilized metacognition and self-regulated learning strategies to help them succeed. Metacognition is one way to enhance a more self-directed learning experience, which can be defined as the process of "thinking about thinking" (Owen & Vista, 2017). When students were users of MC-SRLS they became more self-determined (Chung, 2005). MC-SRLS involves developing a plan of learning (e.g., peer-study-groups, reading instructor's notes, using available resources), monitoring progress (e.g., using forms of self-assessing of knowledge), and evaluation (i.e., assessing the effectiveness of the planned approach). Research has shown that when learning spaces were supportive of students' BPN, it mediated the relationship between autonomy-supportive environments and positive outcomes (Gagne, 2003).

In closing, it is important to keep in mind that this research does not dismiss the fact that there are external factors, with varying

degrees of severity, that have the potential to affect students' autonomy negatively. The paper focuses on how the E-Model methodology can serve as an intervention to support the innate desires of autonomy, competence, and relatedness for all students and highlights ramifications when students are not prepared to learn in self-directed learning spaces. Students will need autonomy-support to achieve success academically and beyond despite the external challenges they may face within their unique social settings. Students desire to feel a sense of relatedness or connection to their learning communities. The relationship between the instructor and student is paramount, particularly, for marginalized populations of students who are predominately victims of economic, social, and educational disparities.

Post-secondary institutions have a responsibility to put in place norms that will foster an inclusive and welcoming learning community. Norms that include resources to support innovative learning initiatives, such as, implementing the E-Model methodology and other services within the organization that will be needed to support student engagement initiatives as well as faculty and staff professional development opportunities. There should be an examination of policies and practices to ensure they are inclusive and supportive of the expansive marginalized populations of students that will be necessary to address other potential elusive forms of institutional biases. A commitment to diversifying the administration and faculty body is a start. Representation matters a great deal to students of color who attend colleges and universities that are predominately White where they may feel more "racism-related stress" (Reynolds, Sneva, Beehler, 2010).

Lastly, findings reveal the substantial potential for implementing the E-Model course redesign to help students become more self-directed and self-regulating. The E-Model offers students an actively-engaged learning environment with a choice to work autonomously independent or dependent. Results demonstrate that students became more self-directed and self-regulating when they had the opportunity to thrive and grow in AELS that were: 1) autonomy-supportive, 2) provided the opportunity to build competence, and 3) supported the need to feel a sense of relatedness to the instructor or belonging in the learning space. Hence, the essence of SDT – the BPN to become more full-functioning and succeed in academic and social settings (Ryan & Deci, 2017).

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Proactive Retention through Integrated Modeling of Engagement (PRIME)

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Abstract

This study engages readers in a dialogue on redesigning retention strategies from reactive to proactive, a conceptualization of interdependencies of retention intervention metrics and student behaviors, and identifies the actions needed to achieve them in practice through real-time collaborative campus partnerships. Best practices for data collection and analysis, including anticipated impacts on specific workflows and student support services, are discussed through a multi-pronged and multi-phased approach to allow for predictive modeling. While this study explores model development for Kean University, a four-year public university in New Jersey, it has implications for replication at other institutions to increase persistence, retention, and timely graduation.

Proactive Retention through Integrated Modeling of Engagement (*PRIME*)

One of the most frequently asked questions on college campuses nationwide is, "What is the one thing we should do to increase student engagement and success on our campus?" The answer is to provide all students with authentic and meaningful learning experiences through which they can develop connections to the campus community, thus fostering a sense of belonging and acceptance amongst the student body of a college or university. But how?

When a student arrives on a college campus on the first day of their freshman year, they arrive with a variety of predetermined attributes, some of which are inherent, such as gender, race, ethnicity, and socioeconomic status. Some they acquire, such as prior academic preparation and knowledge regarding the higher education experience while others evolve such as study methods and behaviors. In addition, the student brings with them a range of external factors, including family and work responsibilities, as well as individual sets of goals and aspirations that are personal to their unique vision of the future. Much like students, each institution also has its specific attributes that are inherent to the distinctive culture of that individual institution. For example, colleges and universities have characteristics based upon the size of the student body, location, delineation between public or private, financial resources, and student-to-faculty ratio, among other contributing factors (Tinto & Pusser, 2006). Nevertheless, all entering college freshmen value the importance of a college education and are capable of succeeding when provided the right resources and guidance.

The aforementioned attributes of both incoming students and the institutions that they choose for academic study have one thing in common: they are constant and unchangeable. Therefore, these attributes must be taken into consideration to develop a framework for student success as they form and guide each student's retention behaviors. What can be changed then is the level of commitment that the institution has regarding student success, as well as the institutional climate and the opportunities for engagement that are offered to its students (i.e. to influence students' academic success behaviors). According to Harper and Quaye (2008), student engagement is characterized as "participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes" (p. 2). Although this definition describes engagement as solely student-driven through voluntary participation, the institution cannot expect students to engage themselves; rather, the college or university must provide its students educationally purposeful experiences that make them feel connected to the campus and encourage them to engage in such experiences.

As the single most significant predictor of persistence, engagement opportunities for students—including services such as intrusive academic advising, discipline-specific tutoring, supplemental instruction in traditionally difficult courses, writing assistance across the curriculum, public speaking preparation, career exploration, leadership, and personal development and mentoring—are critical factors in fostering a retention-focused campus from the first semester through graduation. Students must be held to high standards for success, while, at the same time, being provided the academic and social support systems and opportunities that are built with their success in mind. This concept aligns with Tinto's (1993) Theory of Student Departure in that students leave because of struggles with academics, social engagement, and commitment. Therefore, it is the responsibility of institutions to create intentional models of engaging students through high-impact, data-driven activities and cutting-edge initiatives, particularly during their first year to establish preferred self-created student retention behaviors to increase student success.

While the general body of retention literature addresses the correlation between the use of academic support services and persistence, this paper presents an intentional study of collaborative and data-driven interventions implemented at a four-year public university that foster integrated interactions and investments to make proactive retention engagements for student success. This paper also fills a void in the current research by outlining specific steps taken in moving the study from concept to practice through proactive and predictive modeling for replication at other institutions.

Institutional Context

Kean University is a four-year, public institution in Union, New Jersey, with satellite campuses in Toms River, New Jersey; Sussex, New Jersey; and Wenzhou, China. Kean serves over 15,000 students in 50 programs of study, 40% of whom are first-generation and nearly half who are Pell-eligible. With an 82% acceptance rate, Kean's institutional mission is grounded in access to higher education, and the institution prides itself on having the lowest tuition of all comprehensive New Jersey state universities. Kean was ranked one of the top five diverse campuses in the nation by Diversity, Inc., and in 2019, US News and World Report named Kean a top performer on social mobility among the top universities in the northern United States for helping economically disadvantaged students enroll and graduate within six years. It is important to keep this context in mind when discussing proactive retention interventions for students at Kean University.

Trends in first-to-second year retention at Kean University over the past six years have, for the most part, hovered between 72 to 76 percent, maintaining the status quo with the national average for "like" institutions (71.2%), those with the same Carnegie

Classification and a similar acceptance rate (National Student Clearinghouse Research Center, 2019). While we are meeting the status quo, we know we need to do better for our students. Yet, the fall 2017 entering freshman cohort saw the lowest first-to-second-year retention rate than any other cohorts in the previous five years, representing a five percent drop from the previous year and demonstrating a need to prioritize retention on campus. That same year, a Presidential Task Force on Retention was established, resulting in the creation of the Office of Student Success and Retention (OSSR) in 2018 within the Division of Strategic Initiatives in the President's Office. A Director of Student Success and Retention was hired to lead that office, and the proactive initiatives implemented in that first academic year have contributed to a nearly two percent increase in retention for the fall 2018 cohort.

According to Tinto and Pusser (2006), "institutional commitment is more than just words, more than just mission statements issued in elaborate brochures; it is the willingness of the institution to invest resources and provide the incentives and rewards needed to enhance student success" (p. 6). Kean University has proven its investment in student success through the establishment of OSSR and the funding of new, proactive retention initiatives; however, all higher education professionals at Kean know that retention is everyone's job on campus as demonstrated by the University's Vision-2020 Strategic Plans. While the establishment of OSSR speaks

to the overarching institutional focus on retention, the success of its initiatives lies in collaborative partnerships with other campus units, such as the Learning Commons (LC), which houses the University's academic support services and spearheads other retention efforts within the campus community.

Proactive Retention Strategies

One of the first goals of OSSR at Kean University was to redefine "early" in terms of early intervention and, in the words of Ruffalo Noel Levitz founders, "give students what they need before they know they need it." Thus, the proactive retention strategies implemented through OSSR from 2018 to present fall into three categories: some are designed as early interventions before students even starting their first semester at Kean; others support all Kean students from the first semester until timely graduation; and there are also unique programs specific to targeted populations, such as students on academic probation or transfer students. These phased strategies acknowledge "one size does not fit all" and the complexity of retention processes as related to student demographics and circumstances as mentioned previously.

Freshman Retention Initiatives

The earliest data-driven retention intervention Kean integrates into the student's college journey is the College Student Inventory, part of the Retention Management System *Plus* platform from Ruffalo Noel Levitz, the leading provider of technology-enabled

solutions for higher education. The College Student Inventory, or CSI, is a non-cognitive assessment of freshman motivators for success that is taken by all freshmen at New Student Orientation (occurring several weeks and up to two months) before the start of the fall semester. The CSI measures indicators related to academic motivation, general coping, and receptivity to support services among others, providing pre-enrollment data that otherwise is not accessible to institutions. Such data on student retention behaviors is important, as nearly 25% of students' academic success is determined by non-academic characteristics (Bloom, 1976). Kean reached a 97.2% response rate during the first year of implementation, and student reports were integrated into their Transition to Kean course (first-year seminar, administered through the General Studies Program), freshman advising, support service outreach, and campus programming. Also, the top ten needs of all incoming freshmen are shared with the entire campus community for holistic considerations relative to course preparation and delivery. For the past two cohorts, nearly half of the top ten list has centered on requests for career-focused support.

As a follow-up to the CSI, the Mid-Year Student Assessment, or MYSA, was also implemented with the entering fall 2019 freshman cohort during the second half of the fall semester with an 81% response rate. In addition to continued measures of motivation, the MYSA identifies students' plans to transfer in the subsequent semester or year. OSSR found that 88% of freshmen planned to complete their degree at Kean and conducted targeted outreach to the 12% indicating desire to transfer. MYSA student reports are also shared with major advisors in spring for second-year advising to identify changes in students' academic and social needs and concerns, providing a springboard for mid-year action planning and follow-up.

Another freshman retention initiative implemented through OSSR at Kean University is 1st Gen Scholars, a mentoring program that pairs first-generation freshmen with Kean alumni. While navigating the first year of college is challenging for anyone, first-generation college students often face additional challenges. Though eager to help their children succeed, families of first-generation college students are unable to share firsthand experiences or offer advice regarding the transition to university life or the academic behaviors necessary for retention. An additional layer of support during this transition is in the form of a mentor who has experience navigating both the college and professional worlds and who assists incoming first-generation students in finding success at Kean University. Data indicated that 1st Gen Scholars finished their first year with a 15% higher cumulative GPA than their non-participating first-generation peers, and 97% of 1st Gen Scholars were retained the subsequent semester (as compared to 88% of their peers).

First Year and Beyond

A new and updated advising and constituent relationship management platform, Ellucian CRM Advise, was implemented at Kean in fall 2019 to unify faculty and staff visibility into student performance to provide greater team integration. Advise identifies student risk level and prioritizes early alerts; automates targeted communication plans using live data (e.g. GPA, course registration, program participation, academic early alerts and registration holds); incorporates CSI data for first-year student success scores, and supports all retention programming. The platform effectively provides a dashboard-like dataset and experience for student support program providers that help to manage and direct retention efforts across the campus community. While Advise provides a platform for the integration of such services, the effectiveness of the system is reliant on the strategic identification of data from which it pulls.

In its first year, more than 400 faculty and staff trained in Advise, and over 10,000 individualized emails went to students related to advising, registration, internship opportunities, academic support services, and other Kean resources. Further, more than 2,000 students have engaged with the Advise Student Experience, which allows students to access their success teams, composed of academic advisors and support staff (including financial aid counselors, career counselors, athletics coaches, academic coaches, and representatives from support service areas, among others) at the university as well as raise their alerts to connect with resources. This information, along with the shared tracking functionalities given the data ingest of Advise, gives OSSR and LC the capacity to monitor, analyze, and respond quickly to students' needs during their semester experience – and document their behaviors.

As the college years are a critical period for students' growth, institutions of higher education have extended learning outside of the classroom to enrich the overall college experience (Logue, Hutchens, & Hector, 2005). For this reason, OSSR has also launched a virtual, co-curricular guided path through Campus Labs designed to promote active student engagement with the ultimate goal of timely graduation and a successful career. As a unique achievement challenge, the Cougar Climb highlights six unique domains including Academic Engagement, Career Development, Health and Wellness, Social Engagement, Civic Engagement, and Global and Cultural Awareness. Students can complete tasks, monitor progress, and set co-curricular goals. The pathway assists students by tracking their progress as they move through each domain to Cougar Climb completion. Two hundred freshmen completed more than 60% of the Cougar Climb in its first year, and 90% of top path completers finished above a 2.5 GPA with the highest completers entered into a raffle for a free semester of tuition. The Cougar Climb

is rolling out an Upperclassman Experience Path for the 2020-2021 academic year to continue this momentum.

Retention literature is replete with studies that show how undergraduate success in higher education is often dependent on a student's performance in gateway courses—or those required entry-level classes that provide the academic foundations for selected majors. To respond to the need for additional support in the most challenging gateway courses at Kean, a Supplemental Instruction (SI) program was implemented by the OSSR as a pilot in general chemistry in fall 2018. The SI program at Kean has since grown to support students in General Chemistry, Organic Chemistry, Pre-Calculus, Computer Science, and History through funding from two grants: a $1.5 million USDOE Strengthening Institutions Grant (in collaboration with the Office of the Provost and Vice President for Academic Affairs) and a $1.7 million National Science Foundation Grant, both awarded in 2019. As a non-traditional form of academic assistance that targets historically difficult gateway courses (those with a high ratio of D/F grades and withdrawals), SI provides embedded class support in the form of a peer SI Leader.

Peer-facilitated academic assistance programs have a long tradition in higher education and have proven successful in promoting student success (Ning & Downing, 2010). Student leaders "effectively serve as a bridge between course "experts" with extensive content knowledge and the lived experience of the student body," thus truly functioning as facilitators of learning rather than sources of knowledge (Sloan, Davila, & Malbon, 2013, p. 86). In a peer-facilitated learning environment, students work collaboratively to solve problems and there is greater opportunity for learner involvement. Further, learners are more likely to engage with one another due to the less threatening nature of the peer-facilitated teaching discourse; this increased motivation results in students contributing to their knowledge while simultaneously benefiting from the knowledge of others (Ning & Downing, 2010). Through the organic mentorship that occurs through peer-facilitated collaborative learning, students may also benefit by gaining a sense of belonging on campus. These are in direct support of and promote key student retention behaviors that are fundamental to student success.

Targeted Interventions

In addition to intentional outreach to target student populations through calling campaigns, automated early alerts, and Advise communications, OSSR also houses interventions and programming specific to transfer students, rising sophomores, and students on academic probation. Like the CSI for freshmen, the Second-Year Student Assessment, or SYSA, identifies motivations for students with previous college experience and integrates with transfer student orientation and transfer transition courses to allow for greater understanding of Kean transfer students' needs. In addition,

the Office sponsored an inaugural Learn, Earn, and Persist (LEAP) Scholarship—a retention micro-grant based on merit and financial need for rising sophomores. Recipients are assigned a giveback project on campus under the advisement of a Kean staff member in return for a $1,000 institutional tuition grant to foster persistence. One-hundred percent of the 77 participants in the LEAP pilot program were retained.

While it is necessary to move the needle from reactive to proactive in terms of retention to best identify and meet students' needs, every institution must still support those students who fell through the cracks despite all of these efforts. Therefore, the only initiative that predates OSSR at Kean University (and is the only reactive retention initiative) is the Step-It-Up program, which provides one-on-one academic coaching and weekly success workshops for students on academic probation (less than a 2.0 cumulative GPA). The Step-it-Up program, then, as a reactive retention initiative, exemplifies how institutions must meet students where they are and guide them toward the path of academic success and timely graduation. However, to be most effective, institutions must redefine "early" in terms of strategic retention initiatives and make continued progress in developing more proactive measures to engage students even before they arrive on campus.

Learning Commons Resources and Student Support Services

Comparable to OSSR's retention interventions, the Nancy Thompson Learning Commons (LC) is a Vision-2020 initiative designed to transform the traditional library experiences of a student by recognizing the need for a digital data and information delivery system that combines library resources, databases, and academic support services seamlessly. This includes support of student success through workshops and programs linked with Writing, Public Speaking, and Tutoring services. Within the Office of the Provost and Vice President for Academic Affairs, the LC was begun in the summer of 2017 to transform the student experience of an information delivery system of resources (e.g., peer literature, databases, and Open Educational Resources) while incorporating fundamental academic support in the areas of writing, public speaking, and tutoring – provided to students by students. The LC provides an engagement zone for students to assist, guide, and encourage them to view their academic success as a combination of these elements.

The role of the LC is to be a "Center of Campus" entity, literally and figuratively, that offers spaces in which students may coalesce their college experiences in which classes, social time, and extracurricular activities intertwine. The LC administratively then serves as a conduit and structure that facilitates and tracks Student Support Services and coordinates the same among the broader

campus community. This structure considers the fact that learning is a process and so is the support that students need to succeed at a university. We thus consider "what we do, how we do, and why we do" in the context of students seeking to complete their field of study, and how student retention behaviors are intertwined. This includes a supporting infrastructure that relies on the effective, efficient, and timely use of spaces, resources, services, and the accessibility and quality of the same — and which provides a means to level the playing field. As such, the LC expects its peer tutors who engage directly with students to obtain Certification (CRLA) to ensure best practices and to be certain that they are attentive to individual student needs. At the same time, we monitor the support workflows—not to micro-manage those providing the support, but to promote the most effective service that meets each student's needs.

Aside from one-on-one support, the LC offers group sessions as appropriate and sponsors a wide variety of programming. While our mantra has been to provide all students with "what they need" when, where, and how they "need or want" to receive support through any platform or interface; it is clear that in the Covid-19 era these are even more critical in continuing student support services remotely. They also clearly distinguish the purposes of students seeking LC support services: remedial (learning in uncertainty), reminder (skills practice), and growth (professional development).

At the core of LC engagement are the key Student Support Services of Writing, Public Speaking, and Tutoring. These are fundamentals that tie-in with the much broader Kean Community and require that we engender our interaction and engagement for the enhancement of academic aspects of the student experience. In short, the LC makes support services relevant, timely, and interconnected with the student experience. To do this means being available to students as often as possible and in as many ways as possible as students expect to "access us" not only in workshops but also in their classes and whenever they drop-in for help (whether in-person or virtually). We provide students the in-house tools they need (for example, Grammarly--an English language digital writing tool that offers grammar and spell checking as well as plagiarism detection) throughout our facility (and online), to ensure that all students have access to the academic workspace and tools they need to be successful.

While the LC services are distinct, aspects of them are incomplete if not embedded in and cross-marketed within the University Community. For example, presentation skills in Public Speaking tie directly with writing/communications skills that also have a visual component and rely upon reading comprehension. That means that the LC must provide an interface that is informed, supported, and driven by both academic and non-academic units that relate to students' retention behaviors — and their courses and majors. For

example, the LC offers information literacy training through a Blackboard LEARN module (created by the library faculty) in a collaborative partnership with the General Studies Program through its General Education courses. The online modules provide fundamentals relevant to research and creative works as tied to primary and secondary sources, which are associated with each student's field of study.

A Comprehensive & Collaborative Framework for Student Success

The concerted retention efforts facilitated by both OSSR and LC at Kean University exemplify an active relationship in providing support services and engaging events that foster flexibility to continue to evolve robustly, both meeting students' needs and meeting students where they are. Within the lens of this collaborative framework, retention is not the primary metric but "more accurately viewed as a by-product of what matters much more—student learning and success" (Felten, Gardner, Schroeder, Lambert, & Barefoot, 2016, p. 171). In connecting the missions of both OSSR and LC, and that essence of engagement, we can better describe what effective student learning looks like and align the collaborative vision to improved, timely, effective, and efficient processes and procedures, all of which contribute to increased retention, as evidenced in the example that follows.

A simple fall-to-fall comparison of incoming freshman student cohorts revealed that nine of every ten students not retained one year later—and who did not make use of student support services of any kind (through OSSR or LC) left the university with a probationary GPA (below 2.0), indicating that they did not or were not engaged for success. In contrast, one of every ten students retained after completing their first year of college—who had made use of at least one student support service during their first year—achieved a GPA twice that of their cohort peers.

These results suggest that integrated and overarching community engagement, as expected and verified in the body of literature, clearly makes a difference. They also necessitate a deeper dive into the data and tracking of student cohorts for better understanding the specific metrics (and combinations) that might be available to help reveal and define student engagement and student retention behaviors. The strength of this approach here is to examine multiple measures and variables involved in retention and in defining the term "student success" aside from obvious student demographic information. In other words, we must make use of the entire landscape, particularly given the wide diversity of student needs and circumstances encountered in today's student populations, to make strides toward proactive retention through integrated modeling of engagement, or *PRIME*, as the title of the proposed model suggests.

Moving Toward *PRIME*

The initial analysis of the impact of support services usage on cumulative GPA is just a small piece of the retention puzzle. Yet that catalyzed a much larger study that begs the following question: If we were able to determine a need for support for one small population of Kean freshmen, what can we do with a deeper dive of analyzing and interpreting additional data in context? The answer: Build an institutional predictive model of characteristics and behaviors of students most likely or least likely to be retained in their second year. The puzzle before us seems so straightforward when looking retrospectively at numbers and information, but then why doesn't it work for every student, or why aren't the retention numbers changing from year to year if we are always changing and adjusting our approach? In other words, while these data and metadata add to our analysis, provide context, and allow for interpretation of retention, they also speak to specific intervention strategies, student engagements through service support units, and student retention behaviors.

While the literature is replete with specifics of retention variables and case studies, there are only the hints or glimpses of "clues" that tie behaviors, support services, workflows, and processes together—including those across community-driven inputs—in a comprehensive manner. What that means is that, if we intend to truly attempt modeling of retention interventions and their impacts, the study's guiding questions must be multi-pronged and considered in a phased examination. This is essential to move from basic diagnostics and baselines to predictive modeling if the intention is to harvest the benefits of the multitude of data collected not only for student cohort groups but also across all groupings of students. If we are truly to understand the connections between support and responses, we must acknowledge the steps along the way and the multi-perspective parameters that give different points of view.

This includes performing analyses that point in the same direction as the overarching goals for student intervention success and making analyses that have the functionality and capacity to identify and point to specific behaviors, interventions, and support workflows as delivered by OSSR and LC. Together these would prove not only success in meeting the needs of students but more simply, and perhaps more importantly, would justify to program administrators and staff the worth of our combined efforts for student success. It would give evidence that the programs they facilitate do indeed make a difference to an otherwise unassisted student.

Thus the guiding questions given here focus on the development of a generalized function that is not purely empirical, one that allows the discernment of efficacies of service approaches and engagements, and one that offers more than circumstantial evidence

that such programs and services make a difference for student success. The essence of such efforts must be guided by modeling that seeks to engineer and implement the solutions needed for student success—and that creates a model that is robust enough to allow corrective actions and real-time evolution of services and interventions during a semester, from term to term, and across or between student cohorts.

Therefore, the development of a predictive and proactive model for retention intervention, such as *PRIME*, and one that expresses student retention behaviors must exist within a phased sequence approach. That is a process that first makes use of statistical information and student data to provide specific empirical foundations known to be relevant to retention that are consistent with the body of literature and supported by the institutional data and metadata. The first phase of the approach accomplishes a diagnostic understanding of the unique population at-hand, at any time, and allows appropriate action implementation, but that does not "fit" the larger population over time or circumstance. It reveals a sample distribution from the larger population of interest to establish a baseline.

The second phase seeks to identify what is happening on a finer scale and how various actions and reactions comprise student success, retention, and associated behaviors. This phase explores interactions, correlations, and suggests specific cause-and-effect as well as the relevance of sequences in intervention strategies and outcomes; it represents the interactive and auto-regressive aspects of retention (i.e. how does a student's behavior change with time with or without intervention) and the metrics often used to quantify student success. The second phase is about defining metrics and data sources to conceptualize the model diagnostics to a predictive framework. This entails categorizing data and, in addition to visits to support services, intentionally including demographics, academic performance, registration, and non-cognitive aspects, and putting it all together in one comprehensive and dynamic database.

Continuing this intentional drill-down of data can also determine, among other pre-enrollment factors, if the program into which students are admitted has any correlation with retention, particularly for those students admitted into conditional or specialized programs. Of all Kean University students who were not retained (who also did not seek out any support services), conditionally admitted students make up 17%. This is significant given the small number of students in the conditional freshman cohort, thus indicating we need to do more to support the students who we already know are coming to us more academically underprepared.

While this second phase leads to aggregate reporting and annual assessments to "close the loop" in evaluating the effectiveness of student support services, multivariate functions are required with a

refined knowledge of the variance encountered within and among the samples and populations of students if they are to be more useful in both planning and delivery of student support. For these reasons a third phase that speaks directly to interventions and student retention behaviors is needed and is designed to capture the students' own experiences during their first year at college in their own words and as self-reported.

To collect this data, a survey was designed and distributed to all students from the previously identified freshmen cohorts. It was followed up with the facilitation of focus groups for those students retained and interviews for those not retained to identify the collective experience of the students, building it into a comprehensive database with the goal of data convergence. In other words, the third phase yields an opportunity to tie quantitative and qualitative information connected to real workflows and interventions by OSSR and LC. Taken together these elements essentially create the "physical" or "practical" working model that ties the empirical evidence to best practices, interventions, and behaviors, and these then define and help us to understand retention intervention impacts and student behaviors in context.

The fourth phase of this modeling approach, prediction, drives individual and group interventions at any time independent of the student body, semester, time within a semester, or as a function of both prior and ongoing student support services and outcomes or

experiences. For example, an outcome often of interest is the ability to examine the role of technology, or the effectiveness of program events, or placement of staff and resources. In any of these, the return on investment is relevant to managing and anticipating resource needs for student support and in ensuring that the proper personnel and that specific types of interventions are available, accessible, and appropriate for student success through key intervention retention strategies.

Systemic, planned analyses of all data points to determine predictive characteristics of students more likely to be retained versus more likely to not be retained should recur on an annual basis with ongoing engineering of solutions. Predictive characteristics will also change over time as the cohorts' needs change; therefore, the nature of the *PRIME* model is the continued identification of areas for further analysis, which provides for its evolution over time.

Conclusion

Our focus in designing and implementing *PRIME* at Kean University has been to consider proactive interventions and the understanding of student behaviors relative to both operational and administrative workflows that are in place at most two- and four-year institutions. This intent provides for potential replication (not duplication) that addresses unique challenges faced by any institution and that allows steps guided by the holistic and

overarching retention process. In addition, the best design, driven by associated infrastructures and organizational profile, ties workflows and employees to students and in turn links to stakeholders, according to cross-unit collaborations and partnerships. Retention is certainly everyone's job at an institution and can be data-driven in an effective, efficient, and timely manner.

Indeed, the "big picture" of retention connects the broader definition of "student success" to specific metrics that are quantitative, qualitative, cognitive, non-cognitive, and interdependent. How these elements form components of the "machinery" of retention at an institution itself is the appeal of the *PRIME* approach – and which affords portability for replication. The data and metrics that drive the process-based retention impacts consider the intervention, the student, the process, the evolution, and the outcome as part of the process. Selection, storage, use, and concatenation or synthesis and derivation of data then are paramount to creating meaningful analyses that avoid findings that represent artifacts of the tools themselves, which individually may be inflexible (or incapable of measuring certain characteristics). This approach also identifies opportunities for improvement of student support services and/or their delivery and the modalities offered to students relative to students' dynamic needs or wants.

We believe that with proper attention to design, the "parts" of institutions dedicated to retention efforts, even if differing substantially from one institution to another or from a four-year to a two-year and from public to private, can yield a cohesive practical model that has flexibility for adjustment and that is robust for the institution. The model inherently bases itself upon known and anticipated resources as well as aids in identifying clear strengths and weaknesses in any of the retention processes occurring across campus. At the same time, the model approach points to what data to capture, when, and where to do so, and how such data can lead the desired retention outcomes as part of component processes and workflows. It naturally identifies data creation needs without being merely a statistical, demographic, or theoretical model for diagnostic purposes alone.

Naturally, the *PRIME* approach advocated here benefits from strategic initiatives that focus on student retention and academic success. It also benefits from incentives to the campus community to support holistic and collaborative methods, data sharing, and data automation and digitization. These do not preclude the personal touch in retention work; they focus it by allowing the practitioner to innovate rather than process and track students in a strictly formulaic manner. It gives feedback that can effect change—even amid a semester (or pandemic).

For example, we knew we needed to hit pause as soon as we discovered the void in services for our conditionally admitted students. Therefore, we piloted a summer bridge program and a

more intentional advisement model for the fall 2020 cohort.
Similarly, we have taken a more collaborative approach to academic
support services through the implementation of collective
professional development programming (by OSSR and LC) for
tutors and SI leaders, as well as the creation of more streamlined
and strategic communications through Ellucian CRM Advise.
Incorporating these principles has led our design of *PRIME* and
allowed both planned and unexpected results and outcomes in real-
time that have proven critical to improving workflows that change,
enhance, and improve retention intervention to evolve student
retention behaviors as part of their personal growth and
professional development.

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Early Intervention for Struggling Online Graduate Students: Processes and Short-Term Outcomes

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Declining enrollment, attrition, financial pressures, and questions about the value of a degree are creating pressures for higher education institutions, even forcing some to merge or close (Lederman, 2019a). At the same time, enrollments in online courses and programs continue to grow, albeit at a slower pace than in the recent past, especially among students who are studying exclusively online (Lederman, 2019b). As the fastest-growing segment of US higher education (Lederman, 2019b), online education is being expanded at many institutions, primarily as a strategy for replacing dwindling revenue (Pelletier, 2012). With the proliferation of online course and program offerings at institutions of all types, there is significant competition for students. To remain viable, many institutions are launching programs to attract new students, such as those of non-normative ages (e.g., working adults), enrolling less qualified students, and/or creating distance programs to attract students from beyond the local area (Sapiro, 2019).

The new student majority consists of non- or post-traditional students (Mintz, 2019), many of whom received an uneven high

school education, are among the first in their family to attend college, speak English as a second language, and/or juggle their studies with work and/or caregiving responsibilities. Online students tend be older, have children, work full time, and be single parents (Layne, Boston, & Ice, 2013). Further, for some online students, a significant amount of time has passed since they were enrolled in a university (Babcock, Lehan, & Hussey, 2019; Layne et al., 2013).

Online education can be attractive for myriad reasons, including its accessibility (Sutton, 2014). However, retention can be a challenge for many online programs (Mulijana & Luo, 2019). In particular, online graduate programs might struggle to retain students to an even greater extent than undergraduate programs (Sutton, 2014), as these students often have responsibilities that can impede continuous enrollment (Howell, Laws, & Lindsay, 2004). With the rising popularity of online master's (Blagg, 2018; Fain, 2018) and doctoral (Kumar & Coe, 2017) programs, graduate students (40%) are more likely than four-year (34.5%) and two-year (33.8%) undergraduate students to take at least some of their courses online (Lederman, 2019b). While enrolling more working adult students who have numerous (and sometimes competing) responsibilities and/or might be less prepared for success in the current higher education system, institutions are now putting more and different types of supports in place to promote learning and success among students at all levels from diverse backgrounds.

Early Interventions

Online students reportedly desire many of the same support services that are traditionally offered to students at brick-and-mortar institutions, including academic coaching and tutoring (Payne, Hodges, & Hernandez, 2017). However, if struggling students do not seek learning assistance on their own or after encouragement or a referral by a faculty member as appropriate, another mechanism for connecting them with these services might be needed (Babcock et al., 2019). It is possible that some students do not make satisfactory academic progress because they do not access the amount and/or type of ongoing assistance that they need to learn and succeed at a sufficiently early stage (Babcock et al., 2019).

To identify and assist as early as possible students who might benefit from additional learning assistance, some institutions have developed and implemented early-alert and/or early-intervention mechanisms (Villano, Harrision, Lynch, & Chen, 2018). Early identification is crucial, especially because many students who need additional support, including from learning assistance centers (academic coaching/tutoring, library), often do not seek it themselves or even when a faculty member encourages or directs them to do so (Babcock et al., 2019). To continue to address the problem of early attrition proactively, formalized early

interventions can be developed (Muljana & Luo, 2019) collaboratively to provide (from the initial invitation through the intake session and associated recommended services/coaching plan) personalized co-curricular learning assistance to students struggling to meet performance expectations at the start of their program.

Although many different early-alert or early-intervention programs exist, research on their effectiveness is scarce. Without such investigations, institutions are at risk of wasting valuable resources and/or missing opportunities to support students as effectively as possible. This work aims to fill a gap in the literature by describing the process and outcomes associated with an early intervention implemented at one open-access graduate-focused online university. This intervention can be adapted as appropriate and employed at institutions offering co-curricular learning assistance for online students to improve educational opportunities for all.

Context of Study

At one open-access graduate-focused online institution, historical evidence suggested that students' performance on the first assignment in the first course was an important indicator of future success. In mid-2018, almost 80% of students who earned a failing grade on the first assignment in their first course were no longer active 20 weeks later. Around the same time, results of a formal needs assessment showed that students who worked with an academic coach early in their program might have a greater likelihood of persistence (Babcock et al., 2019).

It also was found that students who self-selected to participate in academic coaching while in their first three courses had a significantly higher persistence rate than the general university population, as evidenced by their vesting in the fourth course. Following a baseline examination of academic coaching usage data at the university, it was found that few students were engaging with an academic coach on an ongoing basis while in their first three courses, even though it is during this time that they are most vulnerable to attrition. Overall, approximately 9% of students who participated in academic coaching were in their first three courses. Specifically, during this 8-month period, 75 students (an average of ~9/month) in their first three courses worked with an academic coach in 228 sessions (an average of ~3 sessions each). Of those 75 students, at follow up 4 to 6 months later, 53 (70.6%) had already persisted and vested in their fourth course. This persistence rate associated with students who worked with an academic coach while in their first three courses was found to be significantly greater than that of the general student population, $z = -2.550$, $p = .005$. Therefore, it seemed possible that students' choosing to work with an academic coach early in their program might be associated with greater persistence among students.

Method

The purpose of this applied research study was to investigate the extent to which students in an early intervention differed from (1) a matched sample of students in the same course with the same faculty member at the same time as well as (2) the general student population at the university. The outcomes of interest were first course final grade and persistence rate 20 weeks later. Given the study purpose, a quantitative methodology and causal-comparative design were employed.

Participants

Thirty-nine online graduate students who earned a failing grade on their first assignment in their first course after submitting it on time were included in the early intervention sample. Of these students, 28 (71.8%) participated in an intake session designed to share information about learning assistance services and learn more about their unique needs. Six of these students who participated in the intake session ultimately decided not to use these services after hearing about them, frequently because their reported reason for failure was personal or exceptional, such as the death of a loved one or technological difficulties. Consequently, 22 (56.4%) of the 39 eligible students expressed interest in additional learning assistance, and the learning center coordinator recommended a tier of service at which they should start based on their unique needs. There are three tiers of service at the learning center: Tier 1, posted self-directed resources; Tier 2, live chat; and Tier 3, asynchronous and synchronous coaching.

Procedure

Over a four-month period, all students who (1) submitted their first assignment in their first course on time and (2) earned a failing grade were identified by the Academic Advising team. Students who earned a failing grade because they submitted the assignment late or not at all were excluded, as the goal was to identify students who would benefit most from additional learning assistance (as opposed to support in time management, for example) to align with the current services offered by the university learning center. This list of students was sent to the center's coordinator, who made three attempts to contact each student using phone and email.

Once the recruitment period ended, a request was sent to an external team member who was not aware of the purpose of the study to create a matched sample of students in the same course at the same time with the same faculty member as those students who expressed interest in additional learning assistance. In addition, demographic and academic data were requested for all eligible students in the early intervention and matched samples. Ultimately, three samples were created. The Accept sample included those students who met the eligibility criteria and agreed to participate in learning assistance services following the intake session. The Decline sample included students who met the eligibility

requirements and either did not respond to the invitation from the coordinator or decided not to participate in learning assistance services following the intake session up until data analysis. The Matched sample included students who (1) were in the same course with the same faculty member at the same time as a student in the Accept sample and (2) did not participate in academic coaching.

Analysis

To understand more fully the short- and mid-term student outcomes associated with participation in an early intervention designed to meet students' unique needs, several analyses were completed. To investigate differences across groups in the short term relating to first course final grades, a Kruskal-Wallis H test was conducted. To examine the extent to which the proportion of students in the early intervention who were no longer active at the institution differed significantly from the known value of 80%, a binomial test was run. To analyze midterm differences in persistence 20 weeks after completing their first assignment, a Fisher's exact test was done.

Results

Certain courses, faculty members, and advisors were overrepresented in association with the sample of students who failed their first assignment in their first course after submitting it on time. In six courses, three or more students failed the first assignment after submitting it on time. Two faculty members were working with three or more of the students who met the eligibility requirements. One of them was working with seven students, whereas the other was working with three students. Similarly, three or more students failed their first assignment after submitting it on time while working with one of three advisors. One of the advisors was working with eight students, whereas the other two advisors were working with three students each.

Using their professional judgment, the learning center coordinator recommended that 10 students participate in Tier 3, ongoing one-on-one academic coaching, the highest tier of support available at the learning center. They suggested that the other 12 students use Tier 1 (posted self-directed resources) and/or Tier 2 (live chat) services. Whereas all 10 of these students scheduled an initial session with an academic coach, 3 of them never attended (1 cancellation, 2 no shows). Four of those students had a long-term coaching plan, with the other three students only attending one session. Two of the students on a long-term plan continued coaching into their next course and were still actively attending coaching at the 20-week follow up.

According to the students who participated in the intake session, common reasons why they failed their first assignment in their first course included (1) access issues (e.g., no access to email), late access to the course (e.g., Friday access when an assignment is due on Sunday), difficulty navigating the course room (e.g., difficulty

uploading assignments); (2) a lack of clarity regarding expectations of scholarly writing (e.g., not knowing or understanding APA style and the importance of using it, lack of understanding of the importance of proper formatting and grammar); and (3) unwillingness and/or inability to navigate work and family life as well as manage time effectively.

Table 1 shows the descriptive statistics associated with the students who met eligibility requirements who both accepted and declined learning assistance services as well as those in the Matched sample. Except for one student from Germany in the Accept sample, all students who reported residency information lived in the United States. (Country of residency information was not available for one student in the Decline sample and two students in the Matched sample.)

Table 1

Descriptive Statistics for the Three Groups of Students

Sample	Age	Race	Gender	Years Since Basis-for-Admission Degree
Accept Sample	$\bar{x}$ = 51.8 (SD = 11.9)	8 – Black/African-American 6 – White 6 – Not Reported 2 – 2 or more races	11 – Female 6 – Male 5 – Not Reported	$\bar{x}$ = 10.4 (SD = 7.2) M = 9.5 IQR = (5, 15.75)
Decline Sample	$\bar{x}$ = 45.8 (SD = 13.0)	10 – Black/African-American 4 – White 2 – Not Reported 1 – Hispanic/Latino	9 – Male 6 – Female 2 – Not Reported	$\bar{x}$ = 10.6 (SD = 11.9) M = 7.0 IQR = (3,12)
Matched Sample	$\bar{x}$ = 40.9 (SD = 10.0)	9 – White 6 - Black/African-American 2 – Hispanic/Latino 2 – Not Reported 1 – American Indian/Alaska Native 1 – Asian 1 – 2 or more races	17 – Female 4 – Male 1 – Not Reported	$\bar{x}$ = 4.5 (SD = 5.2) M = 2 IQR = (1,5)

Among the 39 students who met the eligibility criteria, the average age was 49.21 years (SD = 12.6). In addition, 18 of these students identified as Black/African-American, 10 identified as White, 2 identified as 2 or more races, and 1 identified as Hispanic/Latino. This information was not available for eight students. Furthermore, 18 of these students identified as female, and 15 identified as male. This information was not available for six students. Compared to these samples, the Matched sample tended to be more racially diverse and include more women, although these differences were not statistically significant. The only significant differences across groups were related to age, H(2) = 8.435, *p* = .015, and time since obtaining the basis-for-admission

degree, H(2) = 10.957, p = .004. Specifically, students who failed their first assignment in their first course who accepted learning support were significantly older than those in the Matched sample. In addition, the number of months since degree attainment was significantly lower for those in the Matched sample than those in the Accept and Decline sample

First Course Final Grades

Not surprisingly, a greater proportion of students in the Matched sample earned a final grade of A in their first course than students who earned a failing grade on their first assignment. However, a greater proportion of students in the Matched sample also earned a final grade of F in their first course than students who accepted or declined participation in learning assistance services after failing their first assignment. Moreover, a similar proportion of students in the Matched sample withdrew compared to those in the samples of eligible students who both accepted and declined learning assistance services. (Note: A No Grade disposition was given when there were circumstances beyond a student's control [e.g., life events] that prevented them from being successful in a course.) Table 2 shows the first course final grades for the students in the early intervention and matched samples. When grades were collapsed into two categories (earned a passing grade/did not earn a passing grade), there were no statistically significant differences across groups, $X^2(2)$ = .515, p = .773. Therefore, although they earned

a failing grade on their first assignment in their first course, which presumably factored into their final grade, both the students who accepted learning assistance and those who declined it earned a similar final course grade to their peers in the Matched sample who did not fail their first assignment.

Table 2.

First Course Final Grades for the Three Groups of Students

	A	B	C	F	Withdrew	No Grade
Accept Sample	2 (10.5%)	5 (26.3%)	3 (15.8%)	7 (36.8%)	2 (10.5%)	3
Decline Sample	5 (29.4%)	5 (29.4%)	1 (5.9%)	4 (23.5%)	2 (11.8%)	0
Matched Sample	13 (59.1%)	0	0	7 (31.8%)	2 (9.1%)	0

Persistence 20 Weeks Later

Among the 39 students in the early intervention, 51.3% of them were still active after 20 weeks. Results of a binomial test showed that persistence rate is statistically significantly lower than the known institution rate of 80% (p < .001). Table 3 shows the enrollment status of the students in the early intervention and matched samples. Results of a Fisher's exact test showed that there was no statistically significant difference in the likelihood of being active 20 weeks later across the three samples, $\chi^2(2)$ = .727, p = .77.

Table 3.

Enrollment Status 20 Weeks Later for the Three Groups of Students

	Active	No Longer Active
Accept Sample	10 (45.5%)	12 (54.5%)
Decline Sample	10 (58.8%)	7 (41.2%)
Matched Sample	11 (50%)	11 (50%)

Discussion

The purpose of this applied research study was to investigate the extent to which students in an early intervention for students who earned a failing grade on their first assignment differed from both a matched sample of students in the same course with the same faculty member at the same time and the general student population in terms of their (1) first course final grade and (2) persistence rate 20 weeks later. Although they earned a failing grade on their first assignment in their first course, which presumably factored into their final grade, both the students who accepted learning assistance and those who declined it earned a similar final course grade than their peers in the Matched sample who did not fail their first assignment. From a persistence standpoint, this initiative can be deemed to be mostly successful so far. It was determined at the time during which this early intervention was developed that 80% of students university-wide who failed their first assignment in their first course were no longer active 20 weeks later. However, only 54.5% of students who accepted learning support and 41.2% of students who declined

learning support were no longer active after 20 weeks. At the same time, only 50% of the students in the Matched sample were no longer active at follow up.

Overall, although they failed their first assignment, there were few statistically significant differences between students in the early intervention, regardless of whether they accepted or declined learning support, and those in a matched sample, including in their first course final grades and enrollment status 20 weeks later. Ideally, the outcomes of students who participate in learning assistance services should be superior to those of students who choose not to participate. However, it is possible that the learning support professional's reaching out and students' knowledge that services are available if they need them explain at least some of the variance in students' outcomes.

Key Takeaways

The results of this study offer insights into the perspectives and experiences of students who struggle at the start of their program. Such insights can inform continuous improvement efforts relating to student learning and retention at the university at which the early intervention was implemented and beyond. The students who declined support cited personal or exceptional circumstances (e.g., illness, extremely late course access, and course navigation difficulties), rather than academic challenges in association with their lack of success on the assignment. The only significant

differences across groups that were found related to student age and length of time since attainment of the basis-for-admission degree. Specifically, students who accepted support were significantly older and students who declined support had a longer gap in time since earning their degree. In addition, several courses and faculty members were overrepresented in association with students' failing to meet expectations on the first assignment in the first course. These findings might be due to faculty assignment bias or within-course scaffolding misalignment. It might be worth examining (1) the first assignment in these courses to explore the extent to which the course content and interactions prepare students to succeed on their assignment and (2) the faculty members' practices in relation to expectations and conventions in the school.

Students who failed their first assignment but declined learning support persisted at a similar rate as both students who accepted support and students in the Matched sample. This finding might be explained by students' who declined support citing personal or exceptional circumstances (e.g., illness, extremely late course access, and course navigation difficulties), rather than academic challenges in association with their lack of success on the assignment. In addition, students who accepted learning support persisted at approximately the same rate as those in the Matched sample who earned a passing grade on the first assignment in the first course. Therefore, it seems that personalized intervention immediately

following failure seems to be effective in ameliorating the risk of early attrition among students who earn a failing grade on the first assignment in the first course.

Potential Next Steps

Although the sample was relatively small in size, it was representative, as all students who failed their first assignment in the first course were included. Further, a matched sample of students was created to increase confidence in the findings. Nevertheless, given that little time had passed since the study ended, it is unclear to what extent the effect of early personalized learning support on student success persists over time. The promising preliminary findings warrant moving towards a broader longer-term evaluation following these groups of students through graduation.

Moreover, outreach efforts aimed at supporting student learning and achievement should be personalized in nature. If students feel as though faculty and staff members care about them personally as unique individuals, it can have a positive impact on their outcomes, including persistence and graduation (Kezar & Maxey, 2014). Also, as was done in this study, use of the students' preferred communication modality (e.g., phone, text, teleconference, email, chat) and availability during days/times when they are prepared to learn are critical. Beyond simply explaining the services and support that are available to them, it is important first to seek to

understand each student's strengths, growth areas, and needs before developing a personalized support plan. Special attempts at outreach should be made for students trending older and students with a longer gap in time since obtaining their basis-for-admission degree.

Limitations

The findings of this study should be considered in light of the following limitations. Although a matched sample of students in the same course with the same faculty member at the same time was included in the analyses, student pairs sometimes differed in demographic characteristics (e.g., sex/gender, race/ethnicity) when an exact match was not available. These and other factors might partially explain these findings. In addition, due to group sizes, no preliminary analyses were conducted to examine differences between (1) the 28 students who responded to the initial invitation and the 11 who did not, (2) the 22 students who accepted learning assistance and the 6 who did not, and (3) the 7 students who participated in the scheduled initial session and the 3 who never attended. Furthermore, both students who did not respond to the invitation from the coordinator and those who decided not to participate in learning assistance services following the intake session were included in the Decline sample. Future researchers might investigate whether meaningful differences exist between these groups to understand more fully the relationship between participation in live one-on-one synchronous academic coaching and persistence.

Moreover, due to system constraints, although students were encouraged to use the various tiers of learning assistance based on their unique needs, only the interactions of those who participated in live one-on-one synchronous academic coaching could be tracked. That is, it was not possible to determine the extent to which specific students used posted resources (Tier 1) or live chat (Tier 2). Future researchers might track all interactions that students have with the learning assistance center to develop a more complete picture of the center's impact on student outcomes, including persistence. Finally, a notification was sent to the learning center coordinator, who invited the student to an intake session, once the student earned a failing grade on the first assignment in the first course. It is possible that some faculty members allowed students to redo these assignments or earn additional points in some other way. Future researchers might exclude those students if they are interested in examining the relationship between participation in live one-on-one synchronous academic coaching and final course grades.

Conclusion

Institutions increasingly are being held accountable with respect to program outcomes, including completion rates. To remain viable, some institutions that offer online courses and programs are

attempting to boost enrollments by targeting students of non-normative ages to include working adults and less qualified students. Therefore, they must continuously develop and evaluate programs and services aimed at supporting the learning and success of students from diverse backgrounds with varying and sometimes competing responsibilities. The intervention evaluated in this study can be adapted as appropriate and employed easily at institutions offering co-curricular learning assistance (e.g., academic coaching/tutoring, library research consultations) for online students. In addition, this work can begin to build an empirical foundation in the literature on open and distributed education to promote understanding of online graduate student experiences and outcomes. Future investigations might focus on the extent to which these (1) processes and outcomes are achieved at other institutions and (2) promising preliminary findings endure in the longer term.

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The Learning Assistance Review (TLAR), the national peer reviewed official publication of the National College Learning Center Association (NCLCA), publishes scholarly articles and reviews that address issues of interest to learning center professionals (including administrators, teaching staff, faculty, and tutors) who are interested in improving the learning skills of postsecondary students. Primary consideration will be given to articles about program design and evaluation, classroom-based research, the application of theory and research to practice, innovative teaching and tutoring strategies, student assessment, and other topics that bridge gaps within our diverse profession.

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