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# Influence of Place-Frame and Academic Integration on Persistence at Rural Community Colleges

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This is to certify that the doctoral study by

Jeannie Hunt

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Walden University
2019

Abstract

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Jeannie Hunt


MA, University of Phoenix, 2005

BS, Black Hills State University, 1998




Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education




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Abstract

Community college leaders face challenges due to a lack of persistence data concerning 2-year colleges, especially in rural settings, prompting these leaders to turn to national data sets to drive local institutional changes. The purpose of this study was to identify variables associated with student place-frame and academic integration which are predictive of student persistence from the first to the second year in a small, residential community college in a rural frontier setting. Guided by Tinto's institutional departure theory, the theory of social representation, and Bassett's work in ruralism, a nonexperimental, correlational, quantitative research design was used to examine predictive relationships between student place-frame variables (age, sex, and intent to transfer), academic integration variables (student effort, collaborative learning, active learning, and academic challenge), and student persistence. Archival Community College Survey of Student Engagement data collected in 2013–2016 from 332 student participants were used for the study. Regression analysis showed a significant predictive relationship between student age and student intent to transfer with active learning. Additional binary logistical regression showed a significant positive relationship between active learning scores and student persistence. These findings informed development of evidence-based recommendations for programmatic changes to increase active learning practices, which could increase students' academic integration and persistence over time. By improving students' academic integration and persistence, positive social change may result through more students completing their degrees and their 2-year colleges gaining access to more substantial resources that are tied to student performance.

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Dedication

For women – rural or otherwise;
The women who are uniquely disenfranchised because of the spaces they occupy;
The women who did not have the time or resources to add one more thing to their list, but added one more thing anyway;
The women who were told they were bad mothers, wives, sisters, or daughters for making their goals a priority;
The women who were told they couldn't/shouldn't/wouldn't, but did anyway;
The women who had bigger dreams for their daughters, and the daughters whose mothers didn't dream big enough;
The women who supported themselves and women who supported other women. And the women who were sometimes both of those women at the same time;
The women who had the courage to know themselves and follow their path;
May you continue to light the path for others while keeping your own light bright.

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Section 1: The Problem

**The Local Problem**

As the need for an advanced degree becomes more prevalent in American

employment, with an estimated 65% of jobs requiring some advanced training by 2020

(Carnevale, Smith, & Strohl, 2013), community colleges in America are seeing an

increase in enrollment. Nearly 40% of students enrolled in higher education in the United

States attend a community college (Shapiro, Dundar, Yuan, Harrell, & Wakhungu, 2014)

and enrollment in 2-year institutions is projected to increase by 15% by 2024 (Kena et al.,

2015). The American Graduation Initiative (AGI), launched in 2009 by President Barack

Obama (Office of the Press Secretary [OPS], 2009) further added incentives for students

to start their education at 2-year institutions (McPhail, 2011), including possible tuition

assistance. Obama's (2009) AGI focused on a goal to educate an additional 5 million

students through at least 1 year of postsecondary education at a 2-year institution in an

attempt to improve employment opportunities. Because earning a postsecondary degree

or certificate correlates with increased individual earning potential, decreased

unemployment, increased economic competitiveness for the United States, increased

quality of life for individuals, and social mobility opportunities (Boggs, 2011; Phillips,

Stephens, & Townsend, 2016), enrollment at 2-year institutions seemingly presents

positive opportunities for social change for students.

In order to prepare for and comply with the AGI goal of graduating more students

(OPS, 2009), community college leaders and state governors shifted their focus from

student access to student completion (Complete College America [CCA], 2014) and

began the shift in governmental funding from enrollment numbers to performance-based funding (PBF) models (Dougherty & Reddy, 2011; Friedel, Thornton, D'Amico, & Katsinas, 2013). PBF, according to Altstadt (2012), includes "systems allocate[ing] some percentage of state support on the basis of institutional progress in improving student retention, progression, or completion of credentials, not just on enrollment levels" (p. 1). As such, enrollment is no longer enough to secure funding; institutions must also demonstrate that their students persist through completion (Dougherty & Reddy, 2011; Friedel et al., 2013).

Although completion has become a priority in higher education in America, the completion rate in higher education nationally is only 52.9% (Shapiro et al., 2014), and 40% of community college students depart before their second year of studies (Wilson, 2016). The National Center for Educational Statistics (NCES; 2016) reported that retention rates of first-time students at community colleges have shown little change between 2004 (i.e., 53.3%) and 2014 (i.e., 57.3%). Habley, Bloom, and Robbins (2012) reported that persistence rates remained relatively stagnant between 1975 and 2010, even with national and local initiatives aimed at increasing persistence and completion (Bers & Schuetz, 2014). Additionally, first generation college students are most likely to depart from their institution in their second year of school (Ishitani, 2016). Although increased enrollment is usually viewed as a positive trend in higher education, 2-year institutions are typified by inherent completion risks (Shea & Bidjerano, 2014). Issues affecting completion rates in higher education in general are compounded at the community college level, with more than 69% of students at 2-year institutions needing remediation

and 40% working full time (Mellow & Heelan, 2014). Rural students in the United States are still behind their urban peers in higher education enrollment and persistence, with only 17% of rural adults 25 or older earning a college degree (Shapiro et al., 2013).

Unfortunately, the study of student persistence provides a unique set of challenges, especially at the community college level (Hatch & Garcia, 2017). Goldrick-Rab (2010) suggested that persistence data means little without corresponding data concerning student goals, which are infrequently collected. Additionally, there are relatively few studies examining community college data sets providing information about student-level integration, which includes academic and social experiences (Hatch & Garcia, 2017). Tinto (2006) explained integration to include patterns of interaction and engagement between students and the institution, including individuals at the institution, especially in the first year of college. To date, little research concerning persistence or academic integration in rural, 2-year institutions has been published, even though 3.3 million students, or 37% of community college students in the United States, are enrolled in rural institutions, making rural community colleges the fastest growing sector of U.S. community colleges (Rural Community College Alliance, 2017). A student's individual perspective, as shaped by cultural and geographical factors and place of origin, or their place-frame (Bassett, 2002), may further impact persistence at community colleges. Ruralism, or the assumptions of limitations associated with individuals originating in or living in rural settings (Bassett, 2002), impacts how policy makers view and understand rural education. Howley, Howley, and Yahn (2014) indicated that rural education research does not engage what rural teaching and practice does, or how it differs from

non-place-based educational research and practice. There is also some uncertainty in higher education about what is authentically rural (Howley, Howley, & Yahn, 2014).

## Definition of the Problem

An unintended consequence of this lack of rurality research drives rural, 2-year institutions, like Rural Frontier Community College (a pseudonym; RFCC), to utilize national studies and statistics, largely based on urban assumptions (see Bassett, 2002; Henley & Roberts, 2016) to develop and implement programmatic and policy changes aimed at increasing academic persistence. Transitioning from public undergraduate education to college is daunting, even for academically prepared students, and presents particular challenges to rural, culturally homogenous students (Everett, 2015; Nganga, 2005). Through this transition, students are now facing independence, new academic and social expectations for themselves and their peers, new and varied teaching styles, and separation from traditional support systems, which sometimes causes a struggle to integrate into institutions of higher education (Santiago, Gudiño, Baweja, & Nadeem, 2014). Because curriculum in higher education leans towards a "one size fits all" perspective, accreditation pressures force rural institutions to ignore spatially inclusive elements, or the elements of a group that are generated by the condition of a defining area (Greer, 1962), including rurality, family and cultural obligations, and the economic stability of the community and higher education institution. One or more of these spatially inclusive elements can create even greater challenges for rural students to integrate into institutions (Lichter & Brown, 2014). Without significant research about how rural variables impact the persistence of students in rural community colleges,

institutional leaders will continue to implement academic policies that may do little to affect persistence rates of rural students.

RFCC completion rates align with national averages, with 61% of first-time degree seeking students persisting from the first to second year and a combined 53% of first-time degree seeking students graduating (i.e., 30%) or transferring out (i.e., 23%) of RFCC (NCES, 2017). Rural and urban 2-year college students are more likely to be first-generation (Garcia, 2010); non-White (Rubin et al., 2014); low-income or low socio-economic status (SES) students (Iceland, 2013) who are underrepresented in higher education. Rural community colleges may have different or additional variables affecting academic integration, persistence, and completion than those addressed in urban-based research (Hlinka, 2017). Better understanding rural variables affecting academic integration, which may lead to persistence, could provide rural community college leaders with the opportunity to significantly influence the lives of students who perhaps come from a variety of challenged and challenging backgrounds (Fong, Acee, & Weinstein, 2018).

## Rationale

There is extant research about student persistence at the community college, but the majority of research on variables affecting integration and persistence from first to second year students is conducted at traditional, residential, 4-year institutions (Howley, Howley, & Yahn, 2014; Pascarella & Terenzini, 2005; Tinto, 1993). Additional research about student persistence in community college settings, both in the past and more recently, centers on the urban, commuter student (Crisp & Delgado, 2014; Halpin, 1990;

Hlinka, Mobelini, & Giltner, 2015). Some of this research may be generalizable, but much of it may have little relevance to RFCC, which is a rural, residential community college, presenting a unique set of variables possibly affecting persistence. Because current persistence research focuses on motivational variables rather than demographic variables, which are less malleable (Fong et al., 2018), place-frames have largely been ignored when designing and implementing educational practices at RFCC. Instead, according to the dean of student learning, RFCC uses national trend data to implement strategies for integration and interventions to reduce early departure and increase on-time completion rates. Decisions to enroll or depart come from a variety of factors and are infrequently based only on academic readiness or ability to pay for college. While these factors do play an important part in student choices, student interactions with the institution as a whole and the meaning a student ascribes to those interactions determine the student's likelihood to depart from an institution (Braxton, Hirschy, & McClendon, 2011; Everett, 2015; Hlinka, 2017). Examining predictive variables rooted in ruralism and influenced by Tinto's (1993) institutional departure theory may help leaders craft integration and retention strategies for rural students more effectively than the current practice of relying on national trend data as a starting point.

**National Persistence Challenges**

Community colleges typically represent inclusive, open access institutions of higher education, providing introductory level courses for transfer programs, training and development for local businesses and industries, remedial education and engaging in community service and economic development (Cohen, Brawer, & Kisker, 2014).

Community colleges are fundamentally differerent from 4-year institutions in their admissions policies (American Association of Community Colleges, 2015). Where 4-year institutions have admissions requirements typically involving high school grade point average, class standing, and standardized test scores, 2-year institutions admit students through open access philosophies, accepting students from all points on the academic spectrum (Cohen et al., 2014; Seidman, Astin, & Berger, 2012). As a result, 2-year institutions face greater persistence challenges. One half to one third of students enrolled in community colleges in the United States require remediation in math or require developmental reading instruction, respectively (Fong et al., 2018; Mellow & Heelan, 2014). While many students complete coursework at the 2-year level, 31% of students depart without a degree after 3 years of enrollment (NCES, 2014). Additionally, even after implementing initiatives to increase persistence to completion (Kanter, 2011), statistics continue to demonstrate low rates of transfer to 4-year institutions (Monaghan & Attewell, 2015; Wang, Chan, Soffa & Nachman, 2017). Nationally, approximately one third of 2-year college students earn appropriate credentials within 6 years (Fong et al., 2018).

To combat lagging persistence and completion rates, the American Association of Community Colleges has demonstrated support for efforts designed to increase completion, specifically through increased degrees and certificates (Boggs, 2011; McPhail, 2011). Federal agencies, including the U.S. Department of Education (2015) and the U.S. Department of Labor developed grant competitions in a concerted effort to increase completion rates (Collins, 2014). State funding formulas, as noted above, shifted

to completion, or PBF formulas (Friedel et al., 2013; Kisker, Cohen, & Wagoner, 2010), allocating portions of necessary funding for community colleges based on degrees and certificates awarded at that institution. CCA (2014), a collaborative alliance of state governors, provided backing for PBF models, further shifting funding away from enrollment. Each of these initiatives designed to increase completion (Kanter, 2011) were founded in research concerning urban-based assumptions and data from urban place-frames (Henley & Roberts, 2016; Lichter & Brown, 2014).

**RFCC Persistence Challenges**

RFCC experiences many of the challenges to persistence that community college students nationally experience. Only 30% of RFCC students graduate (NCES, 2017). An additional 23% of students transfer out of RFCC before completing a program of study (NCES, 2017), which does not qualify as completion in the institution's state. Furthermore, 39% of students who began classes in 2011 took more than twice as long as the acceptable time to completion, or 150% of the estimated time to completion for the program (NCES, 2017). All of these statistics are comparable with national community college statistics; however, RFCC has unique characteristics that do not align with national trend data.

While Crosta (2014) reported that very few students at community colleges maintain full-time status or follow traditional enrollment paths for transfer, 61% of students at RFCC are full-time students and the institution awards associate degrees over certificates at a rate of almost 10 to 1 (NCES, 2017). Transfer out rates for first-time education benefit users for service members and veterans is 50% (NCES, 2017).

Additionally, 120 students receive the full cost of attendance assistance through athletic scholarships (NCES, 2017), and according to the RFCC athletic director, over 65% of student athletes complete a degree and transfer to 4-year institutions. The RFCC president suggested that because the overall structure of RFCC is atypical of a community college in the United States, national trend data may not be sufficient to use as a starting place for interventions designed to improve an above average persistence rate. But, as the president stated, "there is no data for our type of institution," suggesting that the lack of national level data about institutions that are similar to RFCC force community colleges, and especially RFCC, to use national trend data, which come from urban perspectives and may have little in common with RFCC students or practices (Henley & Roberts, 2016).

In addition to the traditional pressures for students to depart early from RFCC, the local economy and culture contribute unique variables that affect persistence for students. Rural and micropolitan areas have led the nation in population and income growth (Haggerty, Haggerty, Rasker, & Gude, 2014), providing immediate economic incentive for students who depart early from RFCC. The area offers both rapid growth in extractive industries, including high paying jobs for high school graduates (Haggerty et al., 2014) as well as a rich tradition in agricultural development and tourism (Schuhmann & Skopek, 2016), primarily owned and operated by family dynasties who have employment and familial expectations for college students in the service area. Because the state has a job growth close to 30% since 2001 (Schuhmann & Skopek, 2016), many students depart early for high paying jobs rather than persisting for a degree (Haggerty et al., 2014). Most

community colleges experience growth when the economy is down, but since RFCC is in a state that does not experience the same economic fluctuations as the rest of the country (Schuhmann & Skopek, 2016), enrollment and persistence trends are almost opposite of what urban colleges experience, according to the RFCC dean of student learning.

The purpose of this study was to identify variables associated with academic integration that are predictive of student persistence in a small, residential community college in a rural or frontier setting where persistence represents continuous enrollment from the first to second year of study (see Castleman & Page, 2016). The study had two distinct parts: (a) identifying student place-frames variables that are predictive of academic integration in a small, residential community college in a rural, frontier setting and (b) identifying whether academic integration variables are predictive of persistence in the same higher education setting. The identification of predictive variables of persistence, including student effort, collaborative learning, active learning, and academic challenge, as well as their potential correlates, including rural place-frame demographics (Tinto, 1988) may better inform institutional leaders in rural settings about integration and retention strategies for students better than research designed to focus on nonrural community colleges.

## Definition of Terms

For the purpose of this study, the following definitions serve to clarify terminology used and to provide a shared frame of reference for terms that have multiple semantic applications. These definitions come from a current review of the literature and the outcomes of associated research.

*Academic integration*: A series of student behaviors in relationship to the institution of study, including contact with faculty members (both formal and informal), meeting with advisors, engaging in and completing coursework, use of institutional facilities including the library and advising center, use of Internet to access academic material, campus participation, and intent to transfer (Tinto, 1993; Wood, Newman, & Harris, 2015)

*Completion*: A degree, certificate, or other formal award conferred by an institution of higher education; graduation (Voigt & Hundrieser, 2008).

*Departure*: A student's exit from an institution before completion of the course of study as measured through qualification (Coates, 2014; Tinto, 1993).

*Performance-based funding (*PBF): Systems allocating some percentage of funding from the state budgets or line items on the basis of an institution's ability to demonstrate headway in improving student persistence and retention, progress, or completion of credentials, rather than enrollment (Altstadt, 2012).

*Persistence*: Continuous course enrollment of a particular student from term to term at the same institution (Tovar, 2015). For the purposes of this study, persistence measures enrollment from Year 1 to Year 2, using spring to fall semester enrollment.

*Place-frames*: Individual perspectives that frame perceptions of the interplay of place identity with political structure and the flexible socio-spatial positionalities, based on the space and place of individuals (Kruse et al., 2015; Low, 2016; Martin, 2013). Place-frames help define the ways in which individuals from particular geographical

locations, or spaces, frame issues that affect them based on relevant ethnographic experience and adaptability (Coburn, 2006).

*Retention*: The rate at which individuals return full-time to an institution, from term to term, until completion (Price & Tovar, 2014; Smith & Allen, 2014).

*Ruralism*: A pervasive form of discrimination in policy and practice based on assumptions about individuals occupying rural spaces (Bassett, 2002)

## Significance of the Study

Although there is significant research on retention theory, and specifically Tinto's (1988) theory of departure, much of that research is specific to the 4-year institution. Tinto (1993) discussed various factors leading to early student departure, including both internal and external influences and motivation. This theory discusses how these factors influence student decisions but does not take into account how a student's place-frame influences the factors. Additionally, the extant research addressing community colleges does little to take into account spatially inclusive elements of a student's background, or the place-frame of the student, which may contribute to persistence differently based on the student's point of origin. These elements have a significant influence on student decisions to persist or depart from institutions (Braxton et al., 2011). Even in studies about rural community colleges, institutions are sometimes grouped in a category titled "small and/or rural" (Foote, 2006), which are two inherently different designations (Foote, 2006; U.S. Census Bureau, 2010). Engaging in a study of persistence focused on integration at rural community colleges could have a significant influence on the nearly 20% of the national population that live in areas defined as rural and the 4% who live in

areas defined as frontier by the U.S. Census Bureau (2010). RFCC falls within the U.S. Census Bureau's definition for both rural and frontier.

In addition to having lower college completion rates than their 4-year counterparts, 2-year rural students are also more at risk to be low SES students (Iceland, 2013). Postsecondary education in America provides the greatest opportunity for social mobility, especially for underrepresented minority (URM) students and low SES populations (Rubin et al., 2014). Additionally, extreme social mobility, or moves from living in or near poverty to the middle class or higher, rely almost exclusively on completion of a degree in higher education and include different integration factors than moves made by students from other place-frames (Southgate et al., 2016). Better understanding persistence in rural 2-year institutions may lead to spatially inclusive policies, which may lead to greater persistence and increased graduation and matriculation rates of rural 2-year students, which could impact their lifelong earning potential and provide positive social change in rural communities.

**Academic Integration**

As the demand for greater accountability in higher education drives institutions to study issues of persistence and completion (Friedel et al., 2013; OPS, 2009), community colleges are turning to the Community College Survey of Student Engagement (CCSSE) to measure the frequency of educational practices that tend to positively affect the success of students in postsecondary education (Angell, 2009). Much of the focus on accountability has centered on the concept of student engagement as a measure of institutional effectiveness in improving student persistence through integration initiatives

(Nora, Crisp, & Matthews, 2011). Tinto's (1993) work on early departure established the framework for much of the existing persistence literature (Wood et al., 2015), identifying integration, intent to transfer, and use of services as the primary predictors of persistence for college students, especially in the first year of attendance. While Tinto's initial work creates a distinction between academic and social integration, indicating that both are necessary for persistence, more recent studies have suggested that in community colleges, academic and social constructs may not be distinct (Deil-Amen, 2011), and academic integration tends to lead to social integration for 2-year students (D'Amico, Dika, Elling, Algozzine, & Ginn, 2014). Using the CCSSE, Nora et al. (2011) identified a five-factor model of integration variables, four of which are specific to academic integration and all of which align with Tinto's integration theories. Highlighting student effort, collaborative learning, active learning, and academic challenge as the primary ways in which community college students participate in patterns of academic engagement (Nora et al., 2011) may demonstrate educational practices that lead to integration (Tinto, 2006). Examining the possible impact student place-frames have on the academic integration variables may provide information that allows institutional leaders the opportunity to make programmatic and policy changes that are beneficial for student learning and persistence.

**Institutional Profile Differences**

RFCC is unlike typical community colleges. Nationally, 3.3 million of the 7.9 million students enrolled in a 2-year institution are full-time, equating to approximately 42% of students enrolling full-time (Ma & Baum, 2016). The same study indicated that

full-time enrollment increased by only four percentage points between 2010 and 2014 (Ma & Baum, 2016). In contrast, RFCC, per the RFCC Institutional Research Office (RFCCIRO), has a greater percentage of full-time enrollment than part-time, and has since 2000, including the highest percentage of students taking between 15–20 credits of all state 2-year institutions. In 2015, 58% of students enrolled at RFCC were considered full-time students and that number improved to 61% in 2016 (NCES, 2017). According to the RFCC dean of extended campus and workforce, unlike other community colleges, RFCC does not provide specific programming outside of the 8:00 am–5:00 pm academic model; night courses are offered, but certificate or degree programs offered in whole outside of the traditional academic day do not exist at RFCC. The fact that 65% of students in the state are enrolled in a 2-year institution (Ma & Baum, 2016) establishes a significant difference between RFCC and national 2-year institutional trends.

In addition to the difference in student enrollment status, RFCC is a residential 2-year institution, which is also a departure from most 2-year institutions. Per the RFCC director of housing, the campus has five residence halls and two apartment complexes, housing nearly 900 students. Nationwide, only about 300 2-year colleges have residence halls (Levin & Bohannon, 2013). Araujo and Murray (2010) found that on-campus residency has an immediate and positive effect on academic performance. Living on campus potentially changes integration opportunities for students, creating a different set of variables contributing to persistence. Conducting a study concerning persistence at RFCC may provide information specific to the unique campus and student structure, providing additional possibilities for new persistence initiatives.

**Accreditation**

Like all institutions of higher education, RFCC is obligated to report retention and

completion data to the agency that grants accreditation for the institution. Institutions are

required to report accurate and reliable data to demonstrate student retention, attrition,

and expectations, reported as outcomes (Phillips & Horowitz, 2013). The metrics used to

collect and report data are determined by institution, but accrediting agencies require

information about student learning and services, as provided by the institution, that

increase student learning (The Higher Learning Commission, 2015). RFCC must be able

to demonstrate that the services provided to increase student learning align with the

students' needs of the institution rather than the interventions implemented based on

national trend data that may not be relevant to RFCC students.

**Educational Place-Frames**

When then President Obama declared that community colleges had an important

role to play in the recovery and sustainability of the economy (Fain, 2013) and issued the

challenge to increase the total number of 2-year graduates by 2020 (OPS, 2009), colleges

raced to increase enrollments. Because most 2-year institutions, including RFCC, are

open enrollment institutions, increasing enrollment is a challenge (Crisp & Delgado,

2014). Rather, institutions must shift efforts to increase persistence and completion rates

(Berger, Blanco Ramirez, & Lyons, 2012) of students who are often first generation

college students (Garcia, 2010); may come from low SES families (Iceland, 2013); may

belong to URM groups (Rubin et al., 2014); and may need remediation to achieve college

readiness (Mellow & Heelan, 2014). However, much of the research concerning

educational backgrounds and skills of students that impact persistence and completion, or

a student's educational place-frame, has largely concentrated on the 4-year institution in

urban studies (Mertes & Hoover, 2014). When data are specific to community colleges,

frequently the data comes from urban perspectives, focusing on California, where the

highest concentration of community colleges exists (California Community College

Chancellor's Office, 2019). From the urban perspective, it is assumed that most students

entering a 2-year institution begin with an intent to transfer (Bailey, Jaggars, & Jenkins,

2015; Wang et al., 2017) but that may not be the case for rural students enrolling in 2-

year institutions (Hlinka, 2017). Data specific to RFCC could be used to better

understand how place-frames of students may influence integration and persistence.

**Demographic Place-Frames**

Unlike much of rural America, the service area for RFCC experienced population

and economic growth in the past several years (Haggerty et al., 2014; Schuhmann &

Skopek, 2016). In other rural areas, communities have seen significant social,

demographic, and economic shifts (Petrin, Schafft, & Meece, 2014). These trends impact

the residential aspiration of rural youth, who frequently elect to migrate away from their

rural place of origin to seek employment or alternative lifestyles (Petrin et al., 2014). This

phenomenon, referred to as rural outmigration, most frequently involves young adults

who are better educated and have more training than their counterparts (Brown & Schafft,

2011). RFCC does experience youth outmigration, but because of the differences in

economic opportunities, young adults who choose not to attend institutions of higher

education are more likely to obtain revenue positive jobs within the area, minimizing

outmigration in the RFCC service area (Schuhmann & Skopek, 2016). Although rural life is characterized by geographic isolation, rural place-frames also contribute to connectedness, personal relationships, familial and community expectations, and self-sufficiency that contribute to a belief for rural youth that living close to family is important (Burnell, 2003). Conversely, rural youth also understand that they may have to leave their communities to fully develop their talents, creating a conflict between academic interests and place-frame interests (Petrin et al., 2014). Place-frame interests, including community satisfaction and family connections, were exhibited at higher levels in high-achieving rural students, who were no more likely to express a desire to outmigrate than their lesser achieving peers (Petrin et al., 2014).

Socio-cultural differences, including changes in residential location and parental levels of education, differ significantly between individuals from different place-frames, possibly requiring different integration approaches for various students (Wilson, Greenacre, Pignata, & Winefield, 2016). Different groups of students experience college and integrate in different ways, making a one-size fits all approach to integration and persistence efforts nonsensical (Quaye & Harper, 2014). While rural high-achieving students are more likely to remain close to home and attend community colleges (Petrin et al., 2014), students with urban place-frames tend to require more remediation and demonstrate a greater need for participation in learning communities and faculty-student interactions than their rural peers (Wood & Ireland, 2014). Understanding the differences in urban and rural learners could create an opportunity to develop significantly better integration practices for students attending RFCC.

**Research Questions and Hypotheses**

The RFCC president stated that while there are no nationally published data about institutions like RFCC, the college collects various types of data from individual divisions and departments, both as course specific data and as institutional data. However, the collected data are not used to define institutional trends or instigate programmatic or policy changes, according to the RFCC dean of student learning. Without using the specific institutional data set to guide institutional programmatic changes, readily accessible national data concerning community colleges in America serves as the foundation for implementation of academic interventions and programmatic changes (Petrin et al., 2014). For many 2-year institutions, these data sets come from the CCSSE, which is the only national survey instrument used to collect integration data for community college students (Angell, 2009; Marti, 2004; Nora et al., 2011).

Much of the prevailing attitude about rural education is concerned with providing skills that will allow rural students to assimilate into urban areas rather than investigating the best practices to help these students persist and complete in their rural locale of choice (Petrin et al., 2014). Ruralism literature paints a picture of students as being uneducated and unsophisticated (Bassett, 2002), marginalizing rural dwellers. These practices entrench ruralism, or a pervasive form of discrimination in policy and practice, which is largely unrecognized and unexamined (Bassett, 2002). This de facto ruralism practice makes it more convenient for leaders at 2-year institutions to rely on either 4-year trend data with an urban focus (Hatch & Garcia, 2017), or to use national CCSSE

averages to develop programmatic interventions for persistence at 2-year institutions,

rather than using localized data and persistence initiatives (Schafft, 2016; Xu, 2017).

Tinto (1993) identified several variables that affect a student's integration and

persistence at an institution. Conducting persistence research with a specific focus on

rural, 2-year students using Tinto's (1988) institutional departure theory may provide

specific data about academic integration variables derived from CCSSE factor scores and

spatially inclusive place-frame variables (Coburn, 2006) to better understand the specific

needs of students in these institutions.

In this study, I recorded academic integration variables as CCSSE factor scores,

including student effort, active learning, collaborative learning, and academic challenge,

and are interval level variables. Place-frame variables, including intent to transfer and sex

factors, were coded as binary variables. The CCSSE treats age, the third place-frame

variable, as an ordinal level variable. Persistence, as an outcome variable, was measured

by using the RFCCIRO to link student identification numbers on CCSSE surveys to

identify student place of origins, then removing the identifiers from the data set. Because

there are some nonrural students at RFCC, it was necessary to use this linking process to

provide a binary-coded variable value for students with a rural-based or nonrural-based

place-frame, allowing for the ability to sort out the nonurban place-frame student data.

Examining whether spatial variables influence integration and persistence could

potentially begin to change perceptual stereotypes by encouraging rural institutional

leaders to adopt persistence strategies that better align with the needs and characteristics

of their students, based, in part, on the student's place of origin. Therefore, I developed the following research questions and hypotheses to guide this study:

Research Question 1: For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable student effort?

$H_01$: There is no predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable student effort.

$H_a1$: There is a predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable student effort.

Research Question 2: For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable collaborative learning?

$H_02$: There is no predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable collaborative learning.

$H_a2$: There is a predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable collaborative learning.

Research Question 3: For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable active learning?

$H_0$3: There is no predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable active learning.

$H_a$3: There is a predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable active learning.

Research Question 4: For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable academic challenge?

$H_0$4: There is no predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable academic challenge.

$H_a$4: There is a predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable academic challenge.

Research Question 5: What is the predictive relationship between CCSSE integration variables, including student effort, collaborative learning, active learning, and academic challenge, and student persistence at RFCC for students with a rural place of origin?

$H_0$5: There is no predictive relationship between CCSSE integration variables, including student effort, collaborative learning, active learning, and academic challenge, and student persistence at RFCC for students with a rural place of origin.

$H_a$5: There is a predictive relationship between CCSSE integration variables, including student effort, collaborative learning, active learning, and academic challenge, and student persistence at RFCC for students with a rural place of origin.

Using CCSSE responses from students with a rural place-frame, each research question aligned with the problem of a need for significant research about how rural variables influence persistence of students in rural community colleges. Tinto (1993) argued that integration was necessary for student persistence from the first to second year and identified several academic integration variables as key integration behaviors. In this study, my use of regressive demographic place-frame data to determine which predictive variables of rural place-frames potentially influence persistence of students at rural 2-year institutions goes beyond Tinto's (1993) findings, which determined that integration was critical for persistence, and engaged with the idea that persistence initiatives and efforts should be localized to the institution (see Xu, 2017). For the purpose of this study, the academic integration variables considered were student effort, active learning, collaborative learning, and academic challenge.

With Research Questions 1–4, I sought to determine the predictive relationship of place-frame variables to CCSSE measures of academic integration for students at RFCC

with a rural place-frame. With Research Question 5, I sought to determine the predictive relationship of the CCSSE measures of academic integration for RFCC students with a rural place-frame to persistence. While student effort, collaborative learning, active learning, academic challenge, intent to transfer, student age, and student sex data came primarily from the CCSSE instrument, place-frame data, specifically place of origin data, came from institutional archival data. Understanding potential predictive relationships between the rural place-frames of students and integration behaviors could help identify differences in rural student persistence behaviors, as measured by the CCSSE, and nonrural, national trend data concerning student persistence behaviors. If predictive relationships emerge, institutional leaders can tailor persistence interventions and programming to potentially better meet the needs of students at RFCC.

## Review of the Literature

I located literature for this study from a comprehensive search of scholarly articles using the Walden University Library, the RFCC Library, Google Scholar, and additional outside online libraries. Using Academic Search Complete, EBSCOhost, Education Search Complete, ERIC, ProQuest, and the ProQuest Digital Dissertation databases, Boolean searches of peer-reviewed and non-peer-reviewed sources published in the past 5 years were conducted. The key words and phrases used to search for materials for the literature review included *academic early withdrawal, academic integration*, *college completion*, *community college completion*, *community college persistence, completion, departure, outmigration,  persistence, place-frames, political-spatial power, retention, rural, ruralism, rurality, social integration, spatial inclusivity, stopout behavior, Tinto's*

*(1993) institutional departure theory, underrepresented minority students, urban,* and *urbanism.* In some cases, materials published more than 5 years ago were used to enhance understanding of theories, concepts, and the problem presented in the study, especially given the small amount of research on rurality in persistence.

## Theoretical Framework

For the purposes of this study, I conducted a review of literature grounded in Tinto's (1993) institutional departure theory and concerning persistence, integration, and completion strategies and practices at higher education institutions. The use of ruralism theory (Bassett, 2002) and research, rooted in social representations theory (Halfacree, 1993; Moscovici, 1984), helped to identify gaps in practice between persistence strategies on the national level and persistence needs on the local, rural level at RFCC. An application of each theoretical approach to the research questions is included in the review of each framework.

### Academic Integration and Persistence

Any discussion of persistence in higher education includes seminal works by Tinto (1975, 1993, 2010, 2012), which include discussions about factors that influence institutional persistence and departure (Deil-Amen, 2011; Petrin et al., 2014; Price & Tovar, 2014). Tinto's (1988) model of institutional departure discussed persistence as a student's academic and social interactions with an institution over multiple semesters or years, focusing on early withdrawal behavior. In the model, higher education institutions consist of two systems: an academic system and a social system (Tinto, 1993). Adjustment and persistence for students is determined by their ability to integrate

academically and socially into the institutional systems (Meeuwisse et al., 2010; Tinto, 1993; Xu, 2017). In much of his work, Tinto (1993) focused on longitudinal data, developed into a model of institutional departure focused on student persistence of traditionally aged students at 4-year institutions (Stewart, Lim, & Kim, 2015). Initially, Tinto (1975) identified three stages of social development that students progress through when attending college as first-time students: (a) the separation stage, (b) the transition stage, and (c) the incorporation stage. Most of the research concerning persistence and institutional departure focuses on the third stage, incorporation, commonly referred to as integration (Braxton et al., 2000; Guiffrida, 2006; Petrin et al., 2014; Price & Tovar, 2014; Tinto, 1993). Tinto (1993, 2006) argued that integration was especially important in the first year of college, including all of the stages of transition associated with that first, critical year.

In integration theories, authors have suggested that students who form relational connections with the institution through a variety of integration behaviors, both academic and social, are more likely to persist and complete, and those who do not are more likely to depart (Pascarella & Chapman, 1983; Tinto, 1993). Additionally, 2-year students who persist and transfer vertically to a 4-year institution have on-time completion rates similar to native 4-year students at the transfer institution, highlighting the importance of integration early in the education process (Xu, Jaggars, Fletcher, & Fink, 2018). Academic integration is characterized by formalized behaviors, including academic behaviors and achievements, and compliance with academic norms and expectations as well as informal integration, including interaction with peers and faculty members in

academic and nonacademic interactions outside the classroom (Tinto, 1993; Xu, 2017).

Social integration includes formal and informal ties between student personal beliefs,

values, and interests and the social atmosphere of the institution, which may include

involvement in cocurricular or extracurricular activities and connections with peers

(Barbatis, 2010; Bers & Schuetz, 2014; Tinto, 1993; Xu, 2017). When student retention

made its debut in academic literature, attrition was seen as an indication of shortcomings

in the student's attributes, skills, and motivation, and was not necessarily viewed as a loss

for the institution (Berger et al., 2012; Tinto, 2006). As institutional funding,

accreditation, and support became more closely tied to persistence and completion

(Altstadt, 2012; Friedel et al., 2013), the focus shifted from student failure to institutional

failure.

While developing the institutional departure theory, Tinto (1993) sought to isolate

student and institutional variables that increased the likelihood of persistence and/or early

departure in higher education. In the context of the original theory, integration was

considered complete when students replaced their old community support system with

the new community of their educational institution (Guiffrida, 2006), arguing that

students who were more integrated felt greater connection to the institution and also

greater value in themselves, increasing their likelihood of persistence (Barbatis, 2010).

Much of the existing research connecting student behaviors to persistence behaviors is

centered on demographic and socioeconomic characteristics (Martin, Galentino, &

Townsend, 2014) but does not take into account how student place-frames influence

personality traits or how those traits influence persistence behaviors (Reason, 2009).

Entry-level student characteristics that potentially influence persistence include cultural capital and college plans, which are typically derived from student place-frames before campus integration begins (Barbatis, 2010; Habley et al., 2012). This is especially true for students from rural place-frames, where community and familial responsibilities and pressures shape college expectations (Burnell, 2003; Petrin et al., 2014). Cultural capital influences persistence through cultural self-identification (Barbatis, 2010; Wang et al., 2017), which, for high-achieving rural students, includes community satisfaction and family connections (Petrin et al., 2014), making it unlikely that students from rural place-frames would be willing to incorporate in the ways Tinto suggested are necessary for persistence. College plans, including intent to transfer, are also largely influenced by place-frames for community college students; Martin et al. (2014) argued that college intentions are shaped through community and family encouragement of students to have specific collegiate goals, confidence building discourse, and instruction to navigate the application and enrollment processes. Deil-Amen (2011) suggested that for the community college student, socio-academic integration, or academic integration, which leads to social integration, is more likely than separation, transition, and incorporation (Tinto, 1993).

In response to the early research concerning persistence, institutions rushed to provide a range of services and programming that might enrich the first year experience for students (Tinto, 2006, 2010), including expanded and extended orientation programs, first year experience seminars, and extracurricular activities (Upcraft, Gardner, & Barefoot, 2005). Institutions shifted finances from buildings and cosmetic campus

improvements to student success initiatives and practices (Smith, Baldwin, & Schmidt, 2015). Student success centers saw an uptick in staffing and programming in an attempt to provide more holistic approaches to improving student retention (Smith et al., 2015), and physical spaces were created to house student success centers that could measure and track factors that influence student retention (Seidman et al., 2012). Nationwide, community colleges committed to improving retention and increasing completion rates, making completion part of institutions' strategic plan and using data to drive persistence strategies (McPhail, 2011). In many cases, the data used for community colleges are data collected using the CCSSE (Marti, 2004), creating a national data set that includes all community colleges, regardless of their geographic location or institution type (Angell, 2009; Marti, 2008).

Despite significant efforts and research on student retention, 6 out of 10 students who begin a degree program do not complete the program within 6 years of enrollment at a specific institution (Tinto, 2010; Voigt & Hundrieser, 2008; Wilson, 2016; Xu, 2017). Multiple studies have been conducted to better understand and predict patterns of early departure of students (e.g., Braxton & Hirschy, 2005; Pascarella & Terenzini, 2005; Stuart, Rios-Aguilar, & Deil-Amen, 2014; Tinto, 1993; Wilson et al., 2016), and institutional leaders invest large amounts of time and resources into programs that are informed, and often guided by, Tinto's work (Turner & Thompson, 2014). Because many institutions view first year student retention as a critical piece of the academic and financial sustainability of the institution (Tinto, 2010), institutions continue to develop and implement programs to increase persistence and retention of these students (Turner &

Thompson, 2014) in all institution types. While agreeing that integration may lead to increased persistence, Braxton et al. (2011) demonstrated that Tinto's model does not fit nontraditional institution types, including community colleges. Although integration practices may be different for students at 2-year institutions, funding strategies and practices at 2-year institutions are becoming more closely tied to completion and student success (Friedel et al., 2013), just as they are in 4-year institutions (Altstadt, 2012). By 1999, 30 states employed some form of PBF for institutions of higher education, and 19 states now use some method of performance funding models for community colleges (D'Amico et al., 2014). In general, in institutions of higher education, distribution of funding has aligned with a greater emphasis on performance outputs, including persistence, retention, and completion, rather than process indicators, including headcount and full-time equivalent (CCA, 2014; D'Amico et al., 2014; Friedel et al., 2013).

As the national focus on student persistence sharpens, community colleges struggle to find the best practices to increase retention (McPhail, 2011). The CCSSE survey provides data to analyze benchmarks of student engagement to advise institutional leaders about engagement patterns of students institutionally and nationally (Angell, 2009). The validity of the CCSSE benchmarks has been challenged, questioning the reliability of the benchmark structure (Angell, 2009; Nora et al., 2011). This skepticism led to CCSSE factor analysis studies (Angell, 2009; Marti, 2004; Nora at al., 2011), resulting in the five-factor model, with four factors focused on academic integration, identifying collaborative learning, active learning, academic challenge, and student effort,

as the academic integration behaviors likely to increase academic success (Nora et al., 2011). CCSSE (2017) argued that the more interaction students have with college faculty and staff, other students, and their course work, the more likely they are to succeed in achieving their academic goals. This philosophy, heavily based on Chickering and Gamson's (1987) *Seven Principles of Good Practice in Undergraduate Education*, highlights collaboration, academic challenge, active learning, and student effort as measures of student engagement (Nora et al., 2011). The CCSSE was created to measure how often students participated in integration activities related to the Chickering and Gamson principles in an effort to suggest areas of concern for administrators seeking to increase persistence (Nora et al., 2011)

Even as persistence continues to be a priority, there is uncertainty about the generalization of findings in persistence literature to distinct institutions (Xu, 2017). Initial theories for early student departure included academic incompetence, temporary stop-out, transfer, and voluntary dropout (Xu, 2017), which was originally seen as a consequence of student place-frames, including demographic background (Kuh et al., 2006). As studies continued and theories developed, the role of the institution in student persistence has become a greater focus (Pascarella & Terenzini, 2005; Tinto, 2006) as have external factors, including finance, motivation, and end goals of students (Xu, 2017). More recently, student integration continues to be the central focus of programmatic initiatives designed to engage students (Xu, 2017), and students are primarily tasked with engaging themselves through initiatives that may or may not increase their integration probability (Harper & Quaye, 2013). While having been tested

numerous times in various studies, Tinto's (1993) model has not gained universal or empirical support (Hurtado et al., 2007; Kuh et al., 2006; Meeuwisse et al., 2010; Pascarella & Terenzini, 2005; Tinto, 2010; Xu, 2017), largely because it failed to include factors external to the institution that potentially affect integration. This may suggest that institutional leaders may want to consider place-specific elements that contribute to student early withdrawal in the context of their institution before investing resources in programs designed externally to affect persistence (Xu, 2017). Tinto's (2010) research was built mostly using data about students who attended traditional 4-year universities (Hlinka, 2017), generating some argument that this integration theory may not be able to include students coming from various subcultures, including rural community college students (Hlinka, 2017). Using localized institutional data to appropriately self-evaluate the specific place-frame variables that may contribute to integration and persistence (Schafft, 2016; Xu, 2017) could provide significant insight for rural community college leaders as they move forward with persistence initiatives.

**Ruralism**

Ruralism is the long-standing, pervasive, and often ignored form of discrimination against rural dwellers fueled by an urban focus of leaders, businesses, educators, and common citizens (Bassett, 2002). Ruralism is largely rooted in the theory of social representations (Moscovici, 1976, 1981, 1984), which describes how populations comprehend and share the experiences created by the social and physical environments they belong to and engage with (Halfacree, 1993). Social representation theory (SRT) argued that constitutive phenomenology, or the lens through which an individual views

the world, also called a place-frame, is based on their everyday realities, including their physical space (Halfacree, 1993; Schutz, 1970). The theory rejects the idea that behavior follows a predictive, systemic path, relegating understanding to only information processing (Halfacree, 1993). Rather, SRT suggests that individuals use social representations and interactions to manage the complexity of stimuli in the social world, creating the reality in which they function (Halfacree, 1993; Moscovici, 1984). Because the use of social representations takes place in a changing world, the theory is dynamic and ever-changing based on new circumstances, current and past interactions, and recalled situational management on the part of an individual (Halfacree, 1993).

Social representations of space allow individuals, organizations, and governments an expression of a shared understanding of the spatial reality (Shields, 1991), creating a type of shorthand discourse which conveys an association of meaning without having consensus about literal meaning (Halfacree, 1993). Hence, the idea of rural can be discussed in various settings where literal definitions differ, but where a general acceptance exists even though the precise structure of rurality is actually a combination of personal experience and traditional ideas presented in literature, the media, the state, organizations, and individuals' descriptions (Halfacree, 1993). As a result, rural spaces are often associated with agrarian lifestyles, outmigration, and an aging population that is rooted in traditional values (Bassett, 2002). This vision of rural spaces allows those in nonrural spaces to perpetuate the belief that rural spaces are isolated from the national and global processes that affect them and are instead reliant on the proximate urban areas and leaders for continued existence and prosperity (Hedberg & Do Carmo, 2012). Policy

makers and institutional leaders tend to ignore rural spaces, thinking of them as a separate

entity to be helped by nonrural entities, which are always seen as superior (Halfacree,

1993).

Geographers demonstrate how landscapes are the fundamental component of the

process of radicalization and codification (Bonds & Inwood, 2016), or control through

legislation. Bonds and Inwood (2016) argued that social-spatial state control created a

particular way of ordering and valuing elements of life in the space. In the last quarter

century significant changes in rural areas, including social, economic, and demographic

changes, have contributed to the overall value of rural spaces and the people who live in

them (Petrin et al., 2014). Industrialization and urbanization have traditionally been

viewed as by-products of the goals of the state (Eckstein, 2014), and because rural

geographical space and its populace served little immediate special interest aside from

agrarian production, policies that govern that space and its populations are often by-

products of urban policies (Boyadzhiev & Veselinova, 2015). As profit margins from

agriculture and extraction industries shrink, partially as a result of increased globalization

(Fleming & Grace, 2014), the value of the rural space is diminished. The success and

development of a society is traditionally measured by its industrialization and

urbanization (Boyadzhiev & Veselinova, 2015). As such, the wellbeing of rural spaces is

inextricably linked with the prosperity of urban areas (Carr & Kefalas, 2009; Hedberg &

Do Carmo, 2012).

Education leaders and educational policymaking processes appear to engage in

the same assumption that all behavior follows a predictive, systemic path (Halfacree,

1993; Koricich, Chen, & Hughes, 2018), rooted in the needs and assumptions of the urban lens (Bassett, 2002). Rather, using an SRT approach to better understand the students at rural community colleges through an evaluation of predictive relationships between rural place-frame variables and academic integration and persistence, may suggest alternative, place-specific strategies for rural community colleges (Fong et al., 2018; Roberts, 2017).

## Critical Review of Literature

A critical review of the literature for this study focused on areas of persistence and ruralism that contributed to integration strategies at rural community colleges. The review first examines integration theory as it pertains to community colleges, evaluates the root causes of ruralism and urban-focused educational policies, discusses student rurality and finally discusses the implications of these areas on community college persistence programming. A summary of the review of literature is included.

### Integration and the Community College

Tinto (1993) acknowledged that student backgrounds and goals influenced college performance, and focused significant attention on the student's socioeconomic position as his model developed. Tinto (1993) suggested that elements of departure theory could affect students from any background, at any institution, but integration variables were specific to 4-year institutions (D'Amico, Dika et al., 2014; Deil-Amen, 2011; Hatch & Garcia, 2017). Additionally, Tinto (2010) argued that students who entered 2-year institutions rather than 4-year institutions reduced their prospect of

completing a 4-year degree, even though approximately 40% of students in higher education are enrolled at 2-year institutions (Shapiro et al., 2014).

The use of Tinto's theory in the 2-year setting has become prevalent (D'Amico, Dika et al., 2014; Deil-Amen, 2011; Tinto, 2010), even if his early works may not specifically apply to the students in those settings (Deil-Amen, 2011; Hatch & Garcia, 2017). D'Amico, Dika et al. (2014) questioned the relevance of Tinto's model for community college students, suggesting that perhaps community college administrations should examine new ways of thinking about the theory as it related to 2-year institutions and students. Cohen and Kelly (2019) further argued that the importance of integration, and specifically academic integration, needs to be measured differently for community college students. It is during the separation stage that Tinto (1975) suggested that students separate from their historical support groups, including their former educational institutions, families and communities in order to integrate into their new institution and community. Studies concerning community college students seem to assume that students do not socially integrate, primarily because their social outlets are outside of their institution (Chapman & Pascarella, 1983; D'Amico, Dika et al., 2014; Tinto, 1993). Rural students, however, may not integrate or separate in ways similar to urban students (Burnell, 2003; Guiffrida, 2006; Petrin et al., 2014; Tinto, 2010), especially when they attend rural institutions (Quaye & Harper, 2014). Many of the integration patterns of interaction and engagement between the student and the institution that delineate integration (Tinto, 1993) are fundamentally different at the rural community college level, including rural teaching practices (Howley, Johnson, Passa, & Uekawa, 2014;

Tinto, 2006), differentiated residential experiences (Deil-Amen, 2011); family and employment expectations (Stuart et al., 2014); geographical factors (Bassett, 2002); and rural financial considerations (Henley & Roberts, 2016). Although Tinto (1993) identifies variance in student integration based on ethnicity, sex, age, social status, and institution type and size, rurality is not discussed as a factor or variable in institutional departure theory.

Chapman and Pascarella (1983) furthered the investigations of departure, looking at institution type to better understand the relevance of social and academic integration at different institution types, specifically community colleges. Tinto (2006, 2010) argued in later works that the student's ability to stay connected to their place of origin is essential to their persistence. This difference in the separation stage may also affect the transition and incorporation stages, creating a different set of strategies and outcomes for integration for rural place-frame students in higher education (Braxton et al., 2000; D'Amico, Dika et al., 2014; Wilson et al., 2016). Tinto (1975) considered students incorporated when the new institution became the primary support system for the student both academically and socially. Guiffrida (2006), using Tinto's (1993) theory of student departure, added familial support as a component of integration. While family background and community characteristics are counted in the model, the focus of those variables centered on finances and race/ethnicity (Tinto, 1993), not variables of rurality. Although Guiffrida (2006) focused primarily on URM students, integration variables involving family can be applied to rural students as well, and for many of the same reasons (Fong et al., 2018; Garcia, 2010; Iceland, 2013; Pascarella & Terenzini, 2005).

When familial support is not removed in the integration process, academic integration may become more important for rural students than social integration for persistence and completion (Tinto, 2006).

McClenney and Waiwaiole (2005) reported that academic integration factors, including learning communities and connections to faculty, significantly influence student retention at the community college level. Academic integration became more important to the persistence process when Tinto (2010) recognized that in-class interactions with faculty members might be the only opportunities for some students to interact with other students or faculty, increasing the necessity for academic integration. Academic integration via engagement with faculty members in academic settings improved outcomes for community college students, both short and long term, more than social integration (Schudde, 2019). Further, Tinto (2006) shifted from promoting social integration strategies for institutions to academic integration, specifically classroom practice and faculty and staff development, which may more directly influence the persistence of students (Braxton et al., 2000). Deil-Amen (2011) furthered this argument, suggesting that much of a student's social integration begins in the academic realm, demonstrating an amalgam of the two.

**Root Cause: Institutional Aspirations**

The aspirations of the institution also play a role in the value placed on rurality. Tuchman (2009) discussed the intentional distance some administrations put between themselves and the ideas of rural; marketing and selling schools as more than and better than the ideas associated with rural colleges (Cook, 2014). In a never-ending quest for

higher enrollment, institutions want to indemnify their sameness with nonrural

institutions (Tuchman, 2009), undermining the very things that make rural institutions

unique and impressive (Cook, 2014). Because learning communities and connections to

faculty are important for persistence of community college students (Hlinka, 2017;

McClenney & Waiwaiole, 2005), imitating larger, urban, 4-year institutions may not be a

best practice for rural community colleges (Lichter & Brown, 2014). Using urban

research from traditional, 4-year institutions for persistence modeling may have little

relevance to rural community colleges (Crisp & Delgado, 2014; Hlinka et al., 2015).

CCSSE benchmarks are used to measure effective educational practices in community

colleges, which highlight active and collaborative learning, academic challenge and

student effort (Nora et al., 2011), which may not be the focus of urban, 4-year

institutions.

Additionally, along with 4-year institutions, community colleges in rural spaces

are adopting the philosophy that education is a business, and students are consumers

(Johnson, Becker, Estrada & Freeman, 2014; Newman, Couturier, & Scurry, 2004;

Schafft, 2016), shifting the focus from student learning to the market value of education

(Miao, 2012; Schafft, 2016). Add to this aspirational lens the burdens of state and

national performance standards required to secure variable funding (Friedel et al., 2013),

and the goals and strategic aims of the institution, which have been adopted from an

urban perspective, may not align with best educational practices for rural institutions

(Schafft, 2016). This philosophy leads to the adoption of centralized curriculum and

programming without concern for place-based need or resources, especially in rural

spaces (Schafft, 2016), where student persistence is reduced to a representation of measuring accountability demands in the business model (Schafft, 2016; Schafft, Killen, & Morrissey, 2010). Students who chose small, rural institutions because they are small and offer a personal approach are finding that the educational model that was built on small class sizes and personability may no longer be a reality (Hlinka, 2017), eliminating opportunities for student-faculty collaboration, student-student collaboration, and active learning (McClenney, 2008).

Burnell (2003) highlighted the importance of connectedness and personal relationships, autonomy, self-reliance and rural identity grounded in location and connection to place as part of the rural student's place-frame. Studies in demography have long noted that out-migration of spaces tends to be highly selective, claiming that out-migrants are typically younger, with more education and training (Brown & Schafft, 2011). Overall, however, the data suggests that many young rural dwellers, especially academically high-achieving students, retain physical, emotional and intellectual ties to their home communities, and tend to be returners, bringing new skills sets and experiences back to their home communities (Allen et al., 2018; Schafft, 2016). Because their long-term plan includes returning to their rural community, often these students choose rural institutions, which are close to home, as their starting point for education (Hlinka et al., 2015). As governmental funding for higher education continues to shift to PBF models (Friedel et al., 2013), rural institutions are increasingly encouraged, often through threats to funding, to adopt national initiatives to increase persistence (Bers & Schuetz, 2014), even if they are not in the institution's best interest (Hlinka, 2017; Xu,

2017). Because understanding student persistence at the community college level is uniquely challenging (Hatch & Garcia, 2017), applying national trend initiatives to community colleges, especially in rural spaces, may not provide the best outcomes for institutions (Goldrick-Rab, 2010; Xu, 2017). Adopting urban-based national trends to increase persistence often takes precedence over addressing the real educational concerns of rural institutions, including isolation from specialized services, limited access to professional development (PD), high faculty turnover, teacher shortage, and poorly structured funding formulas (Allen et al., 2018). Failure to improve space-specific educational access in these places may result in the continued stagnation of national degree-attainment rates while the rest of the world experiences dramatic increases (Budge, 2010; Peters, 2012; Schafft, 2016).

**Root Cause: Urban Focus**

The urban focus of policymakers and leaders, which has contributed to the disadvantages experienced by rural dwellers as they attempt to access resources, including education, has led to specific stereotyping and discrimination in resource areas ranging from federal spending and programs to everyday interactions (Bassett, 2002). The urban focus, along with the ultimate reality of a more powerful urban majority, results in urbanized control of rural spaces through legislation and political-spatial power (Bonds & Inwood, 2016). The United States is home to approximately 60 million rural inhabitants (U.S. Census Bureau, 2010), all of which are impacted by policies produced and implemented by legislators living sometimes thousands of miles away, enmeshed in the urban focus of the country. Bassett (2002) argued that America's focus, programs,

culture and standards are all based on urban assumptions, which overshadows and

marginalizes rural dwellers. And, like other forms of discrimination, "ruralism reflects

the disparities in power between urban and rural dwellers" (Bassett, 2002, p. 22). In

short, as a result of their rural minority status, rural dwellers do not have equal

participation or voice in the implementation of policies and practices which impact their

lives and which are constructed by individuals with an urban place-frame (Halfacree,

1993; Schutz, 1970). Even regulations imposed equally, with respect to urban and rural

spaces, neglect the impact on rural spaces, people, and institutions in favor of the urban

focus (Bassett, 2002). However, aside from a few scholars who specialize in rural studies,

ruralism is a largely unrecognized social phenomenon (Bassett, 2002; Halfacree, 1993)

and is largely absent in educational research, especially in discussions about how urban

focused practices are applied to rural spaces and institutions (Schafft, 2016).

The U.S. Department of Agriculture (USDA), charged with spurring regional

rural innovation and economic development, includes statute-based definitions of rural

communities for the purposes of education policy implementation for community

colleges (Rural Community College Alliance, 2017). This example of urban policy

making for rural landscapes where education is concerned typifies instances of ruralism.

The relationship between rural education and the USDA took on a larger role in the

guidance of programming at rural colleges in 2008, when then President Obama formed

the White House Rural Council, headed by the U.S. secretaries of labor, education, and

agriculture, with the goal of allowing federal agencies to assist rural communities in

finding solutions to their biggest cultural, economic and educational problems (Boerner,

2015). These educational shifts resulted in changes to best practices of community colleges located in rural areas (Hlinka, 2017). Rather than focusing on small class sizes that encourages student-faculty collaboration and interactions (Chickering & Gamson, 1987), community colleges adopted a business model approach, shifting away from student learning and integration behaviors (Schafft, 2016). When students are viewed as consumers, integration behaviors, including student effort and academic challenge, may become secondary to completion as a means of securing variable funding (Johnson et al., 2014; Newman et al., 2004).

Unfortunately, increased globalization threatens to increase social divides based on class, wealth and participation in higher education (Fleming & Grace, 2014). Since many rural 2-year students are more likely to be first generation students from socioeconomically challenged families or communities (Rubin et al., 2014), institutional globalization efforts could have a direct effect on student successes. The idea of globalization is linked to the concept of placelessness (Ball & Lai, 2006), wherein institutions use globalization to implement policies and programmatic changes that have universal applications (Cook, 2014). Ultimately, the administrations in higher education find it easier to focus on urban-based globalization programming than to identify social-spatial needs of institutions (Allen et al., 2018; Cook, 2014). When urban policies are applied to rural spaces, it reinforces the value of urban over rural (Boyadzhiev & Veselinova, 2015). Vocational education and training is more common in rural high schools (Fleming & Grace, 2014), possibly with the ongoing aim of industrializing the space (Boerner, 2015). When education practices are based on urban assumptions, the

place-frame of the rural dweller and student is often missing (Hatch & Garcia, 2017),

creating a disconnect between policy and best practice. Globalization efforts in higher

education assume that student place-frames are unimportant (Fleming & Grace, 2014),

potentially devaluing academic integration practices, including student-faculty

collaboration and intent to transfer desires of students (Hatch & Garcia, 2017; Roberts,

2017). Consequently, local disadvantage may escalate in rural spaces based on poor

policy development and implementation as much as shrinking economy and outmigration

of the population (Petrin et al., 2014). Additionally, it allows administrations to further

the divide between rural places and placelessness, valuing the cosmopolitan emphasis of

globalization (Cook, 2014).

**Student Rurality**

For rural students, elements of rurality contribute to college enrollment and

persistence more than similar factors influence their nonrural peers (Howley et al.,2014).

Additionally, national trend data suggests that rural students sometimes face more

challenges integrating into college life than their nonrural peers (Roberts, 2017). National

research also cites under match, or the practice of high achieving students failing to enroll

in appropriately selective colleges and universities commensurate with their

demonstrated academic abilities (Hoxby & Avery, 2013), as a potential problem with

rural students (Freeman, 2017). None of these national causes for concern considers

student rurality as a catalyst for integration or persistence in rural community colleges

(Bassett, 2002; Tinto, 2012), prompting a study of predictive relationships between

rurality variables, including intent to transfer, age, and sex, and academic integration

variables, including collaborative learning, active learning, academic challenge, and student effort, as they relate to persistence. Rather than assessing the motivations and needs of the rural student, urban-focused persistence strategies assume an intent to transfer and a desire to assimilate into urban areas after receiving a college education (Petrin et al., 2014). Even when rural communities face challenges in economy and education that are comparable to urban areas, rural spaces and experiences are distinct enough to warrant different investigations, data sets and policy development (Freeman, 2017). College processes, including applications and enrollment (Deil-Amen, 2011), navigation of financial aid and payment (Braxton et al., 2011; Xu, 2017), class size and tutoring options (Freeman, 2017), and relative distance to communities of origin (Freeman, 2017; Petrin et al., 2014) all contribute significantly to the decision to select an institution for rural students (Freeman, 2017) as well as contribute to decision to persist or depart (Howley, Johnson et al., 2014; Rios-Aguilar & Deil-Amen, 2012). For students attending rural community colleges, a student's rural place-frame may cause students to break from the traditional reasons for choosing a college and persisting at a particular institution (Freeman, 2017; Lichter & Brown, 2014), necessitating research about rural students in rural institutions.

Although community college leaders have engaged in significant strategies to increase persistence (Kanter, 2011), rural students still earn degrees at a significantly lower rate than their nonrural peers (Fong et al., 2018; Monaghan & Attewell, 2015; Roberts, 2017), potentially because of the lack of rural focus (Bassett, 2002; Boggs, 2011). To combat this lag in persistence and completion, 2-year institutions have

implemented initiatives to increase degree and certificate attainment (Boggs, 2011,

McPhail, 2011) using research founded in urban based assumptions of student needs and

motivations (Henley & Roberts, 2016; Lichter & Brown, 2014; Roberts, 2017).

Unfortunately, there is a gap in the body of literature concerning relationships between

education policy and the distinctive needs of rural institutions (Roberts, 2017),

highlighting the lack of attention invested in the impact urban policies have on rural

students (Fong et al., 2018; Roberts, 2017). Institutional leaders that work with faculty to

change programs and curriculum, and work to maintain small class size, provide

opportunities for active learning and organize faculty development opportunities may

increase the likelihood of student persistence in rural community colleges (Xu, 2017).

These strategies engage several of the principles of good practice (Chickering & Gamson,

1987), including active and collaborative learning, academic challenge and student effort.

Additionally, leaders who engage in meaningful studies of their own students, rather than

relying on national trend data or urban focused studies, may be more effective in

identifying practical, effective, place-based interventions that may increase student

persistence in their specific settings (Roberts, 2017; Xu, 2017). Retention efforts should

be localized based on specifically identified needs of students attending an institution in

rural areas (Xu, 2017), warranting a study of the relationship between rurality and

persistence.

## Implications

Urban-focused  public policy and educational practices may have significantly

different goals, strategies and outcomes than rural education strategies, causing rural

institutions to engage in practices that are not well suited for rural students (D'Amico et al., 2014; Schafft, 2016). It may be important to acknowledge that for many rural students, a college degree may not be the primary educational goal of the student (Roberts, 2017). Institutions that are willing to self-evaluate to better understand the needs and motivations of their students, producing sensible rural educational policies based on localized data, may see significant progress in student integration, persistence and completion (Schafft, 2016; Xu, 2017). Given the literature on place-specific data, and the differences between persistence strategies on the national level and persistence needs on the local, rural level at RFCC, policy recommendations to community college leaders at RFCC concerning the development and implementation of targeted initiatives to increase persistence, using evidence-based strategies reflecting potential predictive relationships between student place-frame variables and integration variables, could be the focus of the project in this study. Research questions examined the potential predictive relationships between student place frames and measures of academic integration, and the potential relationships between measures of academic integration and persistence. For rural institutions, these policy focuses may include elements that rural community colleges have marketed as unique strengths in the past, including small class sizes (Penny, Frankel, & Mothersill, 2012; Xu, 2017); better forms of teaching and professional development for instructors (D'Avanzo et al., 2012; Gormally, Evans, & Brickman, 2014; Xu, 2017); the availability of faculty support and advising for students (Deil-Amen, 2011; Smith & Allen, 2014; Xu, 2017); increased access to financial aid and

counseling (Braxton et al., 2011; Iceland, 2013; Xu, 2017); and small campus sizes that encourage student engagement (Southgate et al., 2016; Xu, 2017).

**Summary**

As the push for a college degree continues, persistence will continue to be an area of concern for leaders in higher education. To improve persistence rates in rural community colleges, leaders may need to reassess their institutional strategies and strategic goals to ensure that their initiatives are meaningful and appropriate for their rural students. The Section 1 literature review provides significant evidence to validate the problems addressed in Section 1, as well as warranting further study concerning rurality and persistence. Grounded in Tinto's (1993) theory of institutional departure and social representations theory (Halfacree, 1993; Moscovici, 1984), the literature review helped to identify gaps in practice between persistence strategies on the national level and persistence needs on the local, rural level at RFCC. In section 2 I discuss the research methodology design for the study to consider predictive relationships between student rurality and persistence variables in rural community colleges. This section includes information about the setting and sample, instrumentation and materials, data collection methods, data analysis, study limitations and assumptions, and ethical considerations.

Section 2: The Methodology

**Research Design and Approach**

In Section 2, I discuss how place-frame and academic integration variable data were collected and analyzed using regression analysis in the quantitative method. The purpose for collecting the data was to identify variables associated with academic integration, which are predictive of student persistence in a small, residential community college in a rural or frontier setting where persistence represents continuous enrollment from the first to second year of study (see Castleman & Page, 2016). The results from the regression analyses, including binary logistic regression analysis and ordinary least squares (OLS) regression analysis, were used to inform the final project for the research study. OLS and logistic regression are commonly used analyses approaches in educational research (Creswell, 2012). Understanding whether a predictive relationship exists between place-frame variables, including intent to transfer, age, and sex, and academic integration variables, including student effort, collaborative learning, active learning, and academic challenge, could be used by rural institutions to help develop potential strategies to increase persistence using place-based data. Increasing the persistence and potential completion of rural students could have meaningful implications for positive social change, including increased relevance and funding for institutions and increased education as well as employment and social mobility opportunities for students. The methodology section will include the procedural components of the study, a description of the assumptions, the limitations and scope of this study, as well as the ethical considerations and conclusions from the data analysis.

**Research Design and Methodology**

In this study, I used a nonexperimental, correlational, quantitative research design with regression analyses. Initially, OLS regression analysis of demographic data was used to determine which predictive variables of place-frames, including intent to transfer, sex, and age, potentially influence variables associated with student persistence measures, including student effort, collaborative learning, active learning, and academic challenge. The initial regressions of demographic data, including academic integration data retrieved from institutional records, were used to determine whether these potential correlates of place-frame types at a rural institution were predictive variables for persistence. Additionally, academic integration data, retrieved from institutional records, were used in a binary logistic regression analysis to determine whether these potential correlates of place-frame types at a rural institution were predictive variables for persistence. I used a correlational design with regression to identify the potential relationships between criterion and predictor variables (see Lodico, Spaulding, & Voegtle, 2010). Because correlational research measures variables to find relationships without implying causality (Lodico et al., 2010), it was an appropriate methodological approach for this study. The correlational research method allowed for examination and analysis of data on multiple place-frame variables to better understand potential relationships between multiple predictor variables and the variable of persistence (see Creswell, 2012). Correlational research designs allow for the identification of data trends and patterns that may indicate predictive relationships between variables (Lodico et al., 2010). Correlational research with regression analyses measures variables to find potential predictive relationships

(Lodico et al., 2010), making it an appropriate design for addressing the research questions in this study.

As I discussed in Section 1 of this study, the use of urban trend data to develop and implement programmatic and policy changes aimed at increasing academic persistence fails to take into account student place-frames and the potential predictive relationship between place-frame variables and academic integration and persistence (see Santiago et al., 2014). Without significant research about how rural variables potentially influence the persistence of students in rural community colleges, institutional leaders may continue to implement academic policies that do little to affect the persistence rates of rural students. Using retrospective data from rural students at a rural institution, I conducted this study to attempt to isolate predictive relationships between place-frame and academic integration variables to better understand persistence in rural 2-year institutions.

**Setting and Sample**

This study took place at RFCC based on access to institutional data and knowledge of the research setting and local problem. Institutions that are willing to self-evaluate to better understand the needs and motivations of their students may be more likely to produce rural educational policies based on localized data (Schafft, 2016; Xu, 2017). Because there is a significant gap in location specific research concerning rural 2-year institutions (Bassett, 2002; Howley, Howley, & Yahn, 2014), conducting this study at a rural 2-year institution provided an appropriate location for the study. Finally, the analysis of localized data may address the gap in practice between the current reliance on

the use of persistence strategies from national trend data and the actual persistence needs, based on localized data, on the local, rural level at RFCC.

In this study, I used a convenience sample of CCSSE surveys completed by RFCC students, and supplied by RFCC's Institutional Research Office, between 2008 and 2016, with administration occurring every 2 years to randomly selected, credit-bearing courses on campus between 8:00 am and 5:00 pm. While the data were collected using the CCSSE survey, only institutional data, specific to RFCC, were used for this study. Drawing a sample from a population that is easily accessible is a normative practice in higher education research (Creswell, 2012; Lodico et al., 2010). The convenience sample may not be representative of the entire population but provided information needed to answer the research questions posed in this study (Creswell, 2012). Convenience sampling is nonprobability sampling, limiting the generalization of results to larger populations (Creswell, 2012); however, the intent of this study did not include generalization to larger populations. CCSSE requires that a stratified random cluster sample scheme be used at each participating institution, further increasing the applicability of the results to the sample (Marti, 2004). Since persistence initiatives and efforts should be localized to the institution (Xu, 2017), generalization of results from data collected in the convenience samples at RFCC to other institutions or populations would be inappropriate. Rather, the use of data and the conclusions of this study could serve as a model for other institutions to use localized data to appropriately self-evaluate for specific place-frames that contribute to academic integration and persistence (see Schafft, 2016; Xu, 2017). Additionally, comparisons between similar institutions

provides external benchmarking opportunities for institutions to use when setting

educational goals for improvement (Marti, 2004). As such, it was appropriate to use the

RFCC student population and localized data from RFCC to answer the research

questions.

RFCC conducts the CCSSE survey every other spring, in odd numbered years,

and initially had seven implementations of data for analysis. Because the CCSSE

instrument includes significant changes in the 2017 survey, it was appropriate to exclude

the most current iteration of RFCC data from this study. CCSSE surveys are administered

in credit-bearing courses while students are still attending, with every student attending

the course completing the survey. Sampling occurs in on-campus, face-to-face, general

education courses, eliminating online participants, concurrently enrolled students, and

satellite campuses. The CCSSE instrument has a faculty component, which was not used

for this study. Each class represents a cluster because it contains multiple students, and

the stratification is conducted at three levels based on the time of day the class begins

(Marti, 2004). Per the Institutional Research Office, RFCC does not administer the

survey to courses that begin after 5:00 pm. Although RFCC offers limited evening

courses, it does not offer programming that would allow for the completion of a degree or

certificate taking only evening classes. According to the registrar, approximately 4% of

courses offered at RFCC occur after 5:00 pm in a given semester, making this number of

unsurveyed evening courses a statistically insignificant limitation to the study. According

to the RFCCIRO, the administration of the survey is not announced to students in

advance of the actual administration to avoid a nonrespondent bias and historical

fluctuations in response rates (Marti, 2004). Students who are under 18 years of age,

representing less than 2% of the student population in a given semester, according to the

RFCCIRO, are not included in the survey results. Surveys were administered during

regularly scheduled class times, and faculty members were given advance notice via e-

mail when their courses were selected for survey administration. There is a CCSSE

survey period, established by CCSSE (2017). The instrument was designed to be given

during a 50-minute class period, taking approximately 30–45 minutes to complete

(CCSSE, 2017). Per the RFCCIRO, while faculty members are encouraged not to tell

students the survey will be administered to the course to prevent student absenteeism

(Marti, 2004), participants can choose not to participate, to leave some answers blank, or

not complete the survey. Completed surveys are returned to CCSSE (2017), where the

data are analyzed and results are sent back to institutions. Raw data were available from

CCSSE and from the RFCCIRO.

   According to Creswell (2012), an acceptable minimum sample size for

quantitative studies is $N = 30$. Although this is the minimum size acceptable, the largest

sample size possible should be selected from the appropriate population, providing more

data for greater precision in analysis (Creswell, 2012; Lodico et al., 2010). When using

regression analysis with five or less independent predictor variables, an adequate sample

size should consist of no less than 50 participants (Wilson-VanVoorhis & Morgan, 2007).

Soper (2015) recommended 15 participants per predictor variable when conducting

logistic regression. In this study, for Research Questions 1–4, the predictor variables were

the place-frame variables, including intent to transfer, sex, and age of students, providing

a maximum of three predictor variables in Research Questions 1–4. Research Question 5

includes the four criterion variables from Research Questions 1–4 as potential predictor

variables of retention, including student effort, collaborative learning, active learning, and

academic challenge, requiring the smallest possible sample must include at least four

predictor variables for the study. Soper's recommendation of 15 participants per predictor

yields a requirement of a minimum of 60 participants (4 predictors times 15 participants).

Wilson-VanVoorhis and Morgan (2007) recommended 30 participants per predictor,

yielding a minimum number of 120 participants (4 predictors times 30 participants).

Because the largest possible sample size should be selected (Creswell, 2012; Lodico et

al., 2010), a total sample size of at least 120 total responses was appropriate for this

study. A significance test of the maximum likelihood factor analysis solution is

acceptable when the sample under consideration has a minimum of 51 more cases than

the number of variables being studied (Peng, So, Stage, & St. John, 2002), requiring 171

responses for this study. Using G*Power statistical power analysis (Faul, Erdfelder,

Buchner, & Lang, 2009), where effect size is .15 and power is .95, calculating for four

predictor variables, the recommended total sample size was 129.

     As data collection began, I discovered that using RFCC CCSSE data from 2015–

2016 for analysis would not be possible, as the RFCCIRO did not retain data beyond

2013. This reduced the sample to the CCSSE data collected at RFCC between 2013–

2016. The complete data set included 332 ($N = 332$), which was more than the minimum

acceptable number ($N = 171$) for this study.

**Instrumentation and Materials**

The primary instrument for collecting data for this study was the CCSSE. The

CCSSE (2017), established in 2001 as a project of the Community College Leadership

Program at the University of Texas at Austin, is a widely accepted instrument used by

community colleges. The CCSSE is used to identify areas of need, provide

benchmarking, monitor institutional practices, and provide data for accreditation and

institutional research (Price & Tovar, 2014). After the fifth national CCSSE

administration, nearly 600,000 students in 2-year institutions had completed it,

representing 49% of U.S community colleges (McClenney, 2007). Between 2009 and

2011 alone, the CCSSE was administered to more than 440,000 students (Price & Tovar,

2014), including students in 48 states, British Columbia, and the Marshall Islands

(McClenney, 2007). The CCSSE collects and analyzes information concerning student

academic engagement behaviors that are frequently tied to student persistence at

community colleges. According to the Institutional Research Office, the survey is

administered at RFCC every other spring semester to approximately 445 students through

randomly selected, credit-bearing courses, which meet face-to-face and occur between

8:00 am and 5:00 pm on the main RFCC campus. RFCC does not survey courses that

meet online or that meet in the evening or on weekends, excluding approximately 4% of

courses offered in a given semester. While this may be a limitation to the study, the

number of excluded courses is statistically insignificant when it is less than 5% of the

total number being surveyed (Lodico et al., 2010). The survey does not allow for

participation for students under the age of 18, which is a CCSSE limitation rather than an

RFCC choice, per the RFCC Intuitional Research Office.

Because approximately 10% of higher education research studies use community

college samples, community colleges have frequently relied on integration research

conducted on students attending 4-year institutions (CCSSE, 2017). Using national trend

data from 4-year institutions limits the scope of data an institution can use to better

understand and serve 2-year students (CCSSE, 2012; Xu, 2017). As such, CCSSE data,

and especially RFCC CCSSE data is an appropriate data set for this study. Tinto (1993)

and Xu (2017) argued that institutional persistence initiatives should be localized, using

data from the institution implementing the initiatives rather than generalized, national

trend data. Self-reported data associated with engagement in classroom discussions,

interaction with faculty members both in and out of class, participation in learning

opportunities and use of academic and student support services, are collected, measuring

use and frequency responses (Price & Tovar, 2014). Self-reported data concerning

integration behaviors are preferable to national trend data (Meeuwisse et al., 2010; Tinto,

2006; Xu, 2017), making the CCSSE an appropriate survey for this study.

CCSSE uses benchmark measures, which are combined to constitute a model of

effective educational practice (Price & Tovar, 2014). The survey also includes self-

reported data about student attendance status, basic demographic data, parental

educational levels, marital and family status (CCSSE, 2017). Marti (2008) indicated that

CCSSE demonstrated reasonable internal reliability benchmark measures, as well as a

nine-factor solution, stating that CCSSE is a "reliable instrument that can be used to

inform institutional decision making with regard to teaching practices, campus design, and institutional culture. ... and can be used for research with community college students" (p. 2). The benchmarking allows external comparisons for institutional leaders to use to examine their practices and data as compared to institutions that engage in similar practices to help set goals for achievement and improvement (Marti, 2004). Data obtained in the CCSSE report is returned to institutions as a Community College Survey Report after analysis by CCSSE (Marti, 2004).

CCSSE uses confirmatory factor analysis using Mplus applications to establish an analysis model that is the closest fit for the data (Marti, 2004). Confirmatory factor analysis demonstrates value through goodness-of-fit tests which compare subgroups and year-to-year comparisons to assess alignment between the structure and the observed data, to demonstrate the appropriateness of using these specific models for various subpopulations among community colleges (Marti, 2004). The CCSSE tool was originally intended to measure academic and social engagement holistically rather than an unintended underlying factor structure (Angell, 2009; Marti, 2004). However, Marti (2008) used a combination of exploratory and confirmatory factor analyses that uncovered a latent factor structure (Angell, 2009; Nora et al., 2011). After the initial examination and exploratory analysis was completed, the model with nine factors was specified (Marti, 2004), resulting in reasonable internal reliability across measures. Angell (2009) noted that the only readily available validity studies for the CCSSE had been conducted and verified by the CCSSE staff, prompting his validity study. The

Angell study used a principal-axis factor analysis with oblique rotation, revealing a reliable four-factor model.

Using the Marti (2008) study item pool as a starting point in their factor analysis, Nora et al. (2011) subjected these 38 survey items to quantitative data reduction procedures, which yielded a five-factor model. Eigenvalues, factor loadings, percentages of variance explained, cross loadings, and the final factor structure, with alpha reliability coefficients, lead to a model that focuses on constructs that primarily affect a student's academic performance (Nora et al., 2011), making it the most appropriate model for the research questions in this study. The factors identified by Nora et al. (2011) demonstrated reasonable reliability across factors: collaborative learning ($\alpha$ = .80), active learning ($\alpha$ = .68), academic challenge ($\alpha$ = .85), student effort ($\alpha$ = .69), and support for learners ($\alpha$ = .79). Nora et al. and Angell (2009) questioned the use of CCSSE benchmarks as the basis for institutional or programmatic change, citing some disconnect between the CCSSE benchmarks and all three-factor models, and questioning the reliability of the benchmark structure. However, these factors, reliable or otherwise, are used both by CCSSE survey-research experts and by institutional leaders at community colleges across the United States (Angell, 2009). Additionally, consistency across sample populations, as well as convergent and predictive validity have been demonstrated through different studies (Angell, 2009). While there may be some concerns about construct validity of the CCSSE benchmarks (Angell, 2009), the CCSSE remains the single most significant data collection instrument used by community colleges (Angell, 2009; CCSSE, 2017; Marti, 2008; Nora et al., 2011). However, the Nora et al. study focuses on the five-factor model,

and not the CCSSE benchmarks, providing an opportunity to use this factor structure to increase validity and reliability of the instrument. Finally, the Nora et al. study is one of the only studies conducted on the CCSSE by individuals not currently employed by CCSSE (Angell, 2009; Marti, 2008), increasing objectivity and credibility of their results, making it the most appropriate model for this study.

## Data Collection and Analysis

For this study, I collected data based on Tinto's (1993) institutional departure theory as well as archival student place-frame data found in institutional records. Data are classified as archival because it was collected prior to this research study (Lodico et al., 2010). The CCSSE instrument does not specifically ask for place of origin data, requiring the use of student identification numbers to provide place of origin for participants. This provided the ability to sort the non-urban place frame RFCC student CCSSE academic integration and persistence data from the analysis. Permission was obtained from the Walden Institutional Review Board (IRB) as well as RFCC's IRB before data collection of student place of origin began. De-identified CCSSE data from RFCC from years prior to 2017 were collected to examine research questions and hypotheses provided in Section 1.

### Place-Frame Variables

The place-frame variables in the research questions for this study include student age, student sex, and student intent to transfer. The CCSSE instrument includes questions for identifying student data concerning student place-frames, including intent to transfer, age and sex. The survey asks for place-frame data in different quantitative scales of

measurement. For data about the student sex variable, nominal, binary responses were recorded in CCSSE Question #30. This study required conversion from male/female to nominal dummy variables, 1 or 2, for statistical analysis of this variable and analyzed as a predictor variable in relation to Research Questions 1-4.

Student age responses are recorded as an ordinal response in Question #29 in the instrument. This scale offers nine potential responses, with the numerical difference between each response increasing with each option (under 18, 18-19, 20-21, 22-24, 25-29, 30-39, 40-49, 50-64, 65+). OLS permits a variety of predictor variables, including those on an ordinal scale (see Creswell, 2012; Long & Freese, 2006). OLS analysis tries to identify predictive relationships between two or more variables (Trochim, 2006) where a linear relationship exists between the criterion and predictor variables (Long & Freese, 2006). An examination of the data's ability to meet the assumptions of OLS, including normality, homoscedasticity, independence of errors and multicollinearity would be reviewed (see Creswell, 2012). OLS selects the parameters of a set of explanatory variables by minimizing the squared residuals (Long & Freese, 2006). The assumptions for logistic regression include independence of errors, no multicollinearity, a linear relationship in the logit of continuous variables, and a lack of significant outliers, in which a sample member's predicted outcome may be vastly different from the actual outcome (Stoltzfus, 2011). An examination of the data's ability to meet the assumptions for logistic regression analysis was reviewed.

Responses for the intent to transfer variable in Research Question 1 are recorded in the CESSE as an ordinal response in Question 17c, representing one part of a six-item

grouping (CCSSE, 2017). For this variable, the instrument offers three ordinal response options, including "primary goal," "secondary goal," and "not a goal." For the purposes of this study, coding the variable as dichotomous, representing the absence of presence of a characteristic (Creswell & Clark, 2011; Darlington & Hayes, 2016), provides a more accurate representation of the variable to be measured, which in this case is the intent to transfer. Using an indicator, or dummy coding, is the most common means of transformation of categorical variables to dichotomous variables (Darlington & Hayes, 2016; Long & Freese, 2006). Because this study did not measure the motivation of students, the level of intent to transfer as a goal was not relevant. Only the presence or absence of an intent to transfer is relevant to this study. Data collected from instruments using Likert-style scale responses are often viewed as ordinal or interval scale variables (Creswell, 2012). Social science research commonly assigns interval scale values when using parametric tests to derive results from Likert-style measures (Creswell, 2012). This study required a conversion from goal/not a goal to nominal dummy variables, 0 or 1, for statistical analysis of this variable and analyzed as a predictor variable in relation to Research Questions 1-4.

There is no direct measure of rurality in the CCSSE. Once a place of origin was identified via student identification numbers on the CCSSE survey, it was coded by the RFCCIRO as "rural" and "nonrural," following the U.S. Census formula, which determines what is "urban," and defines everything that is "not urban" as "rural" (Ratcliffe, Burd, Holder, & Fields, 2016; USDA, 2017). De-identified place of origin data was then provided for the study, using dummy variables 0 for "rural" and 1 for

"nonrural" for statistical analysis purposes, using binary logistic regression. Nonrural identified student data was sorted out before the analyses.

For Research Questions 1-4, place-frame variables, including intent to transfer, student sex and student age, were used as predictor variables, and analyzed to determine whether predictive relationships exist between these predictor variables and the criterion academic integration variables, including student effort, collaborative learning, active learning, and academic challenge. The four latter measures are factor scores based on the factor analysis of CCSSE data conducted by Nora et al. (2011). Intent to transfer is a binary variable derived from the CCSSE survey. Models involving grouped variables, or factors, for accurate prediction in regression frequently use stepwise elimination (Yuan & Lin, 2006). Data from the place-frame variables could be entered into a regression model with stepwise multiple regression analysis (see Nau, 2016). There are two methods for stepwise regression: the forward method and the backward method (Stoltzfus, 2011). Forward selection involves starting with no variables in the model, and tests the addition of each variable, one at a time, until no additional variables contribute significantly to the outcome (Bendel & Afifi, 1977; Stoltzfus, 2011). The backward stepwise method adds all predictor variables to the model and then works backwards to eliminate variables that do not significantly predict anything on the dependent measure (Stoltzfus, 2011; Yuan & Lin, 2006). Stepwise regression provides methods to optimize prediction and minimize redundancy (Nau, 2016). Because the order of importance for adding variables into the regression is unknown, a stepwise approach is appropriate for analysis in this study (see Hosmer & Lemeshow, 2000; Yuan & Lin, 2006).

**Integration Variables**

The CCSSE instrument includes questions for identifying student data concerning integration, including use of institutional services and campus participation (CCSSE, 2017). The survey asks for integration data in different quantitative scales of measurement as well. The Nora et al. (2011) five-factor model provides the integration variables for this study. Four of the five factors focus on academic integration behaviors, including student effort, collaborative learning, active learning, and academic challenge, which is a focus of this study. The fifth factor, support for learners, uses survey items from the CCSSE that measure social integration variables, making that factor inappropriate for this study.

Student effort, as a factor score, was the criterion variable used to test the hypotheses in Research Question 1. Data for student effort variable comes from CCSSE Question 13, using five of the 11 items and one item from Question 4 to create the factor score in the Nora et al. (2011) model. The student effort variable items include "used peer or other tutoring services", "used skill labs", "used a computer lab", "used academic advising/planning services", "used career counseling services," and "came to class without completing readings or assignments" (CCSSE, 2017; Nora et al., 2011). The perceived use of institutional services data were collected in CCSSE through an interval scale, representing a set of predictor variables. Data for Question 13 are recorded as "*don't know/NA*", *"rarely/never,"* *"sometimes,"* and *"often*." In the CCSSE, "rarely/never" is an undefined term of little value, as it is not quantifiable. Tinto (2006) argued that integration included patterns of interaction between the student and the

institution, which could be interpreted as more than once, repetitive, or more frequently than "rarely." Discernable regularity is necessary for something to be considered a pattern (Lodico et al., 2010). A student who visited the Career Services office as a part of a First Year Seminar (FYS) course could mark "rarely/never" on the CCSSE as a result of having been required to visit the office, but never have engaged with that particular institutional service, per the RFCC  Institutional Research Office. While this response would be an appropriate response, it indicates an absence of engagement or integration. As such, the response is quantifiable as zero. Thus, data for items from Question 13 was recorded using the ordinal structure of the responses, with "0" representing "*rarely/never,*" "1" representing "*sometimes,*" and "2" representing "*often/very often.*" Data from Question 4 was coded with "0" representing "rarely/never," "1" representing "sometimes," and "2" representing "often/very often." The student effort factor score was computed by first converting raw item scores to z scores with a mean of zero and a standard deviation of one. Then the total of the z scores was averaged by the number of items. Summing or averaging item scores is a common method employed for calculating factor scores (Distefano, Zhu, & Mindrila, 2009). The factor scores associated with Research Questions 2-5 were calculated in the same manner. An OLS regression was used to help identify potential predictive patterns of student effort factor scores.

The intent of Research Question 2 was to find predictive relationships between student place-frames and the criterion variable, collaborative learning, represented through a factor score. Nora et al. (2011) identified seven items in the CCSSE that contribute to the collaborative learning factor score: "Worked with other students on

projects during class," "worked with classmates outside of class to prepare class assignments," "tutored or taught other students (paid or voluntary)," "participated in a community-based project as part of a regular course," "talked about career plans with an instructor or advisor," "discussed ideas from your reading or classes with instructors outside of class," and "worked with instructors on activities other than coursework." All seven of these items are all part of CCSSE Question 4, a 21-item grouping that measures a variety of behaviors associated with academic integration (CCSSE, 2017). Responses to these items were measured on a Likert scale, with "0" for *"never*," "1" for *"sometimes*," "2" for *"often*," and "3" for "*very often*." To score and analyze data for Research Question 2, each of the seven campus participation items were coded to align the items with the variable collaborative learning. An OLS regression was used to help identify potential predictive patterns for the collaborative learning factor score.

Research Question 3 focuses on determining the predictive relationship between the predictor variables, place frame measures, and the criterion variable, active learning factor score. Items used in this factor include two items from CCSSE Question 4: "prepared two or more drafts of a paper or assignment before turning it in" and "worked on a paper or project that required integrating ideas or information from various sources" (CCSSE, 2017; Nora et al., 2011). Responses to these items were measured on a Likert scale, with "0" for *"never*," "1" for *"sometimes*," "2" for *"often"*, and "3" for "*very often*." The second set of items making up this factor came and from CCSSE Question 6: "number of written papers or reports of any length", and a question asking students to "report the number of assigned text books, manuals, books, or book-length packs of

course readings" (CCSSE, 2017; Nora et al., 2011). Data collected in CCSSE question 6 is used in the active learning factor (Nora et al., 2011), specific to Research Question 3, and was recorded using an interval scale. The definition of the response scale was "0 "for "*none*," "1" for "*1-4*," "2" for "*5-13*," "3" for "*11-20*," and "4" for "*more than 20*." Distefano, Zhu, and Mindrila (2009) discuss several factor scoring methods. The factor score for this variable was determined by converting individual item scores to a common metric, or a z score. Testing the hypotheses for Research Question 3 required an OLS regression to identify statistically significant predictors of active learning factor scores.

Responses for the academic challenge variable factor score in Research Question 4 were recorded in CCSSE Question 21. These items included "analyze the basic elements of an idea, experience or theory," "synthesize and organize ideas, information, or experience in a new way," "make judgements about the value or soundness of information, arguments or methods," "apply theories or concepts to practical problems or in new situations," and "use information you have read or heard to perform a new skill" (CCSSE, 2017; Nora et al., 2011). The definition of the response scale for these items was "0" for "*never*," "1" for "*sometimes*," "2" for "*often*," and "3" for "*very often*." To score and analyze data for Research Question 4, each of the five items were coded to align the items with the variable academic challenge factor. This Research Question required an OLS regression to identify statistically significant predictors of academic challenge factor scores.

The analysis for Research Question 5 employed a binary logistic regression to find statistically significant predictive relationships between academic integration

variables, including student effort, collaborative learning, active learning, and academic challenge, and student persistence at RFCC for students with a rural place-frame. Prior to completing a binary logistic regression analysis, in order to determine if there are significant correlations among the predictor variables, several different tests were run to assess the correlations between two predictors. Since the predictor variables were continuous (interval), Pearson product moment correlations were computed between the interval level variables. Additionally, the variance inflation factor (VIF) method was employed to assess the presence of multicollinearity by considering the regression of a single predictor on the other predictors as a group (see Jeeshim, 2002). Other indicators include eigenvalues, condition index, and tolerance values. If the test statistics pass the thresholds for the presence of multicollinearity, an approach to minimize the effect of multicollinearity was employed, such as dropping one of the correlated predictors (Midi, Sarkar, & Rana, 2010). Additionally, the study tested the linearity of the continuous variables concerning the logit of the criterion variable with the Box-Tidwell procedure (Laerd Statistics, 2013). Finally, the outlier-labeling rule (Hoaglin, Iglewicz, & Tukey, 1986) was applied to confirm that there are no significant outliers.

## Assumptions, Limitation, Scope, and Delimitations

Some assumptions were made in order to conduct this study. Initially, an assumption about reliability and validity of a survey instrument that is part of a for-profit research center had to be forwarded. While CCSSE is a business, marketing the use of services to community colleges, it is also one of the only survey instruments that focuses on community colleges (Angell, 2009; Marti, 2008; Price & Tovar, 2014), and has

widespread use among community colleges (CCSSE, 2017; Nora et al., 2011; Price & Tovar, 2014). An assumption was made that the analysis provided by CCSSE to institutions is accurate and follows academic standards for analysis and publication. Finally, all data collected was self-reported. An assumption had to be made that students reporting data were being honest about their integration experiences at RFCC, and that their responses reflected their actual integration behaviors.

The variables included in this study were limited to archival data derived from CCSSE results from RFCC, and other RFCC institutional research records. Therefore, results of this study are specific to RFCC and may not be generalizable to other rural community colleges or community colleges in general. The processes used for data collection and analysis, however, may be useful to other community colleges interested in using localized data to increase persistence rates at their institutions (Xu, 2017). Limiting the study to self-reported data about a rural institution creates regional and institutional variances that do not apply to other regions of the country or other institutions. This is especially true of applying these data sets to urban area or institutions. The student population at institutions in other areas, particularly nonresidential community colleges in urban centers, will have different integration opportunities and experiences than students at RFCC.

CCSSE data collected in Spring 2017 were omitted from this study. CCSSE used one survey instrument from 2005-2016 and changed the instrument for 2017 and beyond (CCSSE, 2017). All CCSSE data for RFCC used in this study were limited to the data collected using the 2005-2016 instrument for continuity and in an attempt to increase

validity. Additionally, CCSSE analyzes the raw data and issues reports to institutions.

While the raw data are available, most institutions use the reports generated by CCSSE

rather than conducting their own analysis of the raw data (CCSSE, 2017). RFCC

publishes reports that have been completed by CCSSE, potentially limiting some data

sets that could have added to this study. Finally, RFCC does not keep data indefinitely.

Available data for analysis for this study included a data set spanning from 2013-2016.

Considerations such as the lack of on-line student data, full time vs. part time

data, the exclusion of students under 18 years of age, the lack of survey data from

evening courses, and the introduction of new programs at the institution may all

contribute to differences in responses over time. RFCC implemented a required FYS for

all students beginning in the Fall of 2016 but offered the course for three semesters prior

to the requirement, per the dean of student learning.  According to the first year

experience coordinator, all FYS courses have mandated curriculum that may contribute to

students responding in the affirmative to some Use of Institutional Service questions,

which may differ from iterations of the survey prior to the implementation of FYS

courses. Additionally, access to services could account for variations in responses.

Changes in personnel at various institutional services, including academic and career

counselor positions and beginning of term hiring timeframes for peer tutors, could result

in a lack of access to those particular services. The use of nonexperimental research

methods creates an opportunity for increased threats in the conclusions of the study.

Uncontrolled events throughout the multi-year data set could create changes in student

responses based on changes to services offered or opportunities to participate in campus

activities. These differences could result in a change in the overall reporting of scores

(Creswell, 2012). These differences, along with the use of correlational research methods

(Creswell, 2012), prevents the study from identifying any direct causation between

identified variables, which could be viewed as a limitation as well.

## Protection of Participants' Rights

This study used de-identified, retrospective data for a nonexperimental

quantitative analysis, posing no harm to participants. All data were de-identified either by

CCSSE (for all non-place of origin data) or the RFCC institutional researcher in the case

of student place of origin and student persistence. Proper authorization and permissions

were obtained from the institution's IRB and Walden University's IRB (approval #07-18-

18-0579234) before data collection began. The use of a pseudonym for RFCC limits the

risk that the institution or location of this study could be identified.

## Data Analysis Results

In this section of the study, I discuss the procedures used for data analysis and the

results of that analysis. The analysis consisted of data preparation, sample determination,

assumption testing and several ordinary least squares regression analyses and a binary

logistic regression analysis. Results were obtained using the IBM Statistical Package for

the Social Sciences (SPSS) Version 21, following the outlined plan for this study.

However, while testing assumptions, it was determined that some variables presented

challenges that could not be resolved using SPSS. In those cases, specifically for

collaborative learning and student effort, Stata 12 (Stata) was used, as this software

provided better options for testing particular assumptions (StataCorp, 2017).

Additionally, using Stata allowed for verification of other tests to ensure validity and consistency.

**Data Preparation**

Initially, this study was designed to evaluate RFCC CCSSE data from 2005-2016 for analysis. However, RFCC does not retain data beyond 2013, per the RFCC Institutional Research Office, reducing the data set to CCSSE data collected between 2013-2016. Because this data set contained an appropriate number of data points, it was determined that this was acceptable for this study.

The RFCCIRO used student identification numbers from the archived CCSSE data from 2013-2016 to identify place of origin for the individuals completing the survey. Once place of origin data were collected, the RFCCIRO de-identified the data and sorted it by zip code, which was sent to the researcher. Zip codes were coded as rural or nonrural, using the U.S. Census Bureau classification, which is the most widely accepted classification system for determining rurality (Ratcliffe et al., 2016). The rurality coding was sent back to the RFCCIRO, and the office presented a finalized, de-identified data set of completed surveys, including a code for rural or nonrural place of origin and persistence or non-persistence for each completed survey. The complete data set included 332 surveys ($N = 332$), which was more than the minimum acceptable number ($N = 171$) for this study, as reported in the outlined plan of this study.

**Place-Frame Variables**

The place-frame variables in the research questions for this study include student age, student sex, and student intent to transfer. The CCSSE instrument includes questions

for identifying student data concerning intent to transfer, age, and sex. The survey asks for place-frame data in different quantitative scales of measurement, requiring some transformation for analysis. For data about the student sex variable, nominal, binary responses were recorded in CCSSE Question #30. These responses were converted from male/female to nominal dummy variables, 1 or 2, for statistical analysis. Two respondents chose not to respond to questions about their sex, and the CCSSE does not provide options for individuals who identify outside the male/female binary.

Student age was recorded as an ordinal response in Question #29 of the CCSSE, creating nine different categories for analysis purposes. These categories were coded with "0" being the first, unacceptable selection (under 18), and the other categories being coded in numerical order to nine. The first acceptable category for age was "18-19" since "under 18" responses were removed by the RFCCIRO prior to establishing the final data set. Two respondents chose not to mark their age response.

Responses for the intent to transfer variable were recorded in the CESSE as an ordinal response in Question #17c, representing one part of a six-item grouping (CCSSE, 2017). For this variable, the instrument offers three ordinal response options, including "primary goal," "secondary goal," and "not a goal." For the purposes of this study, the responses were coded as dichotomous, representing the absence or presence of a characteristic (Creswell & Clark, 2011; Darlington & Hayes, 2016). Data for this variable were transformed into a new, binary variable, reflecting an intent to transfer or no intent to transfer. To do this, responses for Question #17c marked 1 (not a goal) became a "0,"

indicating no intent to transfer, and responses 2 (secondary goal) and 3 (primary goal) were added together and coded as "1," indicating an intent to transfer.

While rurality is not identified in the research questions as a predictor variable, determining whether a respondent originated from a rural location or not was an important factor for data analysis. The RFCCIRO coded responses as "0" for nonrural places of origin and "1" for rural places of origin. Based on RFCCIRO data, 74.7% of respondents had a rural place of origin. A summary of descriptive statistics for the predictor variables can be found in Table 1, and descriptive statistics for the CCSSE factor variables, or criterion variables, are demonstrated in Table 2.

Table 1

*Descriptive Statistics of Predictor Variables for RFCC CCSSE Convenience Sample*

| Predictor Variable | Frequency | % |
|---|---|---|
| Intent to Transfer | 329 | |
| Age | 330 | |
| 18 – 19 age group | 138 | 41.82 |
| 20 - 21 age group | 110 | 33.33 |
| 22 - 24 age group | 46 | 13.94 |
| 25 - 29 age group | 14 | 4.24 |
| 30 - 39 age group | 9 | 2.73 |
| 40 - 49 age group | 9 | 2.73 |
| 50 - 64 age group | 3 | 0.91 |
| 65+ age group | 1 | 0.30 |
| Sex | 330 | |
| Male | 131 | 39.70 |
| Female | 199 | 60.30 |
| Intent to transfer | 329 | |
| No | 80 | 24.32 |
| Yes | 249 | 75.68 |
| Place of origin | 332 | |
| Nonrural | 84 | 25.30 |
| Rural | 248 | 74.70 |
| Persistence | 332 | |
| Did not persist | 22 | 6.63 |
| Did persist | 310 | 93.37 |

Table 2

*Descriptive Statistics of Criterion Variables for RFCC CCSSE Convenience Sample*

| Criterion variable | Frequency | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| Student effort | 315 | -0.003817 | .549379 | -1.54954 | 1.59473 |
| Collaborative learning | 313 | -.015665 | .6361718 | -1.23228 | 2.180866 |
| Active learning | 329 | .0005788 | .6704751 | -1.86867 | 1.471393 |
| Academic challenge | 329 | .0034067 | .7811421 | -1.93394 | 1.419445 |

**Integration Variables**

Using the five factor model discovered by Nora at al. (2011), data from the CCSSE surveys related to dependent variables had to be transformed to determine variable scores for analysis. To transform this data, a factor score was computed by first converting raw item scores to z scores with a mean of zero and a standard deviation of one. Then the total of the z scores were averaged by the number of items. The factor scores associated with Research Questions 1-4 were calculated in the same manner. The four factors used for this study included student effort, collaborative learning, active learning, and academic challenge.

The six student effort variable items in the CCSSE survey include "used peer or other tutoring services," "used skill labs," "used a computer lab," "used academic advising/planning services," and "used career counseling services" from Question 13 and "came to class without completing readings or assignments" from Question 4 (CCSSE, 2017; Nora et al., 2011). The data were coded using the ordinal structure of the responses, with "0" representing "*rarely/never*," "1" representing "*sometimes*," and "2" representing "*often/very often*." Because "came to class without completing readings or assignments" is a negatively stated item, it was reverse scored before computing the item z score to allow the item score to align with the directional scoring of other items that make up the factor. Only frequency of use data were factored for use; satisfaction and importance data were not included in the Nora et al. factors and were not included in the data transformation for this variable. After coding each response, the student effort factor score was computed by first converting raw item scores to z scores with a mean of zero

and a standard deviation of one. Then the total of the z scores were averaged by the number of items to reach a common score, as discussed in the proposal stage of this study.

The seven collaborative learning variable items in the CCSSE survey include "worked with other students on projects during class," "worked with classmates outside of class to prepare class assignments," "tutored or taught other students (paid or voluntary)," "participated in a community-based project as part of a regular course","talked about career plans with an instructor or advisor," "discussed ideas from your reading or classes with instructors outside of class," and "worked with instructors on activities other than coursework" (CCSSE, 2017; Nora et al., 2011). Responses to these items were coded scale, with "0" representing *"never*," "1" for *"sometimes*," "2" for *"often*," and "3" for "*very often*."

The four active learning variable items in the CCSSE survey include two items from Question #4, "prepared two or more drafts of a paper or assignment before turning it in" and "worked on a paper or project that required integrating ideas or information from various sources", and two items from Question #6, "number of written papers or reports of any length", and a question asking students to "report the number of assigned text books, manuals, books, or book-length packs of course readings" (CCSSE, 2017; Nora et al., 2011). Responses to these items from Question #4 were coded as "0" for *"never*," "1" for *"sometimes*," "2" for *"often,"* and "3" for "*very often*," Items from Question #6 were coded using an interval scale, with "0 "for "*none*," "1" for "*1-4*," "2" for "*5-13*," "3" for

"*11-20*," and "4" for "*more than 20*." These responses were converted to a common scale for analysis purposes.

The five academic challenge variable items in the CCSSE survey include "analyze the basic elements of an idea, experience or theory," "synthesize and organize ideas, information, or experience in a new way," "make judgements about the value or soundness of information, arguments or methods," "apply theories or concepts to practical problems or in new situations," and "use information you have read or heard to perform a new skill" (CCSSE, 2017; Nora et al., 2011). These items were coded as "0" for "*never*," "1" for "*sometimes*," "2" for "*often*," and "3" for "*very often*."

Data provided from the RFCCIRO concerning persistence were coded to best identify respondents who did not persist, coded as "0," and those who did persist, coded as "1." This data contributes to the analysis of Research Question 5. Of the respondents, 93% of respondents persisted.

**Assumptions**

Before running the regression analyses, including binary logistic regression analysis and OLS regression analysis, assumptions about the data were verified. The first set of assumptions examined the characteristics of the variables in the study. Regression analyses requires the study to have one criterion variable and more than one predictor variable (McDonald, 2014). For Research Questions 1-4, there was one criterion variable (student effort, collaborative learning, active learning or academic challenge) and three predictor variables which had an independence of observation (age, sex and intent to transfer). For Research Question 5, there were four predictor variables (student effort,

collaborative learning, active learning and academic challenge) and one criterion variable (persistence). As demonstrated below, OLS assumptions were met for two of the four models, including the models to predict active learning and academic challenge scores. The model predicting collaborative learning scores did not meet the assumption of no heteroskedasticity and the model predicting student effort scores did not meet the assumptions of normality of residuals.

In the initial analysis, an examination of each of the 332 surveys was conducted to determine whether each response could be used or not. For an individual survey to be considered in the assumption analysis, all questions for that variable had to have a response. If questions about a particular variable were blank, that survey response was not included in the assumption analysis or the regression analyses involving data where responses were blank. Because the minimum sample was $N = 171$, sample sizes of $N = 315$ for the variable student effort, $N = 313$ for variable collaborative learning, $N = 329$ for the variable active learning and $N = 329$ for the variable academic challenge exceeded the minimum range of required participants for each analysis (McDonald, 2014). While the total number for a fully completed survey was $N = 313$, using the largest sample size for a given variable results in increased power in analysis for that variable (Wilson-VanVoorhis & Morgan, 2007). In this case, more data were better than less data, resulting in a different $N$ for different variables.

Next, VIF method was employed to assess the presence of multicollinearity by considering the regression of a single predictor on the other predictors as a group (see Jeeshim, 2002). For each of the criterion variables (student effort, collaborative learning,

active learning and academic challenge), no signs of multicollinearity were found in any

of the models. Changes in variance, resulting from regressions, that are demonstrated in

large VIF may indicate the presence of multicollinearity, especially if the VIF value is

greater than 3.0 (de Jongh et al., 2015; Salmerón Gómez, García Pérez, López Martín, &

García, 2016). All VIF scores in this study were near 1, which indicate a negligible

inflation of the coefficients of the variables due to multi-collinearity (see Chennamaneni,

Echambadi, Hess, & Syam, 2016; Mason & Perreault, 1991). Additionally, VIF testing

showed no signs of multicollinearity for the logistic regression models. The highest

correlation coefficient value of 0.4703 occurred between the variables academic

challenge and collaborative learning, as seen in Table 3. While this indicates a

moderately strong relationship between the two, it did not cause problems for the model.

Table 3

*Multicollinearity – Correlation Matrix*

|  | Student Effort | Collaborative Learning | Active Learning | Academic Challenge |
|---|---|---|---|---|
| Student effort | 1.0000 | | | |
| Collaborative learning | 0.3484 | 1.0000 | | |
| Active learning | 0.1454 | 0.2926 | 1.0000 | |
| Academic challenge | 0.2486 | 0.4703 | 0.2966 | 1.0000 |

An additional test of the linearity of the continuous variables concerning the logit

of the criterion variable was conducted with the Box-Tidwell procedure (see Laerd

Statistics, 2013). The Box-Tidwell is a commonly used iterative approach in both linear

and non-linear regression, providing power transformation of the regressor variable to

linearize the model (Joyce, Donovan, & Murphy, 2006). Through this process, it was

determined that convergence could not be achieved for variable collaborative learning,

indicating some concerns with the normality of residuals for this variable. One limitation

of the Box-Tidwell, however, is that it is not guaranteed to converge (Joyce et al., 2006).

Because the logistic regression results reported correctly for all variables, it was

determined that this was not a significant issue in need of log transformation for

correction (Joyce et al., 2006).

A test for heteroskedasticity was conducted using the Breusch-Pagan/Cook-

Weisberg tests, as demonstrated in Table 4. The Breusch-Pagan/Cook-Weisberg tests,

created individually by Breusch and Pagan (in 1979) and Cook and Weisberg (in 1983) is

one of the most widely used models to test for heteroskedasticity (Daye, Chen, & Li,

2012).

Table 4

*Heteroskedasticity – Breusch-Pagan/ Cook-Weisberg Tests*

|  | Chi-Square | *p*-value |
|---|---|---|
| Student effort | 0.15 | 0.7004 |
| Collaborative learning | 7.31 | 0.0069 |
| Active learning | 0.02 | 0.8894 |
| Academic challenge | 0.36 | 0.5492 |

Results from both tests indicated that for variables student effort, active learning

and academic challenge, *p* values were above 0.05 ($p > 0.05$), demonstrating constant

variance and no issues with heteroskedasticity in these models. For the variable

collaborative learning, however, the *p* values were below 0.05 ($p < 0.05$), indicating that there was likely an issue with heteroskedasticity in these models. With lack of normality in the residuals, standard errors of OLS estimates are not reliable. The confidence interval in this situation can be too wide or too narrow (Hox, Moerbeek, & Van de Schoot, 2017). To deal with these considerations, the analyses of these two models were developed with robust standard errors.

It is true that classical standard errors may be biased when the maximum likelihood estimator of the coefficients in a normal, linear regression model is heteroskedastic, using robust standard errors can be consistent when other modeling assumptions are correct (King & Roberts, 2015). OLS regression attributes equal weight to all observations, meaning variables with larger variations would have more impact on the models than other observations (Imbens & Kolesar, 2016). This is largely because OLS models assume that errors are going to be independently and identically distributed, making models less trustworthy (Williams, 2015). Using robust standard errors relaxes one or more of these assumptions, making them more trustworthy (see Williams, 2015). In cases where the amount of variation in the criterion variable is correlated with the predictor variables, robust standard errors can account for the potential correlation (Hox et al., 2017). Because robust standard errors are often larger or smaller than non-robust standard errors (Hox et al., 2017; Williams, 2015), using robust standard errors for all models provided more consistent tests. To increase the reliability of outputs in the models, and for consistency, robust standard errors were employed for all models (see Imbens & Kolesar, 2016; King & Roberts, 2015).

In addition to visual assessments of the model assumptions, the normality of residuals can

be evaluated using the Shapiro-Wilk test, which is one of the most powerful tests of

normality (Baty et al., 2015; D'Agostino, 2017). To further verify normality of residuals,

the Shapiro-Wilk test was conducted on each criterion variable in each OLS analysis,

with results demonstrated in Table 5.

Table 5

*Normality of Residuals – Shapiro-Wilk Tests*

|  | *W* | *V* | $|z|$ | *p*-value |
|---|---|---|---|---|
| Student effort | 0.99642 | 0.793 | -0.546 | 0.70738 |
| Collaborative learning | 0.97344 | 0.0069 | 4.143 | 0.00002 |
| Active learning | 0.99116 | 2.015 | 1.651 | 0.04935 |
| Academic challenge | 0.98870 | 2.577 | 2.230 | 0.01288 |

Using this test, only the variable student effort received a *p* value above 0.05 $p >$

0.05). For each of the other three criterion variables, *p* values fell below 0.05 ($p < 0.05$),

indicating that residuals distribution was likely not normal. Imbens & Kolesar (2016)

argued that robust standard errors should be used, especially when skewed distribution of

covariates occurs, even in moderately-sized samples, to remove some of the bias in

variance estimations. To adjust for this distribution, robust standard errors were

employed (see Imbens & Kolesar, 2016; King & Roberts, 2015). Because robust standard

errors were employed to correct for distribution and potential heteroskedasticity, it was

determined that robust standard errors should be used in all models for consistency.

Finally, simple box plots were used to visually test for outliers. Box plots provide

greater detail in the tails of the distribution and are appropriate for comparing data across

three or more data sets (Krzywinski & Altman, 2014), making this an appropriate method

for this study. Because quartiles are insensitive to outliers and preserve information about

the center and spread, they are preferred over the mean and standard deviation for

population distribution (Krzywinski & Altman, 2014). For this study, the standard 1.5

multiplier (Krzywinski & Altman, 2014) was used for each predictor variable, where LF=

Q1-1.5(IQR) and UF= LF = Q3+1.5(IQR). The results from these calculations

demonstrated very few outliers, but that no outliers that exceeded the 1.5 multiplier,

indicating that they were not significant enough to affect the analysis. Outlier results are
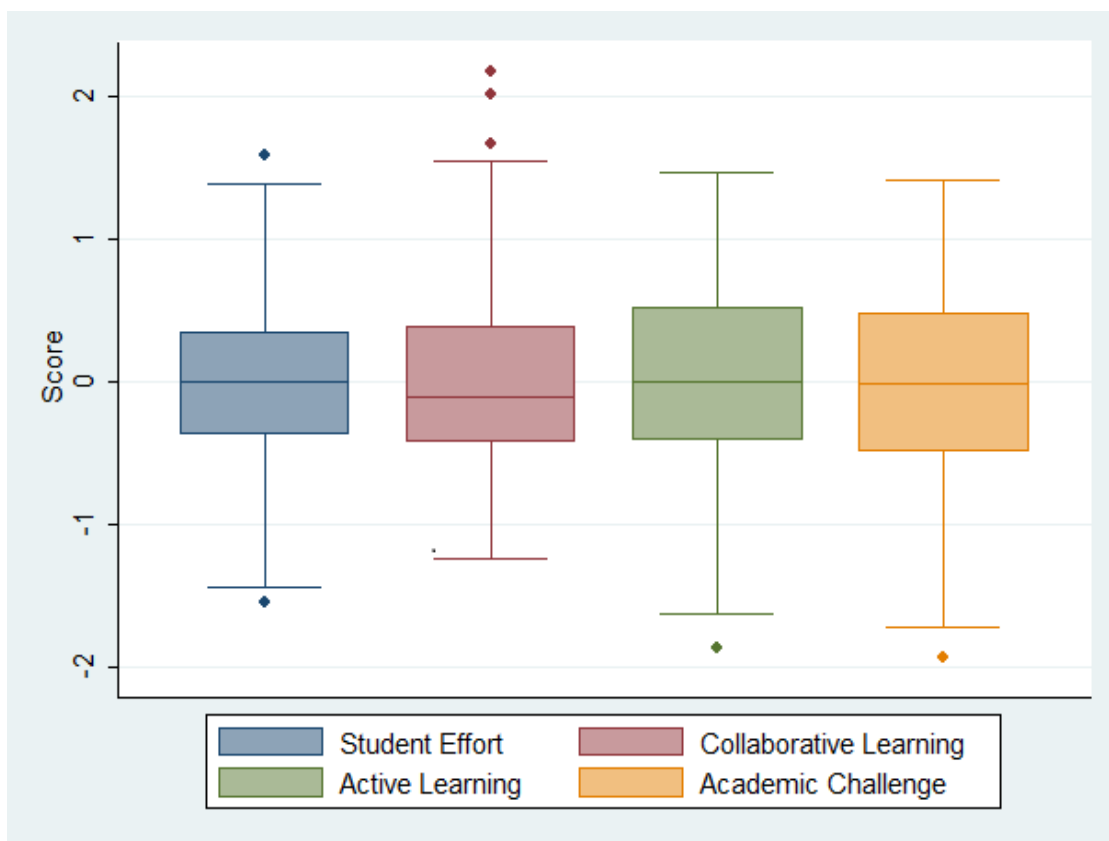
demonstrated in Figure 1.



*Figure 1*. Box plot distribution of outliers for criterion variables.

There is some disagreement about goodness-of-fit when using robust standard errors, however the use of $R^2$ is an acceptable measure of goodness-of-fit when heterskedasticity is present (Wooldridge, 2015). Using robust standard errors do not result in different coefficient estimates, meaning that the predicted values are the same with and without the robust option (Williams, 2015; Wooldridge, 2015). The model predicting collaborative learning scores and the model predicting active learning scores produced statistically significant measures of model fit, with an $F(9, 234) = 3.39$ (see Table 8) for collaborative learning and an $F(9, 225) = 2.75$ (see Table 7) for active learning, both of which are significant at the 0.05 level. This indicated that the fit of the intercept only model is significantly reduced compared to the model being analyzed.

OLS assumptions were met for two of the four models to be analyzed, the model predicting active learning scores and the model predicting academic challenge scores. The model predicting student effort scores did not meet the assumption of normality of residuals. The model predicting collaborative learning scores did not meet the assumption of no heteroskedasticity.

**Ordinary Least Squares**

After testing for the necessary assumptions, and conducting transformations where necessary, OLS regression analysis with robust standard errors was used to investigate whether the predictive variables of place-frames, including intent to transfer, sex, and age, potentially influence variables associated with student persistence measures, including student effort, collaborative learning, active learning, and academic challenge. OLS was conducted for each criterion variable, beginning with a model that used only

data from students with a rural place of origin ($N = 296$). As with the assumptions testing, for a survey to be included for any given variable, all of the questions about that variable had to be completed by the respondent, allowing for an appropriate conversion to a $z$ score.

First, the variable student effort was tested, with results listed in Table 6.

Table 6

*OLS Regression Results Testing the Determinants of Student Effort Scores for Rural Students*

| Independent Variable | Coefficient | Robust Std. Error | $t$ | $p$-value |
|---|---|---|---|---|
| Constant | -0.099 | 0.107 | -0.92 | 0.359 |
| Intent to transfer | 0.102 | 0.090 | 1.13 | 0.258 |
| 20 to 21 age group | 0.126 | 0.085 | 1.48 | 0.141 |
| 22 to 24 age group | 0.064 | 0.125 | 0.51 | 0.609 |
| 25 to 29 age group | -0.063 | 0.108 | -0.58 | 0.564 |
| 30 to 39 age group | -0.289 | 0.156 | -1.85 | 0.066 |
| 40 to 49 age group | -0.141 | 0.174 | -0.81 | 0.419 |
| 50 to 64 age group | -0.346 | 0.547 | -0.63 | 0.528 |
| 65+ age group | -1.342** | 0.107 | -12.50 | 0.000 |
| Sex | 0.018 | 0.077 | 0.23 | 0.818 |
| $N$ | 239 | | | |
| $R$-Squared | 0.0676 | | | |
| $F$-Statistic | 1.84 | | | |

*Note.* *$p =< .05$ **$p <= .01$ (two-tailed).
Dependent variable: Student Effort Score
Analysis conducted in Stata 12.1

Very low $R$-squared values suggest that the model explains very little of the variation in student effort scores. The $F_{(9,229)} = 1.84$ was not significant at the 0.05 level of statistical significance. This score indicated that the fit of the intercept only model is not significantly reduced compared to the model being analyzed. When tested, it was determined that predictor variable intent to transfer was not significantly related to

changes in student effort scores for rural students. For this variable, the constant was -0.099, and the intent to transfer coefficient was 0.102, representing a 0.090 change. The variable age significantly related to changes in student effort scores for certain age groups. Controlling for other variables in the model, students in the 65+ age group were predicted to have a 1.342 unit lower student effort score compared to students in the 18-19 year referent group, with results that are significant at the 0.05 level of statistical significance (Creswell, 2012).

The variable collaborative learning yielded more significant results than student effort, as recorded in Table 7. Again, very low $R$-squared value suggests that the model explains very little of the variation in collaborative learning. Intent to transfer was significantly related to increases in collaborative learning scores at the 0.05 level of statistical significance. The $F(9, 225) = 2.75$ is significant at the 0.05 level of statistical significance. This score indicated that the fit of the intercept only model is significantly reduced compared to the model being analyzed. After controlling for other variables in the model, an indication of a student's intent to transfer was related to a predicted increase of 0.179 in collaborative learning scores on average. Age significantly related to changes in collaborative learning scores for certain age groups.

Table 7

*OLS Regression Results Testing the Determinants of Collaborative Learning Scores for Rural Students*

| Independent Variable | Coefficient | Robust Std. Error | $t$ | $p$-value |
|---|---|---|---|---|
| Constant | -0.057 | 0.106 | -0.53 | 0.596 |
| Intent to transfer | 0.179* | 0.084 | 2.12 | 0.035 |
| 20 to 21 age group | 0.135 | 0.099 | 1.36 | 0.174 |
| 22 to 24 age group | -0.114 | 0.125 | -0.91 | 0.364 |
| 25 to 29 age group | -0.056 | 0.201 | -0.28 | 0.780 |
| 30 to 39 age group | -0.494** | 0.116 | -4.24 | 0.000 |
| 40 to 49 age group | 0.196 | 0.291 | 0.67 | 0.502 |
| 50 to 64 age group | -0.542** | 0.165 | -3.28 | 0.001 |
| 65+ age group | -0.852** | 0.106 | -8.01 | 0.000 |
| Sex | -0.165 | 0.091 | -1.81 | 0.072 |
| $N$ | 235 | | | |
| $R$-Squared | 0.0933 | | | |
| $F$-Statistic | 2.57* | | | |

*Note*. *$p = < .05$ **$p < = .01$ (two-tailed).
Dependent variable: Collaborative Learning Score
Analysis conducted in Stata 12.1

Controlling for other variables in the model, students in the 30 to 39 age group were predicted to have a 0.494 unit lower collaborative learning score on average when compared to the referent group. Students in the 50 to 64 and the 65+ age group were predicted to have a 0.542 and 0.852 unit lower collaborative learning score, respectively, on average when compared to the referent group.

The variable active learning had significant results concerning both age and intent to transfer, as demonstrated in Table 8.

Table 8

*OLS Regression Results Testing the Determinants of Active Learning Scores for Rural Students*

| Independent Variable | Coefficient | Robust Std. Error | t | p-value |
|---|---|---|---|---|
| Constant | -0.041 | 0.133 | -0.30 | 0.761 |
| Intent to transfer | 0.257* | 0.111 | 2.31 | 0.022 |
| 20 to 21 age group | -0.132 | 0.105 | -1.26 | 0.209 |
| 22 to 24 age group | -0.252 | 0.135 | -1.87 | 0.063 |
| 25 to 29 age group | -0.366* | 0.179 | -2.04 | 0.043 |
| 30 to 39 age group | -0.737** | 0.212 | -3.48 | 0.001 |
| 40 to 49 age group | -0.323 | 0.226 | -1.43 | 0.155 |
| 50 to 64 age Group | -0.664** | 0.237 | -2.80 | 0.006 |
| 65+ age group | -1.523** | 0.133 | -11.42 | 0.000 |
| Sex | -0.012 | 0.093 | -0.13 | 0.895 |
| *N* | 244 | | | |
| *R*-Squared | 0.1153 | | | |
| *F*-Statistic | 3.39** | | | |

*Note*. *$p = < .05$ **$p < = .01$ (two-tailed).
Dependent variable: Active Learning Score
Analysis conducted in Stata 12.1

The low R-squared value suggests that the model explains little of the variation in active learning scores. The $F(9, 234) = 3.39$ is significant at the 0.05 level of statistical significance. This score indicated that the fit of the intercept only model is significantly reduced compared to the model being analyzed. Intent to transfer was significantly related to increases in active learning at the 0.05 level of statistical significance. Controlling for other variables in the model, an indication of a student's intent to transfer was related to a predicted increase of 0.257 in active learning scores. Age also significantly related to changes in active learning scores for certain age groups. Controlling for other variables in the model, students in the 25 to 29 age group were predicted to have a 0.366 unit lower active learning score on average compared to the 18-19 age referent group. Students in the 30 to 39 age group were predicted to have a 0.737

unit lower active learning score on average compared to the referent group. Students in

the 50 to 64 age group and in the 65+ group were predicted to have a 0.664 and 1.523

unit lower active learning score, respectively, as compared to the referent group.

OLS regression results for the variable academic challenge resulted in statistically

significant results for only one age group, as demonstrated in Table 9. Once again, very

low R-squared value suggests that the model explains very little of the variation in

academic challenge scores. The $F(9, 235) = 1.64$ was not significant at the 0.05 level of

statistical significance.

Table 9

*OLS Regression Results Testing the Determinants of Academic Challenge Scores for Rural Students*

| Independent Variable | Coefficient | Robust Std. Error | $t$ | $p$-value |
|---|---|---|---|---|
| Constant | -0.121 | 0.136 | -0.89 | 0.374 |
| Intent to transfer | 0.269* | 0.115 | 2.34 | 0.020 |
| 20 to 21 age group | 0.099 | 0.118 | 0.84 | 0.400 |
| 22 to 24 age group | -0.250 | 0.164 | -1.53 | 0.128 |
| 25 to 29 age group | 0.146 | 0.221 | 0.66 | 0.510 |
| 30 to 39 age group | -0.087 | 0.227 | -0.39 | 0.700 |
| 40 to 49 age group | 0.470 | 0.269 | 1.75 | 0.082 |
| 50 to 64 age group | -0.004 | 0.468 | -0.01 | 0.993 |
| 65+ age group | 0.800** | 0.136 | 5.87 | 0.000 |
| Sex | -0.138 | 0.107 | -1.29 | 0.198 |
| $N$ | 245 | | | |
| $R$-Squared | 0.0591 | | | |
| $F$-Statistic | 1.64 | | | |

*Note.* $*p =< .05$ $**p <= .01$ (two-tailed).
Dependent variable: Academic Challenge Score
Analysis conducted in Stata 12.1

This score indicated that the fit of the intercept only model is not significantly

reduced compared to the model being analyzed. Intent to transfer significantly related to

the variable academic challenge at the 0.05 level of statistical significance. Controlling

for other variables in the model, an indication of a student's intent to transfer is related to

a predicted increase of 0.269 in academic challenge on average. For students in the 65+

age group, after controlling for other variables in the model, student were predicted to

have a 0.800 unit higher academic challenge score on average as compared to the referent

group.

**Binary Logistic Regression**

After confirming the data met the necessary assumptions, including characteristics

of variables, tests for multicollinearity, tests of linearity of continuous variables, tests for

normality of residuals, and testing for outliers, binary logistic regression analyses were

conducted to investigate predictive relationships between place-frame variables,

including age, sex and intent to transfer, with academic integration variables, including

student effort, active learning, collaborative learning, and academic challenge. The intent

for this analysis was to identify predictive relationships between CCSSE integration

variables, including student effort, collaborative learning, active learning, and academic

challenge, and student persistence at RFCC for students with a rural place of origin. After

using Stata for assumptions testing and correction with robust standard errors, it was

determined that the use of Stata would provide the most consistency for regression

analysis reporting. Binary logistic regression analysis of four predictor variables to one

criterion variable (persistence) determined that only the variable active learning resulted

in a statistically significant result, as demonstrated in Table 10.

Table 10

*Logistic Regression Results for Explaining the Likelihood of Student Persistence for Rural Students*

| Independent Variable | Coefficient | Robust Std. Error | $|z|$ | *p*-value |
|---|---|---|---|---|
| Constant | 2.706** | 0.312 | 8.67 | 0.000 |
| Student effort | -0.453 | 0.554 | -0.82 | 0.413 |
| Collaborative learning | 0.576 | 0.467 | 1.23 | 0.218 |
| Active learning | 1.127** | 0.419 | 2.69 | 0.007 |
| Academic challenge | -0.283 | 0.427 | -0.66 | 0.506 |
| *N* | 227 | | | |
| pseudo *R*-Squared | 0.0875 | | | |
| Wald *Chi²* | 10.21* | | | |

*Note.* *p* = < .05 **p <= .01 (two-tailed).
Dependent variable: Whether student persisted (1) or not (0).
Analysis conducted in Stata 12.1

Very low McFadden pseudo $R^2$ values suggested that the model explains little of the variation in the likelihood of student persistence. Wald $\chi^2$ value of 10.21 is statistically significant at the 0.05 level of statistical significance. As a result, the study can reject the model hypothesis that the coefficients are simultaneously equal to zero, meaning that the variables in the model lead the model to make better predictions of student persistence than a model without these variables (see Hox et al.2017; Mertler & Reinhart, 2016). The low R-squared scores do allow for consideration of factors that may influence persistence, including variables that are not accounted for in the CCSSE survey or which were not included in the items included in the factor scores (Nora et al., 2011).

**Research Questions Answered**

After conducting transformations where necessary, and testing for the necessary assumptions, OLS regression analysis with robust standard errors was used to investigate whether the predictive variables of place-frames, including intent to transfer, sex, and

age, potentially influence variables associated with student persistence measures, including student effort, collaborative learning, active learning, and academic challenge in Research Questions 1-4.

Research Question 1 - For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable student effort?

Research Question 2 – For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable collaborative learning?

Research Question 3 – For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable active learning?

Research Question 4 – For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable academic challenge?

**Research Question 1 Answered.** Based on the results in Table 6 from the OLS regression analysis with robust standard errors, no predictive relationship was found between independent place-frame variables, including intent to transfer, sex, and age, and criterion CCSSE integration variable student effort. In this regression, independent variables student sex and intent to transfer did not appear to contribute to the model, where the $F(9, 229) = 1.84$ was not significant at the 0.05 level of statistical significance. The result was to fail to reject the $H_01$: There is no predictive relationship between

student intent to transfer, student age, and student sex factors and CCSSE integration variable student effort. The independent variable student age indicated only one age group (65+) contributed to the model. However, the limited size of the group should be considered.

**Research Question 2 Answered.** Based on the results in Table 7 from the OLS regression analysis with robust standard errors, there was a predictive relationship between independent place-frame variables, including intent to transfer, sex, and age, and criterion CCSSE integration variable collaborative learning. Intent to transfer was significantly related to increases in collaborative learning scores at the 0.05 level of statistical significance, where the $F(9, 225) = 2.75$. Age also demonstrated a significant relationship to collaborative learning in three age groups (30-39, 50-64, & 65+), predicting lower collaborative learning scores in all three groups as compared to the referent group (18-19 age group). However, the limited samples in these age groups should be considered. As a result, the $H_02$ was rejected: There is a predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable collaborative learning.

**Research Question 3 Answered.** Based on the results in Table 8 from the OLS regression analysis with robust standard errors, independent variables student sex and intent to transfer appeared to contribute to the model, indicating a predictive relationship between independent place-frame variables, including intent to transfer, sex, and age, and criterion CCSSE integration variable active learning. Intent to transfer was significantly related to increases in active learning scores at the 0.05 level of statistical significance,

where the $F(9, 234) = 3.39$. Age was also significantly related to changes in active

learning scores in four age groups (25-29, 30-39, 50-64, & 65+). Although the limited

size of some of the older age groups should be considered, the $H_0 3$ was rejected: There is

a predictive relationship between student intent to transfer, student age, and student sex

factors and CCSSE integration variable active learning.

**Research Question 4 Answered.** Based on the results in Table 9 from the OLS

regression analysis with robust standard errors, little predictive relationship was found

between independent place-frame variables, including intent to transfer, sex, and age, and

criterion CCSSE integration variable academic challenge. Independent variable student

sex did not appear to contribute to the model. The $F(9, 235) = 1.64$ was not significant at

the 0.05 level of statistical significance. The result was to fail to reject the $H_0 4$: There is

no predictive relationship between student intent to transfer, student age, or student sex

factors and CCSSE integration variable academic challenge. Intent to transfer

significantly related to the variable academic challenge at the 0.05 level of statistical

significance where, but the fit of the intercept only model was not significantly reduced

compared to the model being analyzed. Additionally, only one age group (65+)

demonstrated a predictive change in scores for academic challenge, however, the limited

size of this group should be considered.

**Research Question 5 Answered.** Binary logistic regression analyses was conducted to

answer Research Question 5: What is the predictive relationship between CCSSE

integration variables, including student effort, collaborative learning, active learning, and

academic challenge, and student persistence at RFCC for students with a rural place of

origin? Based on the results demonstrated in Table 10, the binary logistic regression of four predictor variables to one criterion variable (persistence) demonstrated a predictive relationship between integration variable active learning and student persistence. The result was to reject $H_0 5$: There is a predictive relationship between CCSSE integration variables, including student effort, collaborative learning, active learning, and academic challenge, and student persistence at RFCC for students with a rural place of origin. Increases in active learning scores significantly related to increases in the likelihood of rural student persistence, demonstrating a modest relationship between active learning scores and student persistence, where the Wald $\chi^2$ value of 10.21 is statistically significant at the 0.05 level of statistical significance.

## Summary of Analyses

This study was guided by research questions to identify variables associated with academic integration which are predictive of student persistence in a small, residential community college in a rural or frontier setting. First, the study sought to determine which, if any, place-frame variables were predictive of academic integration, and second, to determine if those academic integration variables were predictive of persistence. OLS regressions demonstrated some relationships between two of the three predictor (place-frame) variables and academic integration. The binary logistic regression analysis of the four predictor variables to one criterion variable (persistence) determined that only the variable active learning resulted in a statistically significant result.

While respondent's sex demonstrated no predictive relationship with academic integration scores, both age and intent to transfer did have some measurable results. For

the variables student effort, collaborative learning and active learning, respondents in the 65+ age group were predicted to have lower scores as compared to the referent group, while having higher predicted scores in relationship to academic challenge. Additionally, respondents in the 30-39 age group were predicted to have lower scores, as compared to the referent group, in relationship to both collaborative learning and active learning. Respondents in the 25-29 age group were predicted to have lower scores in relationship to active learning, while respondents in the 50-64 age group were predicted to have lower scores in relationship to collaborative learning. Although these relationships were demonstrated, it is important to note that the total number of respondents for all four groups where age demonstrated a specific predicted increase or decrease in relation to an academic integration variable was limited to 27, indicating a potential need for further studies to support or replicate this finding. Respondent attitudes about active and collaborative learning, the two academic integration variables with the most relationships, may contribute to the lower predictive scores in these categories.

The place-frame variable intent to transfer also demonstrated measurable results in relation to academic integration variables. For academic integration variables collaborative learning, active learning, and academic challenge, a respondent's indication of an intent to transfer was related to a predicted increase in scores (see Tables 7, 8 and 9, respectively). However, for the academic variable student effort, no relationship with intent to transfer was detected (see Table 6). This may indicate that students with an intent to transfer are more likely to engage in academic integration than students who do not intend to transfer.

Increases in active learning scores significantly related to increases in the likelihood of rural student persistence at the 0.01 level of statistical significance. Predicted probabilities provide a more substantive interpretation of logistic regression results when statistical significance is present (Mertler & Reinhart, 2016). Changes in active learning scores are modestly related to increases in student persistence across all models. For the logistic regression, dummy variables were set to zero and other continuous variables were set to their means. Holding all else equal, student with scores one standard deviation above the mean of 0.9362 in active learning scores were approximately 9.5% more likely to persist than students with active learning scores one standard deviation below the mean, as demonstrated in Table 11.

Table 11

*Effects of Student Active Learning Scores on Predicted Probabilities of Student Persistence*

| Values of Active Learning Variable | | | | | |
|---|---|---|---|---|---|
| | Two Standard Deviations Below Mean | One Standard Deviation Below Mean | Mean | One Standard Deviation Above Mean | Two Standard Deviations Above Mean |
| Probability of student persistence | 0.7643 | 0.8734 | 0.9362 | 0.9690 | 0.9852 |

*Note.* All dummy variables were set to 0 and other continuous variables set to their means.

The active learning factor (Nora et al., 2011) included items from both student effort and academic challenge CCSSE benchmarks (CCSSE, 2017), asking participants to

establish their engagement in their learning based on each CCSSE item. The model

suggested that the more active a student is in their learning, the more likely they are to

persist. Students who were very active (two standard deviations above the above the

mean) were significantly more likely to persist than those who were very inactive (two

standard deviations below the mean). The predicted probability of persistence increases

from approximately 60% chance of persistence for the lowest active learning score

reported to approximately 98% chance of persistence for the highest active learning score

reported, as seen in Figure 2.
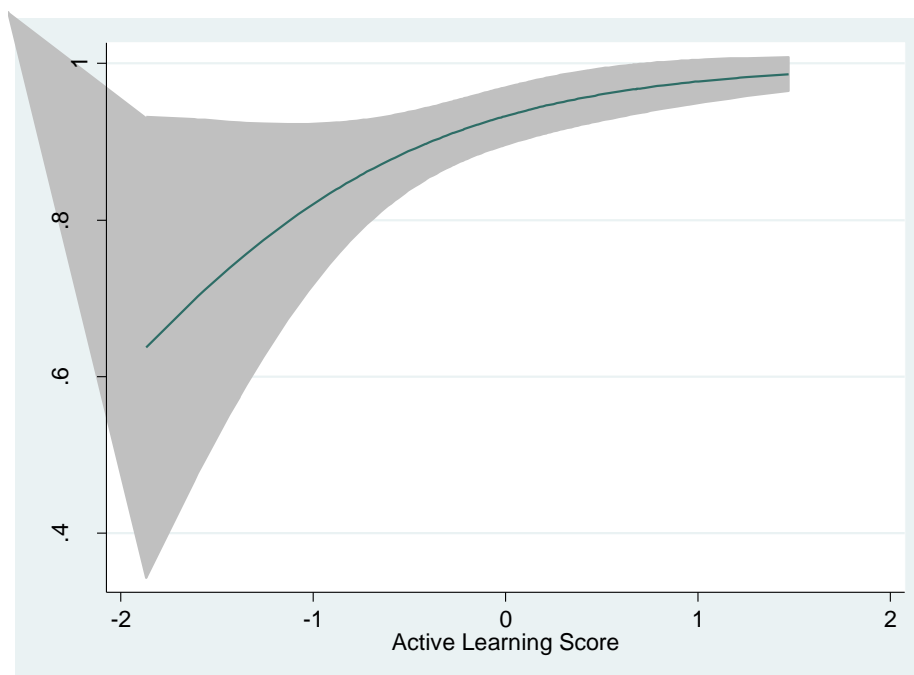


*Figure 2*. Effects of changes in active learning scores on predicted probability of student
persistence for rural students.

Additionally, active learning was significantly related to the predictor variable

intent to transfer, resulting in a predicted increase of 0.257 in active learning scores (see

Table 8). These results support the theories that active learning has a correlation with

student academic and social integration (Braxton, Jones, Hirschy, & Hartley, 2008; Tinto, 2010), and persistence in 2-year institutions has a correlation with transfer to 4-year institutions (Shapiro et al., 2013; Tinto, 2012). Based on this study, students at RFCC who engage in active learning are more likely to persist than their peers who do not engage in active learning. It is important to note here that the sample for this model included 227 completed CCSSE surveys and demonstrated a persistence rate of 93.3%. RFCC's institutional retention rate is 62% (NCES, 2017), which, while greater than the national average of 57.3% (NCES, 2016), is still below the persistence rate for the sample. There are a few potential explanations for this difference, including the definition of persistence used for this study which is continuous enrollment from spring semester of year one to fall semester of year two, and retention as used by the institution, which is continuous enrollment from year 1 to year 2 according to the RFCCIRO. Additionally, 89.09% of the students included in the sample were under 24 years of age, which is 10% higher than the total population of RFCC students in that age category (NCES, 2017). Because students under 24 are more likely to persist at RFCC, per the RFCCIRO, this demographic may have been overrepresented in the study, creating some potential bias in the persistence data.

Tinto (1988) also posits that student retention is related to student integration in both social and academic areas. Tinto (2012) later argues that academic integration is the gateway to social integration, suggesting that integrating with faculty and peers during active instruction and learning facilitates social interactions outside of the classroom, increasing the likelihood of persistence (Xu, 2017). Student interactions with an

institution as a whole contribute significantly to a student's likelihood to persist or depart

for a particular institution (Braxton et al., 2011; Hlinka, 2017). Because rurality

contributes to notions of connectedness, personal relationships and community

expectations (Burnell, 2003), integration into institutions of higher education may be

important for rural student persistence. This study demonstrated that active learning

potentially increases integration opportunities for rural students, increasing persistence.

Increased persistence could have a positive influence on overall retention and completion

of students, increasing the institutions credibility with rural students and their ability to

increase student learning, retention, and completion. Results from this study form the

basis of a position paper for the project deliverable focusing on three specific elements:

data gathering and analysis; the use of FYS courses at RFCC for student integration; and

the possibility of using the RFCC Teaching and Learning Center (TLC) to help faculty

investigate ways to increase active learning strategies to potentially increase integration

and persistence. As RFCC increases the prevalence of FYS courses on campus, an

opportunity to increase active learning engagement, demonstrated in this study to

increase integration, presents itself without major changes in the general distribution of

credits at the institution. In section three of this study, I outline the projected position

paper, focusing on project goals and rationale, as well as an evaluation plan and possible

implications of the project.

Section 3: The Project

**Introduction**

Like most community colleges in the United States, RFCC has increased efforts

to engage students in meaningful ways to improve persistence and completion rates, as

discussed in Section 1 of this study. In the investigation to determine whether there were

predictive relationships between academic integration variables, including student effort,

collaborative learning, active learning, and academic challenge, and persistence at RFCC,

I determined that active learning scores are a measure of student academic integration

and that these measures provided a statistically significant predictive relationship with

student persistence (see Table 11). For this study, I developed a project deliverable in the

form of a position paper to address the findings of the study and proposed potential

policy changes to increase rural student persistence at RFCC. The position paper

addresses how results from this study could be used by RFCC concerning policies and

practices in three areas: data gathering and analysis, the use of FYS courses for student

integration, and utilization of the TLC to increase active learning strategies, particularly

in FYS courses. This section includes a rationale for using a position paper as a

deliverable, a review of relevant literature to support the recommendations made in the

position paper, a description of and evaluation plan for the final project, and implications

of the project.

**Rationale**

The findings in the research discussed in Section 2 of this study provided insight

into potential policy and attitudinal changes that could increase the academic integration

and persistence of students at RFCC. Identifying which factors are predictive of academic integration can assist administrators in transforming data collection and analysis and teaching and learning strategies to increase student success. Using data and supporting documentation to inform decisions about policy making and implementation, instructional design, and strategic planning yields better results than reactionary policy making and planning (Sakamuro, Stolley, & Hyde, 2016). Background information about existing problems and potential solutions can be presented together in position papers more readily than other reporting formats (Hines & Bogenschneider, 2013; McKeon, 2005; Sakamuro et al., 2016). Through this study and project deliverable, RFCC can better assess whether the use of CCSSE data is appropriate for their student population and evaluate how to best determine which persistence strategies incorporate active learning practices to increase integration for students. Because position papers can convey specific information quickly and effectively (Mattern, 2013), it was a practical choice for delivering concise, unbiased research, which could be used in supporting institutional changes (see Kahn et al., 2009).

Position papers can be an advocacy tool used to help guide leaders about specific policies, positions, or courses of action in particular situations (Smith-Blair & Porche, 2017). Educational leaders and faculty, in particular, are hesitant to engage in educational policy or programmatic changes without significant evidence (Lewis, 2019). The position paper in this study allows RFCC leaders and faculty to assess data concerning institutional integration practices and determine whether recommended programmatic changes are best for the institution. While position papers have an intent to persuade the

audience (Mattern, 2013), the use of this format is a flexible format for distributing

information in a nonthreatening, research-based document (Curran et al., 2011; Gelfand

& Lin, 2013).

Position papers also allow for a discussion of multiple areas of concern and more

than one suggested remedy for those concerns, making this format a better option than

strategies that focus on only one issue at a time (Curran, Grimshaw, Hayden, &

Campbell, 2011; Smith-Blair & Porche, 2017). The research results from Section 2

demonstrate more than one area in which the problems of student persistence at RFCC

could be addressed. Not only does it establish a foundation for policy and programmatic

changes in persistence strategies, these potential strategies impact a variety of

departments at RFCC, including administration, instruction, and PD. Based on the variety

of potential recommendations and organizational departments affected, a position paper

provides the inclusive method of communicating with institutional leadership (Gelfand &

Lin, 2013; Smith-Blair & Porche, 2017).

## Review of the Literature

In the following review of literature, I offer a critical, peer-reviewed body of work

to support the development of recommendations advanced in the study project. This

study was guided by research questions designed to identify variables associated with

academic integration which are predictive of student persistence in a small, residential

community college in a rural or frontier setting. With this study, I initially sought to

determine whether place-frame variables were predictive of academic integration using

OLS regressions, with some demonstrated relationships between the two variable types

(see Tables 7, 8, and 9). Once predictive relationships were established, I employed

binary logistic regression to determine whether there were predictive relationships

between academic integration variables, including student effort, collaborative learning,

active learning, and academic challenge, and persistence at RFCC. The findings showed

that active learning scores did have a statistically significant predictive relationship to

student persistence (see Table 11). The results suggested that the more a student engaged

in active learning, the more likely they were to persist.

To gain a better understanding of these results, and the possible implications for

RFCC, I developed a position paper to outline recommendations for institutional changes

to data collection, the structure and function of institutional FYS courses to include more

active learning opportunities, and the use of the campus TLC to engage in meaningful

PD. In this section, I review literature highlighting the importance of institution specific

data collection and use, the structure and function of FYS courses in higher education,

and the role of active learning in student success. The theoretical framework concerning

academic integration, as presented in Section 1 of this study, is reiterated as it relates to

the project deliverable. Tinto's (1988) institutional departure theory played a pivotal role

in the design of the study and helped shape the recommendations as summarized here. As

RFCC experienced a lull in enrollment in the study year, per the RFCC president,

measures to increase the persistence of students who did come to campus became a

priority, aligning these recommendations with the needs of the institution.

For this literature review, I located peer-reviewed journal articles and scholarly

books concerning the topic area after searching resources at the Walden University

Library and RFCC Library. Additionally, local university websites as well as ProQuest, EBSCOhost and ERIC databases, were used along with Google Scholar. Wherever possible, searches were limited to material published in the last 5 years. Material published outside of this range was also used to increase understanding of the problem and to enhance the findings of more recent studies. Search terms included, but were not limited to, *community college persistence, data collection, CCSSE data, CCSSE use, data driven planning, persistence, completion, academic integration, active learning, first-year seminar, tailored instruction, professional development,* and *teaching and learning.*

**Data Collection**

As the demand for data-driven decision making and strategic planning increases in higher education (Fong et al., 2018), community colleges, in particular, are encountering challenges in data collection and use based on both internal and external factors (Feldman, 2017; Wormington & Linnenbrink-Garcia, 2017). The most common method for collecting and reporting data at the community college level is the CCSSE, which is primarily used to measure educational practices designed to increase student success measures (Angell, 2009). This national survey and its results are frequently cited when institutions make programmatic changes, especially concerning student integration and retention (Marti, 2004; Petrin et al., 2014). While the practice of using national trend data from sources like the CCSSE are commonplace among community colleges, it may not be the best method of interrogating the needs of a particular campus where persistence and retention are concerned.

Cole, Gonyea, and Rocconi (2017) argued that campuses that explore data from their own campuses can gain a better understanding of the unique needs of students who attend individual institutions, allowing leaders to better develop strategies for the retention of those students. Data assessment at the institutional level can be more effectively utilized for development of programmatic initiatives, which contribute to strengthening student learning (Lawson et al., 2015). Additionally, data-driven decisions should include longitudinal data collection and evaluation, which is not typical of contemporary institutional decision making (Essa & Laster, 2017). For data-driven initiatives to be successful, they should include data collected from specific populations and address issues that include multiple groups across specific campuses (Essa & Laster, 2017). Because student retention has to happen at the campus level (Cole et al., 2017), data collection used to drive campus initiatives aimed at increasing student retention must also happen on the campus level (Fong et al., 2018; Lawson et al., 2015; Xu, 2017). Unfortunately, data collection at the institutional level is not a primary practice at the community college level.

**Community Colleges.** Community colleges frequently use nationally developed data collection models rather than institution-specific data when identifying issues of student attrition (Mertes & Jankoviak, 2016). There are various reasons for the use of national trend data, including cost, convenience, and resources available to institutions (Juszkiewicz, 2017). The unfortunate side effect of using national trend data, however, is inconsistency in both data collection methods and the use of nonspecific results in decision-making (Juszkiewicz, 2017). Data from individual campuses often showed

differences in expectations of community college students as well as actual issues on the

individual campuses when compared to national trend data (Essa & Laster, 2017). Of the

952 public, 2-year institutions in the U.S., more than half are considered rural serving

(Thornton & Friedel, 2016). Of those, 137 are considered small, rural-serving colleges,

meaning they have an enrollment under 2,500 students (Thornton & Friedel, 2016). Data

collection on those campuses happens, but the data are rarely used to make programmatic

decisions (Thornton & Friedel, 2016). While the data exists, centralized collection,

interrogation, or cross-referencing of institutional data rarely occurs, especially at small

and/or rural community colleges, where institutions may not have the resources to engage

in such processes (Juszkiewicz, 2017; Thornton & Friedel, 2016). Community college

students in general and rural community college students specifically often have different

goals than their urban or 4-year peers (Mertes & Jankoviak, 2016), rendering national

trend data less useful than institutional specific data. Therefore, it is important that

community college leaders conduct in-depth data collection of their own students to

identify relevant interventions aimed at increasing student persistence on their campuses

(Xu, 2017).

      **Variables Examined.** Before investing significant resources in programs to

improve persistence, campus leaders, including faculty members, need to understand the

precise factors that contribute to student persistence or early withdrawal on their

campuses (Xu, 2017). Significant literature exists examining factors that affect

community college persistence (Fong et al., 2018; Mertes & Jankoviak, 2016; Tinto,

2006; Wolf, Perkins, Butler-Barnes, & Walker, 2017; Xu, 2017), but the variables

utilized in previous studies fail to generalize from campus to campus with meaningful

results (Fong et al., 2018; Mertes & Jankoviak, 2016; Xu, 2017). Differences in how data

are collected at different institutions presents significant differences in results

(Juszkiewicz, 2017). Variables, such as full-time enrollment, integration, retention,

success, and achievement, have different meanings at different institutions, creating

errors in generalization of data sets (Essa & Laster, 2017; Fong et al., 2018; Mertes &

Jankoviak, 2016; Xu, 2017). CCSSE and other data collection methods evaluate and

interpret only cognitive variables when discussing academic integration or success

(Fauria & Zellner, 2015; Fong et al, 2018; Wolf et al., 2017). Much of this data collection

has been driven by PBF initiatives, forcing institutions to make educational decisions

based on demands for accountability (Thornton & Friedel, 2016), which largely ignored

the direct effects on institutions (Dougherty & Reddy, 2011). PBF requires institutions to

focus efforts around measurable variables, specifically completion, without considering

the various interpretations of what completion means from state to state or institution to

institution (Thornton & Friedel, 2016). Moreover, various studies have determined that

there is no firm evidence that PBF impacts rates of persistence or completion on a

statistically significant level (D'Amico et al., 2014; Friedel et al., 2013; Thornton &

Friedel, 2016). Even without evidence of success, PBF has a continued influence on the

decision-making process of institutional leaders, in part based on national level trends in

PBF demands (Thornton & Friedel, 2016). If PBF decreases based on institutional

measures, intuitions are affected; lower state appropriates typically result in higher tuition

rates (Juszkiewicz, 2017). This is especially poignant when considering that national

trend interpretations of completion are not generalizable to community college students, who sometimes take 300% of the normal time to complete (Juszkiewicz, 2017). Understanding the unique variables that affect community college students in their higher education journey is important.

For community colleges, variables outside the normative trends in data collection may be more important than cognition and completion. Noncognitive variables, including individual goals, student perspectives, and active student choice (Dewberry & Jackson, 2018; Fauria & Zellner, 2015) may contribute significantly to the persistence of community college students. Fong et al. (2018) emphasized the need for person-centered data collection and interrogation to identify variables that significantly influence student success and retention. Because variables that influence student success differs from student to students, and from campus to campus, data collection cannot be a one size fits all process. Person-centered approaches focus on individual combinations of variables that contribute to perceived success (Wormington & Linnenbrink-Garcia, 2017). Because traditional cognitive predictors account for only 25% of college achievement (Fong et al., 2018), using independent data collection tools may better help institutional leaders identify specific themes affecting persistence and retention that may be outside the normative trend data (Hlinka, 2017; Mertes & Jankoviak, 2016). In order to demonstrate a commitment to student welfare and completion, leaders need to invest resources in campus specific data with feedback loops, including student feedback and perspectives, to inform programmatic improvements aimed at student success, which may not include completion (Cole et al., 2017; Feldman, 2017; Juszkiewicz, 2017;  Xu, 2017). In this

study, I attempted to identify some variables that are unique to small, rural community college students at RFCC in an attempt to better direct data collection processes. Person-centered approaches go beyond cognitive and completion variables (Fong et al., 2018) to best identify the needs of the subject of the institutional programming: students.

**Active Learning**

Although there was a spike in community college enrollment following the 2007-2009 recession, and nearly 40% of all higher education students in the United States are enrolled in a community college (Shapiro et al., 2014), recent data suggests a decline in enrollment in community colleges since 2011 (Juszkiewicz, 2017). This decline can be attributed, in part, to the increase in secure employment in 30 million jobs that do not require higher education credentials or degrees (Juszkiewicz, 2017). Further, even when students do enter higher education immediately after high school graduation, levels of early student departure remain high (Braxton, Milem, & Sullivan, 2000). With enrollment down nationwide (Juszkiewicz, 2017), state-based funding models shifted to completion rather than enrollment in many areas (Thornton & Friedel, 2016). In order to comply with external initiatives to increase college completion rates, and to secure PBF, leaders in higher education have shifted their educational focus to center on persistence and completion (Dougherty & Reddy, 2011; Friedel et al., 2013), creating the introduction of various measures aimed at increasing integration of students.

Tinto (1993) argued that if students were to persist at an institution, social and academic integration had to occur. Integration can be defined as patterns of interaction and engagement between students and an institution in the first year of college (Tinto,

2006). While Tinto initially suggested that both social and academic integration were necessary for retention, further research has indicated that integration must occur in the classroom, where academic integration leads to social integration, especially at the community college level (Braxton et al., 2000; Tinto, 2006; Xu, 2017). Further, academic integration is largely influenced by active learning opportunities in the classroom (Braxton et al., 2000; Xu, 2017). Active learning, or learning in which students engage in the active construction of their knowledge (Carr, Palmer, & Hagel, 2015), results in academic and social networks (Buchenroth-Martin, DiMartino, & Martin, 2017). Additionally, active learning has been found to be a more effective strategy for student learning than traditional, didactic approaches (Andrews, Leonard, Colgrove, & Kalinowski, 2011; Freeman et al., 2014). Although there are arguments that demonstrate the effectiveness and efficiency of traditional lecture-based instruction, especially in classes with large student numbers (Lom, 2012), students continue to contend that lectures do not keep them engaged in the learning process, and they learn less in lecture-only courses than they do in active learning environments (Lumpkin, Achen, & Dodd, 2015). A large body of research suggests that active learning not only increases student learning (Abeysekera & Dawson, 2015; Buchenroth-Martin et al., 2017; Crouch & Mazur, 2001; Carr et al., 2015; Hatch & Bohlig, 2016; Jensen & Finley, 1996; Lom, 2012; Lumpkin et al., 2015), but is an antecedent of academic integration, and thus persistence (Braxton et al., 2000). This study verified previous findings, indicating a positive relationship between active learning and persistence at RFCC.

Academic integration and active learning are conceptually distinct theories that influence each other, but should not be confused (Braxton et al., 2000; Tinto, 2006). Antecedents of academic integration are classroom experiences that shape a student's perception of their academic integration (Braxton et al., 2000). Academic integration can occur formally or informally, when students engage with academic norms and engage with peers and faculty both in and outside of learning environments (Pascarella & Terenzini, 2005; Tinto, 1993; Xu, 2017). Because active learning is an antecedent to academic integration, institutional conditions of student engagement are shifting to reflect studies indicating that faculty members and administrations need to foster conditions that promote active learning opportunities (Harper & Quaye, 2013; Xu, 2017). An institution's environment, which is most frequently associated with an institution's control over academic quality, was significantly related to persistence (Braxton et al., 2000; Xu, 2017). The completion agenda, fueled by PBF, has led to a focus on pinpointing and increasing practices in higher education aimed at increasing engagement of students in an attempt to elevate their performance, persistence and completion (Hatch & Bohlig, 2016; Kuh & O'Donnell, 2013). Institutions, and community colleges in particular, have increased efforts to provide scale-up academic practices, hoping to increase persistence through practices including FYS (CCCSE, 2012; Hatch & Bohlig, 2016; Jenkins-Guarnieri et al., 2015; Price & Tovar, 2014). RFCC is among the institutions that modified institutional academic requirements to increase efforts at retention in the first part of a student's academic career by introducing mandatory FYS

courses, creating an opportunity to discuss the purpose, outcomes and uses of these courses both at RFCC and in a larger context.

**First-Year Seminar**

FYS courses are courses typified by high-impact practices designed to increase success in areas of persistence and deep learning (Tukibayeva & Gonyea, 2014). Studies of deep learning, or active learning practices, are positively associated with critical thinking, increased cognition and academic integration (Kilgo, Ezell Sheets, & Pascarella, 2015; Snyder et al., 2017). Elements of FYS courses, including high expectations, writing-intensive assignments and activities, collaborative assignments and active learning opportunities engage higher-order thinking skills, especially in underrepresented student groups who tend to populate community colleges, including first generation students, women and first-year students (Bowman & Culver, 2018; Kilgo et al., 2015). Active learning, in general, is especially helpful for students who enter college with remediation needs (Bowman & Culver, 2018; Gaudet, Ramer, Nakonechny, Cragg, & Ramer, 2010). Additionally, older students do not demonstrate measurable gains from social integration practices, but demonstrate positive reports about first-year experiences when active learning and academic integration occurs (Tukibayeva & Gonyea, 2014). Students who start college later in life do not socially integrate, making academic integration important for their persistence (Heller & Cassady, 2017). These high –impact practices increase academic integration because they require students to interact with professors and classmates, require an investment of time by the students, and allow students to apply their knowledge to learned material and beyond (Kilgo et al.,

2015; Snyder et al., 2017; Tukibayeva & Gonyea, 2014). Unfortunately, there is some debate as to whether FYS courses are effective, or simply popular.

While FYS course have been widely implemented, especially on community college campuses, much of the positive research concerning these courses is based on 4-year institutional settings (Edwards, 2018; Kimbark, Peters, & Richardson, 2017). Edwards (2018) found no significant difference in persistence or other success measures amongst students who took a FYS class and those who did not. Fike and Fike (2008) determined that FYS courses were not a predictor of persistence in their community college study, and Malik (2011) did not find a relationship between FYS courses and academic achievement. Additionally, it is still unclear whether these programs improve student learning (Jenkins-Guarnieri et al., 2015; Permzadian & Credé, 2016). Additionally, when asked about their perceptions about FYS courses, student responses indicated a lack of understanding about course objectives and outcomes, an overwhelming (75%) response questioning why they had to take the course, and a general feeling that the course was an "easy A" course that the institution was using to make money (Kimbark et al., 2017). Older students indicated their dislike for FYS courses, citing a waste of time and class assignments that were neither age nor intellectually appropriate for them (Heller & Cassady, 2017). One cause of mixed results in research concerning FYS courses could be vague labeling practices about what constitutes a FYS course (Hatch & Bohlig, 2016).

Bahr (2010) argued that before an evaluation of effect can take place, an identification in concise terms must occur. The body of FYS research, however, does not

seem to have a conceptual framework to define what constitutes a FYS program (Clark & Cundiff, 2011; Hatch & Bohlig, 2016; Permzadian & Credé, 2016). This lack of consistency inhibits generalization of findings, especially since evidence of effectiveness is largely a result of single institution studies with few generalizable results (Hatch & Bohlig, 2016; Lester, 2014). Moreover, community college data is lacking, with researchers opting to use larger, more inclusive 4-year institutions for study, and community colleges tailoring FYS programs to fit their needs (Permzadian & Credé, 2016; Young & Hopp, 2014;). Finally, many institutional initiatives contaminate research results by combining orientation and student success elements into FYS courses, which conceptually have different content (Hatch & Bohlig, 2016). RFCC combines minimalist orientation skills and academic success skills, creating an unclear intent for their FYS offerings. Goodman and Pascarella (2006) delineated FYS courses through measures of increased academic performance, persistence, and academic integration, to which Jenkins-Guarnieri et al. (2015) added an emphasis on the student's discipline. Orientation courses typically include introductions to student services and resources on campus (Koch, Griffin, & Barefoot, 2014), but do not engage in academic challenge (Kimbark et al., 2017). Student success courses may have overlap with FYS content, but focus primarily on successful practices, such as time management and remediation, rather than higher-impact practices (Heller & Cassady, 2017; Kimbark et al., 2017). Although discussions about success of FYS at community college continues, it seems clear that in order for courses of this type to increase integration and persistence, a clear strategic purpose for the course should be established, with measurable outcomes from high-

impact best practices. In order for this type of success, faculty teaching FYS courses must have an understanding of ways to integrate active learning into their courses and have ownership of their content (Lewis, 2019).

**Professional Development**

In order for FYS courses to be effective or active learning to occur, faculty must engage in successful teaching best practices. Community college learners present unique teaching challenges when nationally more than 60% require remediation, more than 40% work full-time, and where there is an imbalance in the distribution of state-based financial resources (Mellow & Heelan, 2014). Additionally, college teaching, and especially teaching at the 2-year level, requires little formal educational training and has few standard processes for evaluation or remediation of teaching (Gormally, Evans, & Brickman, 2014). When institutional leaders implement initiatives as a reaction to demonstrate compliance with external requirements, changes are often implemented without attention to the teaching needs of the faculty (Gerken, Beausaert, & Segers, 2016). Unfortunately, few instructors at this level have a clear understanding of how to transform their courses into student based, active-learning environments (D'Avanzo et al., 2012). Often when faculty have training to help transition teaching methods, they report a need to continued faculty development beyond the initial training (deNoyelles, Cobb, & Lowe, 2012). Traditionally, however, PD has been relegated to formal in-service settings where training activities and workshops are combined with general information dissemination in a one-time format (Desimone & Pak, 2017; Gerken, et al., 2016). This disconnect between an administrative understanding for the need for ongoing

PD for faculty (De Rijdt, Stes, & van der Vleuten, & Dochy, 2013; van den Bergh, Ros, & Beijaard, 2015), and the expectation for faculty to make pedagogical changes with little or no institutional support (Gerken et al., 2016; Rainwater, 2016; Schademan & Thompson, 2016) creates an environment where best teaching practices may not be engaged in the classroom. Even when PD opportunities are present, clear learning objectives for faculty development are often absent (van den Bergh et al., 2015), with instructional emphasis being placed on meeting institutional or field standards rather than focusing on teacher learning and development (Gerken et al., 2016; van den Bergh et al., 2015).

PD for higher education faculty has historically involved specialized workshops, learning opportunities to remain relevant in a particular field, and training in outcome-specific teaching strategies (Barefoot et al., 2010; deNoyelles et al., 2012; Mellow & Heelan, 2014). The importance of PD as a method for changing or improving teaching practices is widely acknowledged (van den Bergh et al., 2015). Increased emphasis has been placed on faculty to alter teaching practices intended increase students learning and elevate student achievement outcomes (Desimone & Pak, 2017). However, despite efforts to increase best-practice teaching strategies and include high-impact approaches, most classrooms worldwide continue to engage in knowledge transmission focusing on lower order skills and cognitive levels (Zohar & Lustov, 2018), with teachers reverting to traditional teaching methods shortly after attending PD trainings (Schademan & Thompson, 2016; Zohar & Lustov, 2018). While administration and faculty both argue that PD is important, only about 10% of learning in PD settings actually transfers to job

performance (De Rijdt et al., 2013). Further, De Rijdt et al. (2013) argued that the need to

faculty development is at an all-time high as we transition to active-learning models in

higher education. Unfortunately, without institutional changes in how PD is used to

enhance teaching, many faculty members will continue to lack the deep knowledge

required for altering teaching patterns and continue to revert to mechanical approaches in

knowledge transmission efforts (Zohar & Lustov, 2018).

Faculty development is one initiative that contributes to student learning (Jacob,

Xiong & Ye, 2015). While PD in higher education focuses largely on meeting the

professional needs of research professionals, PD opportunities largely fail to engage in

academic or instructional needs of faculty members in effective ways (Green & Whitsed,

2013; Lenning & Ebbers, 1999). In order for PD to be a successful tool in faculty

development and instructional growth, faculty need both content knowledge and an

understanding of how to teach on a metacognition and meta-strategic level (Pehmer,

Gröschner, & Seidel, 2015; Schademan & Thompson, 2016; Zohar & Lustov, 2018).

Active student learning is largely built from the scaffolding of knowledge about the

content, and the students' ability to apply that knowledge in a meaningful activity or

discussion (Pehmer et al., 2015). If faculty have little or no training in how to teach

(Barefoot et al., 2010), providing the scaffolding alone will not result in successful

student learning. Overwhelmingly, it is accepted that when students are actively involved

and engaged in concrete experiences, learning is more effective (Penny, Frankel, &

Mothersill, 2012). This theory holds true for faculty members as well as students.

Although there are positive results from well-structured PD programs (van den Bergh, et al., 2014; Lydon & King, 2009), research on PD typically ends in disappointing results (Gerken et al., 2016; van den Bergh et al., 2015). Teaching and learning to teach are unique, employing different knowledge bases, and are contextually situated (van den Bergh et al., 2015; Zohar & Lustov, 2018), all of which must be addressed in PD programming. Even when faculty acknowledge a need to increase active learning practices to increase student learning, they often do not have the metacognitive basis to create meta-strategic classroom changes to include more high-impact learning practices (Fauria & Zellner, 2015; Zohar & Lustov, 2018). As such, PD programs may better serve the needs of faculty, especially at the community college level, by shifting form the traditional one-time, workshop format to an ongoing, collaborative, active program to increase teaching effectiveness (Barefoot et al., 2010; Desimone & Pak, 2017). Research suggests that for PD programs to be effective in changing long-term teaching strategies, the programs must include opportunities for faculty to engage in active learning of new strategies (Desimone & Pak, 2017; Gerken et al., 2016); a clearly identified content focus (Desimone & Pak, 2017; van den Bergh et al., 2015); ongoing training and collaborative opportunities, lasting throughout the year (Barefoot et al., 2010; Desimone & Pak, 2017; Zohar & Lustov, 2018); feedback on practice and implementation of new strategies other than student evaluations (Gormally et al., 2014; Lenning & Ebbers, 1999; Nicol, Thomson, & Breslin, 2014); and collective participation of faculty members, driven by faculty members (Braxton et al., 2000; Desimone & Pak, 2017; Tukibayeva & Gonyea, 2014).

One option for increasing meaningful PD on campuses, especially at the community college level, could include the use of TLCs. TLCs, also called centers for teaching and learning, frequently work across disciplines to support and advance institutional instructional practice and PD for teaching agents (Horii et al., 2017; Schademan & Thompson, 2016). Recognizing faculty members as lifelong learners (Brancato, 2003) who need access to frequent and ongoing learning and development opportunities (Schademan & Thompson, 2016) may allow for better PD programming on campuses through the use of TLCs. Learning metacognition and meta-strategies, restructuring courses and activities, and collaborating with peers typically are not reflected in faculty contracts or teaching loads (Rainwater, 2016), disincentivizing faculty members from engaging in these practices. TLCs could provide campuses with a hub for resources, helping faculty best determine what they may need and helping them identify the best source for potential resources on campus (Beach, Sorcinelli, Austin, & Rivard, 2016). Additionally, TLCs can offer and engage in on-going, long-term PD opportunities on campus, driven by the needs of faculty members, and often managed by faculty leaders (Froyd et al., 2017; Kelley, Cruz, & Fire, 2017). Having a TLC on campus could also increase collaboration in and across disciplines (Wright, Lohe, & Little, 2018), as well as integrating services of other departments, such as instructional technology, disability support, tutoring, and distance education (Beach et al., 2016; Kelley et al., 2017).

TLCs are not a new concept, with a history of over 50 years, long representing a need for faculty growth and development (Ortquist-Ahrens, 2016). TLCs should be

informed by educational literature and research rather than national trends (Horii et al., 2017) to address teaching and learning needs at an institution. TLCs are effective at facilitating change through providing individual instructor level support (Horii et al., 2017); engaging faculty about how to teach well, using feedback, collaboration, active learning and observation for metacognitive learning (Horii et al., 2017; Riordan, 2014; Zohar & Lustov, 2018); employing evidence based practices (Horii et al., 2017; Ortquist-Ahrens, 2016); providing safe spaces to practice teaching meta-strategies(Horii et al., 2017; Wright et al., 2018); and encouraging continued learning in faculty content areas (Horii et al., 2017; Rainwater, 2016). Institutional TLCs could augment, or even replace, outdates notions of one-time PD opportunities in the workshop setting. For TLCs to be most effective, managers need to map the space using specific goals and outcomes of the center, and while encouraging existing networks to continue and expand their collaboration efforts to improve teaching methods (Horii et al., 2017). Faculty led initiatives and faculty leadership can increase center use when clear goals have been communicated (Froyd et al., 2017). RFCC has a newly acquired TLC, repurposing space from a relocated tutoring center, and offering primarily faculty-driven content. Through a combination of data collection and analysis and PD in the TLC, RFCC could transform teaching and learning, especially in FYS courses, to increase active learning, and thus persistence, on campus.

## Project Description

The results of this study, including institutional recommendation for the administration of RFCC based on study findings, were condensed into a position paper,

found in Appendix A. In the position paper, I discussed general problems with persistence in higher education and identified potential problems at RFCC, the methodology for researching those problem areas, significant findings from the research, and recommendations for addressing the problem areas using best practices based on a condensed review of the literature surrounding those areas. The paper included visual elements to increase readability and the identification of key data quickly. In this section of the study I discussed the planning details for the project, including necessary resources, existing support, potential barriers, and potential solutions. Roles and responsibilities, including projected timelines for implementation of recommendations and a recommendation that the institution develop an evaluation plan for any implemented programmatic changes, are also included.

**Resources and Support**

This study largely originated from a conversation with the college president about the lack of integration and persistence data concerning RFCC and similar institutions, and the support for a study to help fill that gap in data. The institution as a whole is concerned with drops in enrollment and a shift to PBF based on completion, making the leadership supportive of institutional studies concerning persistence. Once the initial data was gathered, completing a position paper required very few resources.

Conversations with personnel in the Institutional Research Office, as well as the dean for student learning occurred to verify institutional trends and policies. RFCC has an existing TLC and mandatory FYS courses, both of which provide the structural support necessary for the proposed recommendations. The newly appointed TLC director

frequently seeks suggestions for content for the center and faculty who are willing to collaborate on workshops and trainings. The institution hosts an all-employee meeting once each month where data about the institution and changes in policy or process can be presented, including potential recommendations from studies such as this one. Overall, strong support for data driven recommendations and change exists at the institution.

**Potential Barriers**

Primary barriers for the recommendations of the position paper include time, resources, and ownership of new initiatives. RFCC is often an adopter of national trend initiatives with little collaborative agreement on campus. As a result, resistance to change, in both the faculty and administration, creates additional complications when introducing new or different ideas for campus improvement. How ideas are presented is as important as who presents new ideas on many campuses (Bali & Caines, 2018), so consideration of challenges is important when making recommendations.

The most prominent barrier for the recommendations of the position paper was time. Institutional research relies on the use of the CCSSE for data about student learning and integration at RFCC. The recommendation for RFCC to evaluate that process and potentially replace data collection with a tool that better collects unique institutional data would require the development of such a tool, which could be time consuming for an office with a very small staff. Likewise, for faculty to implement active learning in classes, significant amounts of time are required both to develop new teaching meta-strategies, but also to implement the instruction in the classroom (Kilgo et al., 2015). Adapting to an active-learning model requires significant amounts of faculty time to

revise syllabi, revise lessons, and practice strategies, as well as requiring changes to grading and assessment (Lumpkin et al., 2015). Professional development for faculty should be ongoing, rather than a one-time workshop (Gormally et al., 2014), requiring additional faculty time and increased time for the director of the TLC. Because feedback is an important part of faculty development (van den Bergh et al., 2014), additional time for department chairs and department managers to evaluate teaching strategies in the classroom setting will be necessary. Additionally, faculty who teach online will need additional time to reconfigure delivery platforms to better engage active learning in computer moderated forms.

In addition to faculty time, changes to goals and outcomes for FYS courses will need to be aligned for purpose and consistency, requiring the curriculum committee to review and modify outcomes for those courses. The first year experience coordinator will be required to spend time with both the committee and instructors who teach FYS courses to create consistency in outcomes and curriculum for the courses. Institutional leaders will need to discuss the recommendations to determine whether the mixed burdens of the current FYS structure best meets the needs of the students, or if students would be better served by disassociating the minimalist orientation skills and academic success skills to create different settings for each set of skills. FYS faculty will need time to review and revise their curriculum and meta-strategies in those courses, which could result in more time spent grading. Changing curriculum to focus on active learning practices is time consuming for both faculty and students (Bowman & Culver, 2018), making time the greatest challenge for implementation of recommendations found in the position paper.

Because time is such a big factor, and because faculty planning is frequently free labor (Hora, 2016), acceptance of the proposed programmatic changes presents another potential barrier. Faculty do not enjoy the idea of buy-in, preferring to have ownership of proposed changes (Bali & Caines, 2018). Unfortunately, administrative leaders also tend to want to claim ownership of proposed changes, creating a resistance to change in general (Bali & Caines, 2018; Schultz, 2014). Having change mandated, rather than manifesting organically, creates additional resistance, especially among faculty (Gohar, El-Basil, & Gomaa, 2018; Watty, McKay, & Ngo, 2016). Fear of change and uncertainty, especially where inadequate training may be a potential source of fear, can lead to resistance to recommendations for change. Engaging the director of the TLC to help facilitate training to ensure ownership of curricular changes, and to provide training for those who feel overwhelmed by the idea of shifting their educational paradigms to an active learning style, can help alleviate some of the resistance to change. Additionally, engaging in a policy of transparency thought out the implementation process will help develop relationships necessary for trust building and uncertainty reduction (Buchanan et al., 2015; Gohar et al., 2018). By refocusing change as an effort in increase student success, and to a lesser extent to secure variable state funding based on completion, those resistant to change may have a better understanding of how these recommendations affect the overall wellbeing of the institution.

Finally, institutional resources at RFCC, like other higher education institutions, are limited. Declining enrollment results in lower state funding, making it difficult for faculty to be compensated monetarily for the work they would undertake in the

recommendation. Staffing is down, and the rural nature of the institution results in a very small adjunct pool to absorb instructional costs. However, providing reassign time to the TLC director and the first year experience coordinator could alleviate some of the pressures, at least in those areas. Additionally, faculty could receive some reassign time on a rotating basis to align their meta-strategies with active learning methods.

Administrative leaders must demonstrate appreciation for faculty and staff involved in changes to promote an atmosphere of value, which can affect the willingness of groups to engage in meaningful change (Bali & Caines, 2018; Gohar et al., 2018). Additionally, faculty can use changes they engage in to demonstrate their serve to the college in year-end reports and applications for tenure and promotion. Administrators can also cap enrollment of courses that have made the curricular changes to allow faculty more opportunities to work actively with small class sizes, reduce grading burdens, and increase positive connections between students and faculty to increase the probability of academic integration (Hatch & Bohling, 2016; Tinto, 2006). Developing a data collection tool at the institutional level may be associated with up-front costs but would alleviate the need to pay for using the CCSSE, saving the institution money over time. Leaders must also understand that education requires investments in a variety of tangible formats if it is to succeed (Bowen, 2018), which may result in some financial investments with a promise of return through completion funding.

**Implementation of Recommendations**

Distributing the position paper can occur through dissemination of hard copies for key RFCC administrative stakeholders, and email copies to department coordinators and

faculty. Additionally, e-mail distribution could involve stakeholders at similar

institutions. Key administrative stakeholders include campus presidents, vice presidents,

deans, division chairs, and directors and coordinators of special academic units.

Distributing the recommendations to the faculty at the same time, albeit in a different

format, provides an opportunity for all stakeholders to review recommendations in a

transparent fashion, reducing the possibility of uncertainty about or misinterpretation of

the recommendations. Once the position paper is distributed, the implementation of any

changes the institution chooses to engage in become the responsibility of different groups

of people, who can work simultaneously. If any recommendations are adopted, the

institution will need to implement an ongoing evaluative process for programmatic

changes to align with outcomes and the institutional missions. These specific tasks are

briefly discussed below.

**Recommendation 1: Data collection and analysis**. RFCC currently depends on

the CCSSE for the majority of data collected, focusing on identification of student

learning, goals, external responsibilities and co-curricular time use as they relate to

persistence, per the RFCC president. The Institutional Research Office will engage in a

local study to help determine if the CCSSE is the best tool to use for collecting this type

of data for local use and present recommendations by the end of the spring semester. If it

is determined that there could be an alternative to the CCSSE (Dudley, Liu, Hao, &

Stallard, 2015; Howley, Johnson et al., 2014; Roberts, 2017; Schafft, 2016; Xu, 2017) for

RFCC data collection, the office will begin development of a collection tool, engaging

campus experts to draft and test the tool through the summer. Additional compensation

for off-contract employees who are involved will need to be arranged by the administration. Piloting and validation of the data collection tool will occur in the spring semester of the academic year. As with the CCSSE, faculty in randomly selected courses will give up 40 minutes of instruction time to allow students to complete the survey. The Institutional Research Office will be in charge of processing data and providing analyses and reports to the campus. Survey results and analysis will be presented to the institution three months after data collection.

**Recommendation 2: The use of first-year seminar courses to promote student integration**. RFCC FYS courses are mandatory, and have general education outcomes. However, course content and expectations are inconsistent and sometimes mix high-impact student success expectations with low-level orientation content, creating confusion about the purpose and goal of the course. To remedy these inconsistencies, the first year experience coordinator, in collaboration with the dean of student learning, the curriculum committee, and the academic advising center, will reevaluate the purpose of the FYS courses on the RFCC campus and align outcomes and curriculum to better meet the potential of these courses on campus. In an effort to increase student academic integration, FYS course curriculum should focus less on orientation-based lectures and assignments and shift to high-impact, active learning curriculums that create links between students' area of study and the FYS course. General education students, or students who have not selected a major, should also be engaged in high-impact learning activities (Kilgo et al., 2015; Snyder et al., 2017; Tukibayeva & Gonyea, 2014). Revising and having learning outcomes approved by the curriculum committee will take a

semester. Faculty will then need to revisit their teaching strategies in these courses to meet the learning outcomes, revising their meta-strategies for each outcome. Division chairs will be responsible for ensuring that these courses are not "throw away" courses, providing feedback for faculty on their active learning strategies and support for faculty and students as they transition to this new learning model. Faculty will need to update syllabi to reflect changes in outcomes and course schedules. Nonfaculty groups, including library services and the office of instructional technology will need to work collaboratively with faculty to help increase the use of best practices for active learning.

**Recommendation 3: Increasing the use of the TLC for faculty professional development.** The TLC on campus is fairly new and has had three directors since it opened. However, the potential for PD is high, especially with the current director, who emphasizes active learning and collaboration across departments. Faculty development to increase active learning meta-strategies across the curriculum, but especially in FYS courses, will largely fall to the TLC director, who will be in charge of coordinating PD opportunities. Because PD of faculty should be an ongoing process (Froyd et al., 2017; Kelley et al., 2017), there is no specific timeline for the use of the TLC. Rather, PD to help faculty better understand active learning strategies, create classroom activities to enhance student learning, and practice teaching material in an active fashion should begin immediately and continue. The director may choose to group PD opportunities by theme or content area but starting with an overarching workshop describing the results of this study and other research concerning the need for active learning is a first step. Once the foundation for active learning is established, bimonthly opportunities to increase

understanding or build meta-strategies can be offered, guided by faculty leaders, deans, and experts in specific content fields. These opportunities can be offered during low-volume course times, including later afternoon, or on weekends for interested faculty. PD opportunities should be driven by faculty need and requests as they align with active learning and teaching. Opportunities could start as soon as the position paper is distributed.

### Project Evaluation Plan

The evaluation plan for this project is goal-based (Popova & Sharpanskykh, 2011; Van Osselaer & Janiszewski, 2012). The goals of the project included communicating the results of the research in a multitiered argument to affect attitudinal change concerning active learning practices, as evidenced through behavioral changes. This type of evaluation is appropriate for position papers that present persuasive arguments. Measuring the outcomes of the recommendations is not appropriate, as there is no way to predict which, if any, of the recommendations the institution will chose to adopt. Modeling goals based on performance indicators enable evaluation of projects (Popova & Sharpanskykh, 2011). In this case, performance indicators include acceptance of proposed arguments (Petty & Cacioppo, 1984) and behavioral changes that signal persuasion has been achieved (Wood, 2000). An electronic survey of individuals who received a copy of the paper will be distributed three weeks after delivery, providing ample opportunity for recipients to read and consider the arguments presented in the recommendations.

The electronic survey will seek to determine which of the arguments prompted attitudinal or behavior changes in recipients. Providing multiple arguments in the recommendation provides both central and peripheral routes to persuasion for both high and low-involved recipients (Petty & Cacioppo, 1984). Additionally, offering multiple arguments, even within the same recommendation, increases the likelihood that at recipients will accept at least some of the arguments (Petty & Cacioppo, 1984), leading to attitudinal and behavioral changes (Wood, 2000) based on recommendation. Because attitudes about change are often embedded in social relations (Wood, 2000), a survey to determine which, if any, arguments are persuasive for different stakeholder groups will help determine the atmosphere of the campus concerning academic changes, as well as intervention backfire (Stibe & Cugelman, 2016). If the evaluation determines the presences of effectiveness in persuasion of stakeholder groups, a discussion of further distribution of the study can be undertaken.

<div align="center">**Project Implications**</div>

There are potential implications from both the study results and position paper that may include increased academic integration and persistence for students at RFCC, potential generalization to similar institutions, and curricular changes that could positively influence student learning and achievement. In the investigation to determine whether there were predictive relationships between academic integration variables and persistence at RFCC, it was determined that active learning scores are a measure of student academic integration. These measures also provided a statistically significant predictive relationship with student persistence. These study results provided the

foundation for the position paper recommendations to increase active learning

opportunities, which have the potential to increase student learning and create greater

opportunities for academic integration and persistence, which could lead to greater

completion rate, affecting the social mobility of students. Further, persistence increases

credibility of institutions (Kuh & O'Donnell, 2013; McClenney, 2008). The position

paper also encourages RFCC specifically, and institutions in general, to engage in place-

based research to use localized data when making educational decisions about students.

**Local Context**

Study results using localized data created the foundation for position paper

recommendation that have the potential to affect local stakeholders by filling a gap in

research about persistence at small, rural, residential community colleges. For students,

increasing persistence rates increases the likelihood of completion, which potentially

affects educational goals, employment opportunities, and lifelong earning potential

(Boggs, 2011; Phillips et al., 2016). Education is the best indicator of social mobility

(Southgate et al., 2016), making persistence a major step in affecting change for student

stakeholders.

Engaging in programmatic change that emphasizes student learning and success

can have academic and financial benefits for institutions as well. As state resource

allocations shift to include more PBF (Friedel et al., 2013), persistence and completion

become as important as enrollment numbers, and perhaps more so. Increased persistence

and completions rates also increase the academic reputation of an institution, drawing

both student and parent stakeholders, potentially increasing enrollment. An increase in enrollment could also translate to increased funding for the institution.

**Broader Context**

Recommendations of the position paper suggest a curricular shift to active learning instruction and meta-strategies. Active learning is an antecedent to academic integration (Braxton et al., 2000), which is key to persistence and completion (D'Amico, Dika et al., 2014; Pascarella & Chapman, 1983; Tinto, 1993). Improving active learning strategies also increases student learning and application of that learning, potentially making them more marketable. If localized data is used to create programmatic changes on campuses to increase student learning, a potential affect could be increased completion and on-time graduation rates, reducing the overall costs to students. Additionally, when students feel engaged and integrate academically, they are less like to engage in early departure behaviors (Guiffrida, 2006; Tinto, 1993), which has the potential to leave students with high levels of debt and no degree. Reducing the debt to earning potential ratio benefits students both in the short and long term. Finally, when active learning is part of the curriculum, students are more likely to engage and take ownership of their learning, transitioning into lifelong learners (Blumenkrantz & Goldstein, 2014). Lifelong learners are more likely to engage in their communities, make informed choices when voting, interrogate the information they consume, and engage in projects of social change (Jarvis, 2006; Taylor, 2017). Generalization of these results could influence academic changes in rural spaces, where 3.3 million higher education students enroll (Rural Community College Alliance, 2017).

Moreover, recommendation from the position paper could have a meaningful impact on how faculty PD occurs, enhancing opportunities and increasing active learning possibilities for educators. While the subject of higher education is the student, and efforts are rightly focused on student learning, faculty play a key role in that learning process. Including potentially effective programs for faculty development provide a greater role for effecting change in student learning as well as ownership of persistence strategies for faculty members. When faculty have a valid understanding of the reality of proposed academic changes, they are more likely to engage in attitude and behavioral change that benefits the community (Wood, 2000). Treating higher education faculty as professionals who are encouraged to engage in the development of their own knowledge and skills has the potential to change how society views and understands knowledge transmission and education. The value of education within a society has a correlation with the progress of a given society, including how the society engages in community building, political engagement, and the treatment of its lowest citizens (Jarvis, 2006; Taylor, 2017).

## Conclusion

In this section, I discussed the development of a position paper, discussing the results of the research study, including recommendations for practices designed to improve academic integration and student persistence. A review of the literature provided a foundation for recommendations concerning localized data gathering and analysis, the use of FYS courses to increase active learning, and using TLCs to provide opportunities for faculty development. Tasks, including potential barriers to implementation of

recommendation and possible solutions to those barriers were includes in a potential

timeline for implementation. Possible implications for the study in local and broader

contexts were also discussed, including increased academic integration and persistence,

the potential positive impacts for student and institutions, and potentials for social

change. In Section 4 I discuss project strengths and limitations, recommendations for

improvements, and suggestions for future research. Section 4 also includes a reflective

discussion about learning and growth as a scholar, project developer, and practitioner

throughout the study process.

Section 4: Reflections and Conclusions

**Project Strengths and Limitations**

Using results from this study, I developed a position paper providing

recommendations designed to increase active learning, academic integration, and

persistence to serve as the project deliverable. Position papers allow a presentation of

multiple ideas in one concise deliverable (Curran et al., 2011; Smith-Blaire & Porche,

2017). The position paper, found in Appendix A, includes relevant literature,

methodology, and results from the research study and recommendations for improvement

in an easy to read, persuasive argument (see Willerton, 2013; Wood, 2000). When using

persuasion in an attempt to change attitudes or behavior in multiple areas, presenting

multiple arguments at the same time can increase the likelihood that the intended

audience will find at least some of the arguments compelling in both low- and high-

involved audiences (Petty & Cacioppo, 1984). While not all of the arguments are

intended for all of the audiences, including both central and peripheral routes to

persuasion through the use of multiple arguments increases the likelihood of success in

implementing behavioral changes (Petty & Cacioppo, 1984; Wood, 2000). Grounding the

recommendations in the results from the study and a review of relevant literature

increases the acceptability of the recommendations for the target audience when that

audience is part of the academy (Gohar et al., 2018).

The use of a position paper also allowed for the tailoring of arguments for specific

audiences. Persuasive devices that are disseminated to large groups of people are not

intended to be mass communications: They are designed to reach as much of the target

audience, by argument, as possible through large-scale distribution (Noar, Grant Harrington, Van Stee, & Shemanski-Aldrich, 2011). Because recommendations have the potential to include various stakeholders across campuses, my use of a multitiered persuasive argument was appropriate, which a position paper allowed. This approach may make recommendations seem less accusatory, increasing the potential that suggestions will be taken in the spirit of progress. Having multiple arguments also allows administrators to implement some recommendations without the need to endorse everything in the paper. The ability to choose increases ownership of ideas and initiatives, which has the potential to have greater success (Bali & Caines, 2018). Although there are some creative freedoms when writing a position paper, there is a standard format that is recognizable and accessible (Powell, 2012). This formatting makes position papers a versatile tool, applicable to the subject of a particular study and generalizable for publication, conference submission, or collaboration across campuses.

Although position papers have a variety of uses, there are some limitations to this approach. A position paper is a persuasive recommendation, with no assurance that any of the recommendations will be adopted or implemented. Institutional leaders have the final choice about changes they want to implement on campus and in how they implement those changes. While a recommendation may be accepted on an attitudinal level, the behavioral component may never come to fruition (Wood, 2000). Additionally, with persuasion there is always a risk of intervention backfire (Stibe & Cugelman, 2016), where evidence-based intervention recommendations result in negative outcomes or behavioral changes. This format allows for the presentation of multiple ideas in one

concise document but can include too much information, creating confusion or dissuading interest. Faculty members, in particular, have increasingly high demands on their time, potentially limiting the interest they have in reading a position paper, especially if they are not already invested in the topics presented (Willerton, 2013). Because the content is condensed to be manageable, the potential for information to be misinterpreted is also present. Argument construction and editing necessitated me to narrow the results of the study, leaving some details out of the position paper. While in the paper I summarize the study and use it as the basis for recommendations, any missing details open the door for interpretation on the part of the reader, increasing the potential for misunderstanding.

In terms of using a position paper, conferencing or formal presentations may be an alternative approach to disseminate the information contained in the project deliverable. Distribution of a paper does little to ensure that the material is ever consumed (Mattern, 2013). Fact-to-face meetings offer an opportunity to evaluate nonverbal responses for better adaptation and to answer questions in real time. Additionally, a formal presentation allows for both visual and auditory learners to engage with an option for active learning opportunities throughout the presentation. Time and availability of key stakeholders may prohibit either of these presentation formats, but they are worth considering as an alternative to read-only distribution. Finally, while position papers are often used in higher education, the content, especially concerning research methods and analysis, may not transfer as successfully to nonacademic stakeholders, including community boards, parents, incoming students, and taxpayers,

who have a vested interest in how their tax dollars are spent on education (Mattern, 2013).

## Recommendations for Alternative Approaches

Although the study and position paper indicated that data-driven programmatic changes, using localized data, are best for community colleges, implementing as an experiment is always a risk in adopting new initiatives (Choban, Choban, & Choban, 2008; Tagg, 2003). Because institutions often implement initiatives in reactionary fashion, based on external demands (Stage & Vaisman, 2010), recommending change may not be the best option for addressing perceived shortcomings at institutions. Planning and change should be strategic, with clear goals and measurable outcomes (Xu, 2017). If the data exists to support change and change does not happen, or happens without clear intent, the issue may be one of leadership and strategic planning rather than programming (Bolman & Gallos, 2011; Jones, Harvey, Lefoe, & Ryland, 2014).

Before implementing a new system for teaching and learning, research about recent past initiatives to determine how administrators select initiatives and how they implement them may provide a better insight about change on campuses and institutional priorities (Jones et al., 2014). Because funding is tied to outcomes at most institutions, the concept of student as product is not uncommon (Kezar & Gehrke, 2014). Institutions who want to engage in meaningful shifts to learning-centered institutional policies will have to manage these contradictory philosophies and make a choice that best suits the needs of the institution (Crevani, Ekman, Lindgren, & Packendorff, 2015). Assuming that a given institution is most concerned with student learning, and not PBF, may be inaccurate

(Crevani et al., 2015). Understanding how administrations function on particular campuses may be a better first step in addressing change and student success.

In addition to undertaking research from a different perspective, this study could have benefitted from larger data sets. An inherent problem with studies in ruralism is a lack of meaningful data, or limitations from small sets. Including data from students at a similar rural or frontier college could increase the reliability of the data and increase generalizability. My original study proposal included several additional years of CCSSE data. Unfortunately, RFCC did not keep the data collected prior to the data used in the final study, reducing the sample. If this data had been available, it may have changed the outcomes of the analyses or provided more support for the study findings.

The extant literature reviewed for the study cited several concerns with the use of the CCSSE, including questions about validity testing by individuals who work for CCSSE (Angell, 2009, Nora et al., 2011). Additionally, the CCSSE has a 71% overlap with the National Survey of Student Engagement, created to evaluate student engagement at 4-year institutions (Kimbark et al., 2017), calling into question differences between 2- and 4-year students. Based on these questions, qualitative research designs may be an important means of collecting data to identify specific factors that affect community college engagement and persistence. Gathering qualitative data from both faculty and students about strategies that motivate students to integrate and persist could be more beneficial than using only factor scores from survey data. Qualitative data could also complement the quantitative data (Merriam, 2009). Qualitative studies would also have

better access to student motivation factors (Fong et al., 2018), which could provide alternative approaches to change behaviors for both faculty and administrations.

**Scholarship, Project Development and Evaluation, and Leadership and Change**

Scholarship, and particularly engaged scholarship, provides a framework for understanding organizational issues and methodically seeking behaviors to address those issues. The use of scholarly research provides data and recommendations that leaders can implement to improve outcomes, increase collaboration, and best achieve institutional missions (Jones et al., 2014). Engaged scholarship follows a preestablished method of identifying a research problem and constructing a study to investigate potential solutions for the identified problem (Van de Ven, 2007). In this study, I used survey-based data, which required significant amounts of statistical analysis and interpretation. For a communication and education scholar who primarily works with qualitative data, this presented a challenge that consumed the largest amount of time in the study. Learning to ask for help and accept that statistical analysis without a comprehensive statistical background is difficult was essential to the completion of the study. Scholars must understand their biases and limitations and work to overcome both in order to engage research-rich knowledge.

This study also allowed for the combination of organizational communication and higher education leadership studies. Relevant organizational issues require in-depth study and engaged scholarship to illuminate opportunities for transformative change (Shockley-Zalabak, Barge, Lewis, & Lynn Simpson, 2017) necessary for educational leaders. Scholarship should also strive to combine scholarship and practice, even given the

arguments that engaged scholarship is illusory in the academy (McKelvey, 2006). Engaged scholarship culminates in the communication and use of research knowledge (Van de Ven, 2007), the immersion of the scholar in the worlds of the organization to facilitate learning and change (Shockley-Zalabak et al., 2017), and an engagement between scholarship and relationship (Giles, 2016). Scholar-leaders can employ each of these skills to enhance scholarship and affect change. The ability to apply engaged scholarship to both communication and educational theory provided multiple approaches to study the problem areas included in this project.

Self-evaluation through scholarship is important. Scholars must be able to accept criticism and setbacks in their pursuit of knowledge. Feedback from external agents strengthens arguments proposed in the study, and self-evaluation throughout the writing process allows for better articulation of ideas (Kahl, 2017). Editing content is also necessary. Tangential links to a study do not warrant inclusion of an issue. Having a clear study goal and plan is necessary to begin and complete a study. Engaged scholars must also emphasize mutuality, or the sharing of information and actions between all parties (Giles, 2016). Isolation in scholarship is not viable, especially when knowledge acquisition is meaningless unless that knowledge is shared with others. If the goals of scholarship are to advance knowledge and develop theory, practice-involving collaboration at each stage of the process is necessary. Educational leaders need to keep these lessons in mind, continuing to engage in self-evaluation, allowing their subordinates and peers an opportunity to honestly evaluate them, and engaging in transparent collaboration on institutional transformation decisions.

Project development requires a significant amount of strategic planning and can be grounded in systems theory (Kast & Rosenzweig, 1972). Identifying which problem to study and how it relates to other issues in the organization is the first step in the process. In this study, I had a specific goal of determining whether there were predictive relationships between academic integration variables and persistence at RFCC, but the findings and the resultant project deliverable involved multiple components of the system that is RFCC. Educational leaders need to understand that when changes are implemented in one area, they have immediate and sometimes far reaching effects on other parts of the system (Bolman & Gallos, 2011). Mapping the effects on a system help project developers and leaders better understand how the knowledge they acquire through a study can best help transform the organization (Crevani et al., 2015). Individually, leaders need to understand their strengths and weaknesses and use resources to shore up deficiencies they may have (Bolden & Petrov, 2014; Bolman & Gallos, 2011). All scholars and leaders are going to have areas that need improvement; rather than dwelling on perceived inadequacies, enlisting others who have a vested interest in the project and can provide missing skill sets is a best-practice in collaboration and problem solving (Jones et al., 2014).

Finally, decisions made from the results of the project should be based on those results. The results may not be what the project developer anticipated but resulting changes must be data driven. These data can also act as the starting point for new projects and studies. Because change is a top challenge for most organizations (Morrison, 2014;

Shockley-Zalabak et al., 2017), understanding how change affects stakeholders and

helping them navigate transformation becomes a necessary task for leaders.

**Reflection on Importance of the Work**

This study provides multiple opportunities for improvement in education and

student learning, making it relevant and important. Studies in rurality are often marred by

incongruous definitions of what rurality is, which educational institutions qualify as rural

or frontier, and what institutions in rural settings (should) look like. This study helps to

add to the body of literature on rural higher education, especially for institutions that are

outside the perceived understanding of what is a rural community college. Additionally,

rural students are often overlooked in the literature, combining large and small

institutions as if their student bodies are the same. Giving attention to rural students

highlights the importance of the differences between students who come from a rural

place of origin and students who may attend a rural institution but are not rural-dwellers.

The importance of student and active learning is also highlighted in this study.

Policy recommendations that place active learning strategies in the forefront of rural

community colleges are designed to provide the best possible opportunities for student

learners. Too often students are viewed as the product of education rather than the subject

of learning (Kezar & Gehrke, 2014) prompting institution leaders to fail to consider the

needs of students when making financial and other programmatic decisions. A better

understanding of student learning also led to recommendations about faculty PD, which

often takes a back seat in institutional planning. Helping keep the focus on student

learning, and by proxy faculty opportunities for increased learning, helps leaders stay on track to fulfill their institutional missions.

The use of localized data is also an important aspect of this work. Community colleges often lack the resources to engage in self-evaluation and study, making it more probable that they will follow national trends in education without understanding if those trends are the best for their institutions. FYS courses are often used to increase social integration as well as academic integration (Tinto, 2006; Tukibayeva & Gonyea, 2014). This study demonstrates, for at least this rural institution, that academic integration is the key to social integration. With this understanding, rural institutions, and especially those institutions with little or no residential life providing social integration opportunities, can refocus their efforts, away from social integration and towards academic integration, to better engage students (Tinto, 2006; Tukibayeva & Gonyea, 2014). The study can help begin new research into how rural and local data differs from national trend data to help leaders make better institutional choices.

## **Implications, Applications, and Directions for Future Research**

Implications of this study present opportunities for change on multiple levels. For RFCC and other similar institutions, developing a data collection tool to provide localized data could increase strategic, data driven planning. This change has the potential to increase active learning on campus, which could increase persistence and completions. If a change in learning can be demonstrated in FYS courses through active learning strategies, faculty may engage in more PDand increase active learning across the curriculum, increasing academic integration on multiple levels. For students, this increase

in active learning could translate in increased knowledge acquisition and opportunities to engage in higher-level learning, which translates to better job skills and employability (Braxton et al., 2000; Carr et al., 2015). Completion of a degree or certificate program translates to higher lifetime earning potential, which significantly affects the social mobility and opportunities for social change for students. Institutional leaders can engage in localized data collection and programmatic change based on data driven decisions, impacting the learning opportunities for students. Increased persistence and completion rates could increase resource allocation for institution who face PBF requirements. Finally, leaders who engage in localized data practices may feel less obligation to engage in change for the sake of change, taking measured steps to enhance opportunities for all stakeholders.

There is a gap in research concerning ruralism and rural students, with vastly different institution types being grouped into one category. In this study, I attempted to highlight the fact that there are significant differences in institutional profiles and needs but it does not fill that gap in the literature. More research on gathering and using localized data is necessary to provide opportunities for leaders to best understand the needs of their institutions. Research that is truly unique to 2-year institutions is needed to best understand how students integrate and progress through their educational goals. RFCC can use this study as a starting point to engage in data collection about the goals and motivations of their student body to best determine programmatic changes that are effective and those that are not. RFCC should continue to collect data from current and past students to identify trends in enrollment and persistence.

Finally, the use of active learning strategies at RFCC should be a priority. The study demonstrated a statistically significant relationship between active learning scores and persistence for RFCC students. Increasing active learning and continuing to monitor persistence of students who are engaged in high-impact learning strategies can help the institutional leaders determine the best path for future student learning and PD programming. Any project recommendations that the institution adopts will require investments of time and resources, as well as monitoring for effectiveness. Leaders need to establish clear goals and measurable outcomes when implementing instructional changes to best increase student learning.

## Conclusion

Through a discussion of the implication, application, and direction for future research for this study, as well as a reflective analysis of scholarship and program development, this study addresses some of the issues related to persistence struggles at RFCC. Through the research study and the project deliverable, it seems clear that the pervasive nature of early departure from higher education, especially in community colleges, is something institutional leaders must address with renewed interest and an alternative lens. The use of national trend data and initiatives to curb the problems of persistence in community colleges is not working, especially in institutions that have differing persistence concerns and barriers. A lack of rurality research drives rural community colleges to utilize national studies and statistics, which are largely based on urban assumptions, to make programmatic changes. Administrators have an obligation to understand the unique needs of their students, and address those needs with data-driven

best practices. The research from this study suggests that, at least in some cases, the best

practice for an institution may not align with the national trends in higher education.

References

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: Definition, rationale and a call for research. *Higher Education Research & Development*, *34*(1), 1-14. doi: 10.1080/07294360.2014.934336

Allen, J. M., Wright, S., Cranston, N., Watson, J., Beswick, K., & Hay, I. (2018). Raising levels of school student engagement and retention in rural, regional and disadvantaged areas: Is it a lost cause? *International Journal of Inclusive Education*, *22*(4), 409-425. doi: 10.1080/13603116.2017.1370737

Altstadt, D. (Ed.). (2012). *Tying funding to community college outcomes: Models, tools, and recommendations for states.* Retrieved from http://www.jff.org/ American Association of Community Colleges. (2015). Historical information. Retrieved from http://www.aacc.nche.edu/

Andrews, T., Leonard, M., Colgrove, C., & Kalinowski, S. (2011). Active learning not associated with student learning in a random sample of college biology courses. *Life Sciences Education, 10*(4), 394-405. doi: 10.1187/cbe.11-07-0061

Angell, L. R. (2009). Construct validity of the community college survey of student engagement (CCSSE). *Community College Journal of Research and Practice*, *33*(7), 564-570. doi: 10.1080/10668920801901217

Araujo, P., & Murray, J. (2010). Channels for improved performance from living on campus. *American Journal of Business Education, 3*(12), 57-64.

Barefoot, B. O., Gardner, J. N., Cutright, M., Morris, L. V., Schroeder, C. C., Schwartz, S. W.,... Swing, R. L. (2010). *Achieving and sustaining institutional excellence*

*for the first year of college*. San Francisco, CA: John Wiley & Sons.

Bahr, P. R. (2010). The bird's eye view of community colleges: A behavioral typology of first-time students based on cluster analytic classification. *Research in Higher Education, 51*(8), 724–749. doi: 10.1007/s11162-010-9180-5

Bailey, T., Jaggars, S. S., & Jenkins, D. (2015). *Redesigning America's community colleges: A clearer path to student success*. Cambridge, MA: Harvard University Press.

Bali, M., & Caines, A. (2018). A call for promoting ownership, equity, and agency in faculty development via connected learning. *International Journal of Educational Technology in Higher Education*, *15*(1), 46. doi: 10.1186/s41239-018-0128-8

Ball, E. L., & Lai, A. (2006). Place-based pedagogy for the arts and humanities. *Pedagogy: Critical Approaches to Teaching Literature, Language, Composition, and Culture*, *6*, 261-87. doi: 10.1215/15214200-2005-004

Barbatis, P. (2010). Underprepared, ethnically diverse community college students: Factors contributing to persistence. *Journal of Developmental Education, 33*(3), 14-22. Retrieved from ERIC database. (EJ942872)

Bassett, D. L. (2002). The politics of the rural vote. *Arizona State Law Journal, 35*, 743. Retrieved from https://heinonline.org/

Baty, F., Ritz, C., Charles, S., Brutsche, M., Flandrois, J. P., & Delignette-Muller, M. L. (2015). A toolbox for nonlinear regression in R: The package nlstools. *Journal of Statistical Software*, *66*(5), 1-21.

Beach, A. L., Sorcinelli, M. D., Austin, A. E., & Rivard, J. K. (2016). *Faculty development in the age of evidence: Current practices, future imperatives.* Sterling, AV: Stylus Publishing, LLC.

Bendel, R. B., & Afifi, A. A. (1977). Comparison of stopping rules in forward "stepwise" regression. *Journal of the American Statistical Association*, *72*(357), 46-53. doi: 10.1080/01621459.1977.10479905

Berger, J. B., Blanco Ramírez, G., & Lyons, S. (2012). Past to present: A historical examination of retention. In A. Seidman (Ed.), *College student retention: Formula for student success* (2nd ed.; pp. 7-34). Lanham, MD: ACE/Preager.

Bers, T., & Schuetz, P. (2014). Nearbies: A missing piece of the college completion conundrum. *Community College Review, 42*(3), 167–183. doi: 10.1177/0091552114525834

Blumenkrantz, D. G., & Goldstein, M. B. (2014). Seeing college as a rite of passage: What might be possible. *New Directions for Higher Education*, *2014*(166), 85–94. doi: 10.1002/he.20098

Boerner, H. (2015). Harvesting greatness. *Community College Journal*, *86*(2), 16. Retrieved from https://ezp.waldenulibrary.org/

Boggs, G. (2011) The American community college: From access to success. *About Campus,* 2-10. doi:10.1002/abc.20055

Bolden, R., & Petrov, G. (2014). Hybrid configurations of leadership in higher education employer engagement. *Journal of Higher Education Policy and Management*, *36*(4), 408-417. doi: 10.1080/1360080X.2014.916465

Bolman, L. G., & Gallos, J. V. (2011). *Reframing academic leadership*. San Francisco, CA: Wiley, Jossey-Bass.Bonds, A., & Inwood, J. (2016). Beyond White privilege: Geographies of White supremacy and settler colonialism. *Progress in Human Geography*, *40*(6), 715-733. doi: 10.1177/0309132515613166

Bowen, H. (2018). *Investment in learning: The individual and social value of American higher education*. New York, NY: Routledge.

Bowman, N. A., & Culver, K. C. (2018). Promoting equity and student learning: Rigor in undergraduate academic experiences. *New Directions for Higher Education*, *2018*(181), 47-57. Retrieved from ERIC database. (EJ1172069)

Boyadzhiev, V., & Veselinova, N. (2015). European and Balkan ruralism. Differences in theory and practice. *Journal of Settlements and Spatial Planning, 4*, 211. Retrieved from https://ezp.waldenulibrary.org/

Brancato, V. C. (2003). Professional development in higher education. *New Directions for Adult and Continuing Education*, *2003*(98), 59-66. doi: doi.org/10.1002/ace.100

Braxton, J., Bray, N., & Berger, J. (2000). Faculty teaching skills and their influence on the college student departure process. *Journal of College Student Development, 41*(2), 215-227. Retrieved from https://ezp.waldenulibrary.org/

Braxton, J., & Hirschy, A. (2005). Theoretical developments in the study of college student departure. In A. Seidman (Ed.), *College student retention: Formula for student success* (pp. 61–88). Westport, CT: ACE/Praeger.

Braxton, J. M., Hirschy, A. S., & McClendon, S. A. (2011). Understanding and reducing college student departure. *ASHE-ERIC Higher Education Report, 30*(3).

Braxton, J. M., Jones, W. A., Hirschy, A. S., & Hartley, H. V. III. (2008). The role of active learning in college student persistence. *New Directions for Teaching and Learning*, *2008*(115), 71-83. doi: 10.1002/tl.326

Braxton, J. M., Milem, J. F., & Sullivan, A. S. (2000). The influence of active learning on the college student departure process: Toward a revision of Tinto's theory. *The Journal of Higher Education*, *71*(5), 569-590. doi: 10.1080/00221546.2000.11778853

Brown, D. L., & Schafft K. A. (2011). *Rural people and communities in the 21st century: Resilience and transformation.* Malden, MA: Polity Press.

Buchanan, H., Kavanagh, K., Webb, A., Houk, H., & Tingelstad, C. (2015). Curriculum mapping in academic libraries. *New Review of Academic Librarianship*, *21*(1),94-111. doi: 10.1080/13614533.2014.1001413

Buchenroth-Martin, C., DiMartino, T., & Martin, A. P. (2017). Measuring student interactions using networks: Insights into the learning community of a large active learning course. *Journal of College Science Teaching*, *46*(3), 90. doi: 10.2505/4/jcst17_046_03_90

Budge, K. (2010). Why shouldn't rural kids have it all? Place-conscious leadership in an era of extra-local reform. *Education Policy Analysis Archives, 18*(1), 1–26. doi: 10.14507/epaa.v18n1.2010

Burnell, B. A. (2003). The "real world" aspirations of work-bound rural students. *Journal of Research in Rural Education*, *18*(2), 104–113. Retrieved from http://jrre.psu.edu/

California Community College Chancellor's Office. (2019). Key facts. Retrieved from http://californiacommunitycolleges.cccco.edu/PolicyInAction/ KeyFacts.aspx

Carnevale, A.P., Smith, N., & Strohl, J. (2013). *Recovery: Job growth and education requirements through 2020.* Washington, DC: Georgetown University. Retrieved from https://cew.georgetown.edu/wpcontent/ uploads/2014/11/Recovery2020.FR_.Web_.pdf

Carr, P., & Kefalas, M. (2009). *Hollowing out the middle: The rural brain drain and what it means for America.* Boston, MA: Beacon Press.

Carr, R., Palmer, S., & Hagel, P. (2015). Active learning: The importance of developing a comprehensive measure. *Active Learning in Higher Education 16*, 173-186. doi: 10.1177/1469787415589529

Castleman, B. L., & Page, L. C. (2016). Freshman year financial aid nudges: An experiment to  increase FAFSA renewal and college persistence. *Journal of Human Resources*, *51*(2), 389-415. doi: 10.3368/jhr.51.2.0614-6458R

Center for Community College Student Engagement. (2012). *A matter of degrees: Promising practices for community college student success (a first look).* Austin, TX: The University of Texas at Austin, Community College Leadership Program.

Center for Community College Student Engagement. (2017). About the Community College Survey of Student Engagement (CCSSE). Retrieved from http://www.ccsse.org/aboutccsse/aboutccsse.cfm

Chapman, D. W., & Pascarella, E. T. (1983). Predictors of academic and social integration of college students. *Research in Higher Education, 19*, 295–322. Retrieved from https://www.jstor.org/

Chennamaneni, P. R., Echambadi, R., Hess, J. D., & Syam, N. (2016). Diagnosing harmful collinearity in moderated regressions: A roadmap. *International Journal of Research in Marketing*, *33*(1), 172-182. doi: 10.1016/j.ijresmar.2015.08.004

Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin*, *3*, 7. Retrieved from ERIC database. (ED282491)

Choban, M. C., Choban, G. M., & Choban, D. (2008, March). Strategic planning and decision making in higher education: What gets attention and what doesn't. *Assessment Update, 20*(2), 1–4. Retrieved from ERIC database. (EJ91182)

Clark, M., & Cundiff, N. (2011). Assessing the effectiveness of a college freshman seminar using propensity score adjustments. *Research in Higher Education, 52*(6), 616–639. doi: doi.org/10.1007/s11162-010-9208-x

Coates, H. (2014). Students' early departure intentions and the mitigating role of support. *Australian Universities' Review*, *56*(2), 20-29. Retrieved from https://search-ebscohost-com.ezp.waldenulibrary.org/

157

Coburn, C. (2006). Framing the problem of reading instruction: Using frame analysis to

uncover the microprocesses of policy implementation. *American Educational*

*Research Journal 43(3), 343-379*. doi: 10.3102/00028312043003343

Cohen, A. M., Brawer, F. B., & Kisker, C. B. (2014). *The American community college*

(6th ed.) San Francisco, CA: Jossey-Bass.

Cohen, R., & Kelly, A. M. (2019). The impact of community college science and

mathematics coursetaking on graduation, transfer, and non-completion. *The*

*Review of Higher Education*, *42*(2), 595-617. doi: 10.1353/rhe.2019.0008

Cole, J., Gonyea, R., & Rocconi, L. (2017). With retention, the key is "act locally." In

R.S. Feldman (Ed.). *The first year of college: Research, theory, and practice on*

*improving the student experience and increasing retention*. New York, NY:

Cambridge University Press.

Collins, B. (2014). *TAACCCT: Trade adjustment assistance community college and*

*career training grant program: Program summary*. Retrieved from the U.S.

Department of Labor, Employment and Training Administration website:

https://greenbookwaysandmeans.house.gov/sites/greenbook.waysand

means.house.gov/files/R42661_gb_0.pdf.

Complete College America. (2014). *Four-year myth: Make college more affordable.*

*Restore the promise of graduating on time*. Retrieved from

http://completecollege.org/wp-content/uploads/2014/11/4-Year-Myth.pdf

Cook, P. G. (2014). Notes from the margins: WAC, WID, and the politics of place

(ment). *Across the Disciplines*, *11*(3), n3. Retrieved from

https://wac.colostate.edu/

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating*

*quantitative and qualitative research* (4th ed.). Boston, MA: Pearson Education.

Creswell, J. W., & Clark, V.L.P. (2011). *Designing and conducting mixed methods*

*research* (2nd  ed.). Los Angeles, CA: Sage Publications, Inc.

Crevani, L., Ekman, M., Lindgren, M., & Packendorff, J. (2015). Leadership cultures

and discursive hybridisation: On the cultural production of leadership in higher

education reforms. *International Journal of Public Leadership*, *11*(3/4). doi:

10.1108/IJPL-08-2015-0019

Crisp, G., & Delgado, C. (2014). The impact of developmental education on community

college persistence and vertical transfer. *Community College Review*, *42*(2), 99-

117. doi: 10.1177/0091552113516488

Crosta, P. M. (2014). Intensity and attachment: How the chaotic enrollment patterns of

community college students relate to educational outcomes. *Community*

*College Review*, *42*(2), 118–142. doi: 10.1177/0091552113518233

Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results.

*American Journal of Physics, 69*, 970–976. doi: 10.1119/1.1374249

Curran, J. A., Grimshaw, J. M., Hayden, J. A., & Campbell, B. (2011). Knowledge

translation research: The science of moving research into policy and practice.

*Journal of Continuing Education in the Health Professions*, *31*(3), 174–180. doi: 10.1002/chp.20124

D'Agostino, R. B. (2017). Tests for the normal distribution. In R. B. D'Agostine & M. A. Stephens (Eds.), *Goodness-of-fit-techniques* (pp. 367-420). New York, NY: Routledge.

D'Amico, M. M., Dika, S. L., Elling, T. W., Algozzine, B., & Ginn, D. J. (2014). Early integration and other outcomes for community college transfer students. *Research in Higher Education*, *55*(4), 370-399. doi: 10.1007/s11162-013-9316-5

D'Amico, M. M., Friedel, J. N., Katsinas, S. G., & Thornton, Z. M. (2014). Current developments in community college performance funding. *Community College Journal of Research and Practice*, *38*(2-3), 231-241. doi: 10.1080/10668926.2014.851971

Darlington, R. B., & Hayes, A. F. (2016). *Regression analysis and linear models: Concepts, applications, and implementation*. New York, NY: Guilford Publications.

Daye, Z. J., Chen, J., & Li, H. (2012). High-dimensional heteroscedastic regression with an application to eQTL data analysis. *Biometrics*, *68*(1), 316-326. doi: 10.1111/j.1541-0420.2011.01652.x

D'Avanzo, C., Anderson, C. W., Hartley, L. M., & Pelaez, N. (2012). A faculty-development model for transforming introductory biology and ecology courses. *BioScience*, *62*(4), 416-427. doi: 10.1525/bio.2012.62.4.12

Deil-Amen, R. (2011). Socio-academic integrative moments: Rethinking academic and

social integration among two-year college students in career-related programs. *The Journal of Higher Education, 82*(1), 59-91. doi: 10.1080/00221546.2011.11779085

de Jongh, P. J., de Jongh, E., Pienaar, M., Gordon-Grant, H., Oberholzer, M., & Santana, L. (2015). The impact of pre-selected variance inflation factor thresholds on the stability and predictive power of logistic regression models in credit scoring. *Orion*, *31*(1), 17–37. Retrieved from https://www.ajol.info/

deNoyelles, A., Cobb, C., & Lowe, D. (2012). Influence of reduced seat time on satisfaction and perception of course development goals: A case study in faculty development. *Journal of Asynchronous Learning Networks*, *16*(2), 85-98. Retrieved from ERIC database. (EJ971046)

De Rijdt, C., Stes, A., van der Vleuten, C., & Dochy, F. (2013). Influencing variables and moderators of transfer of learning to the workplace within the area of staff development in higher education: Research review. *Educational Research Review*, *8*, 48-74. doi: 10.1016/j.edurev.2012.05.007

Desimone, L. M., & Pak, K. (2017). Instructional coaching as high-quality professional development. *Theory into Practice*, *56*(1), 3-12. doi: 10.1080/00405841.2016.1241947

Dewberry, C., & Jackson, D. J. (2018). An application of the theory of planned behavior to student retention. *Journal of Vocational Behavior*, *107*, 100-110. doi: 10.1016/j.jvb.2018.03.005

Distefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores: Considerations for applied research. *Practical Assessment & Evaluation, 14*(2), 1-11. Retrieved from https://pdfs.semanticscholar.org

Dougherty, K. J., & Reddy, V. (2011). *The impacts of state performance funding systems on higher education institutions: Research literature review and policy recommendations* (Community College Research Center Working Paper No. 37). New York, NY: Community College Research Center, Teachers College, Columbia University.

Dudley, D. M., Liu, L., Hao, L., & Stallard, C. (2015). Student engagement: A CCSSE follow-up study to improve student engagement in a community college. *Community College Journal of Research and Practice*, *39*(12), 1153-1169. doi: 10.1080/10668926.2014.961589

Eckstein, S. E. (2014). *The poverty of revolution: The state and the urban poor in Mexico*. Princeton, NJ: Princeton University Press.

Edwards, C. (2018). *First-year seminars and student expectations: A correlational study of retention and success* (Doctoral dissertation). Retrieved from https://scholarcommons.usf.edu/etd/7281.

Essa, A., & Laster, S. (2017). Bloom's 2 Sigma problem & data driven approaches for student success. In R.S. Feldman (Ed.). *The first year of college: research, theory, and practice on improving the student experience and increasing retention (*pp. 212-245*).* New York, NY: Cambridge University Press.

Everett, J. B. (2015). Public community colleges: Creating access and opportunities for first-generation college students. *Delta Kappa Gamma Bulletin*, *81*(3), 52-58. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=101823318&site=ehost-live&scope=site

Fain, P. (2013). The old community college try. *Inside Higher Ed*. Retrieved from http://www.insidehighered.com

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149-1160. doi: 10.3758/BRM.41.4.1149

Fauria, R. M., & Zellner, L. J. (2015). College students speak success. *Journal of Adult Development*, *22*(2), 90-99. doi: 10.1007/s10804-014-9203-0

Feldman, R. S. (Ed.). (2017). *The first year of college: Research, theory, and practice on improving the student experience and increasing retention*. New York, NY: Cambridge.

Fike, D., & Fike, R. (2008). Predictors of first-year student retention in the community college. *Community College Review*, 35(2), 68–88. doi: 10.1177/0091552108320222

Fleming, M. J., & Grace, D. M. (2014). Increasing participation of rural and regional students in higher education. *Journal of Higher Education Policy and Management*, *36*(5), 483-495. doi: 10.1080/1360080X.2014.936089

Freeman, E. (2017). Diversion or democratization: Do rural, Hispanic, community college students show signs of academic undermatch? *Journal of Hispanic Higher Education*, *16*(1), 77-97. doi: 10.1177/1538192716628604

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, *111*(23), 8410-8415. doi: 10.1073/pnas.1319030111

Friedel, J. N., Thornton, Z. M., D'Amico, M. M., & Katsinas, S. G. (2013). Performance-based funding: The national landscape. *Education Policy Center*. Tuscaloosa, AL: The University of Alabama.

Froyd, J. E., Henderson, C., Cole, R. S., Friedrichsen, D., Khatri, R., & Stanford, C. (2017). From dissemination to propagation: A new paradigm for educational developers. *Change: The Magazine of Higher Learning*, 49(4), 35–42. doi: 10.1080/00091383.2017.1357098

Fong, C. J., Acee, T. W., & Weinstein, C. E. (2018). A person-centered investigation of achievement motivation goals and correlates of community college student achievement and persistence. *Journal of College Student Retention: Research, Theory & Practice*, *20*(3), 369-387. doi: 10.1177/1521025116673374

Foote, E. (2006). Rural community colleges. *Community College Journal of Research and Practice*, 19(5), 475-478.

Garcia, M. (2010). When Hispanic students attempt to succeed in college, but do not. *Community College Journal of Research and Practice, 34,* 839-847. doi:10.1080/10668926.2010.485003

Gaudet, A., Ramer, L., Nakonechny, J., Cragg, J., & Ramer, M. (2010). Small-group learning in an upper level university biology class enhances academic performance and student attitudes toward group work. *PLosOne*, *5*(12), e15821. doi: 10.1371/journal.pone.0015821

Gelfand, J., & Lin, A. (2013). Grey literature: Format agnostic yet gaining recognition in library collections. *Library Management*, *34*(6/7), 538–550. doi: 10.1108/LM-03-2013-0022

Gerken, M., Beausaert, S., & Segers, M. (2016). Working on professional development of faculty staff in higher education: Investigating the relationship between social informal learning activities and employability. *Human Resource Development International*, *19*(2), 135-151. doi: 10.1080/13678868.2015.1116241

Giles, D. E, Jr. (2016). The emergence of engaged scholarship: Seven additional years of evolution. *Journal of Higher Education Outreach and Engagement*, *20*(1), 193-195. Retrieved from ERIC database. (EJ1097276)

Gohar, A. S., El-Basil, M. M. F., & Gomaa, M. H. (2018). Requirements of facing change resistance in Damietta University from its faculty members' points of view. *Creative Education, 9*, 2773-2790. doi: 10.4236/ce.2018.916208

Goldrick-Rab, S. (2010). Challenges and opportunities for improving community college

    student success. *Review of Educational Research*, *80*(3), 437–469. doi:

    10.3102/0034654310370163

Goodman, K., & Pascarella, E. T. (2006). First-year seminars increase persistence and

    retention: A summary of evidence from How College Affects Students. *Peer*

    *Review, 8*(3), 26–28. Retrieved from http://citeseerx.ist.psu.edu

Gormally, C., Evans, M., & Brickman, P. (2014). Feedback about teaching in higher ed:

    Neglected opportunities to promote change. *CBE-Life Sciences Education*, *13*(2),

    187-199. doi: 10.1187/cbe.13-12-0235

Green, W., & Whitsed, C. (2013). Reflections on an alternative approach to continuing

    professional learning for internationalization of the curriculum across

    disciplines. *Journal of Studies in International Education*, *17*(2), 148-164. doi:

    10.1177/1028315312463825

Greer, S. A. (1962). *The emerging city: Myth and reality*. New York, NY: Transaction

    Publishers.

Guiffrida, D. A. (2006). Toward a cultural advancement of Tinto's theory. *The Review of*

    *Higher Education, 29,* 451-472. doi: 10.1353/rhe.2006.0031

Habley, W., Bloom, J., & Robbins, S. (2012). *Increasing persistence: Research-based*

    *strategies for college student success*. San Francisco, CA:Jossey-Bass.Haggerty,

J., Haggerty, M. N., Rasker, R., & Gude, P. (2014). County economic development at a

    glance: A single measure of opportunity. *A Journal of the Western Agricultural*

    *Economics Association Forum*, *13*( 1837-2016-151823).

Halfacree, K. H. (1993). Locality and social representation: Space, discourse and alternative definitions of the rural. *Journal of Rural Studies*, *9*(1), 23-37. doi: 10.1016/0743-0167(93)90003-3

Halpin, R. L. (1990). An application of the Tinto model to the analysis of freshman persistence in a community college. *Community College Review*, *17*(4), 22-32. doi: 10.1177/009155219001700405

Harper, S. R., & Quaye, S. J. (2013). Beyond sameness, with engagement and outcomes for all. In S. R. Harper & S. J. Quaye (Eds.), *Student engagement in higher education: Theoretical perspective and practical approaches for diverse population* (pp. 1–15). New York, NY: Routledge.

Hatch, D. K., & Bohlig, E. M. (2016). An empirical typology of the latent programmatic structure of community college student success programs. *Research in Higher Education*, *57*(1), 72-98. doi: 10.1007/s11162-015-9379-6

Hatch, D. K., & Garcia, C. E. (2017). Academic advising and the persistence intentions of community college students in their first weeks in college. *The Review of Higher Education*, *40*(3), 353-390. doi: 10.1353/rhe.2017.0012

Hedberg, C., & Do Carmo, R. M. (2012). *Translocal ruralism*. Springer: Dordrecht, Netherlands

Heller, M. L., & Cassady, J. C. (2017). The impact of perceived barriers, academic anxiety, and resource management strategies on achievement in first-year community college students. *Journal of The First-Year Experience & Students in Transition*, *29*(1), 9-32.

Henley, L., & Roberts, P. (2016). Perceived barriers to higher education in STEM

   among disadvantaged rural students: A case study. *Inquiry: The Journal of the*

   *Virginia Community Colleges*, 20(1), 1-20. Retrieved from

   http://commons.vccs.edu/inquiry/vol20/iss1/4

Higher Learning Commission. (2015). AQIP categories. Retrieved from

   https://hlcommission.org/Pathways/aqip-categories.html

Hines, D., & Bogenschneider, K. (2013). Introduction: Communicating research to policy

   makers - briefing report chapters from the Massachusetts Family Impact Seminars

   on Youth at Risk. *New England Journal of Public Policy*, *25*(1), 3. Retrieved

   from http://scholarworks.umb.edu/nejpp/vol25/iss1/3

Hlinka, K. R. (2017). Tailoring retention theories to meet the needs of rural Appalachian

   community college students. *Community College Review*, 1-21. doi:

   10.1177/0091552116686403

Hlinka, K. R., Mobelini, D. C., & Giltner, T. (2015). Tensions impacting student success

   in a rural community college. *Journal of Research in Rural Education*

   *(Online)*, *30*(5), 1. Retrieved from

   https://ezp.waldenulibrary.org/login?url=https://search-proquest-

   com.ezp.waldenulibrary.org

Hoaglin, D. C., Iglewicz, B., & Tukey, J. W. (1986). Performance of some resistant rules

   for outlier labeling. *Journal of the American Statistical Association*, *81*(396), 991-

   999. doi: 10.1080/01621459.1986.10478363

Hora, M. T. (2016). Navigating the problem space of academic work: How workload and curricular affordances shape STEM faculty decisions about teaching and learning. *AERA Open*, *2*(1), 2332858415627612. doi: 10.1177/2332858415627612

Horii, C., Redd, K., Ouellett, M., Finkelstein, N., Beach, A., Carlisle, D., … Weaver, G. (2017, November 17). Collaborating at the centers: Report from a STEM education transformation workshop involving leaders of centers for teaching and learning and STEM education centers. Retrieved from https://podnetwork.org/content/uploads/Collaborating-at-the-Centers-Workshop-Report-20July2016.pdf

Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression* (2nd ed.). New York, NY: John Wiley & Sons, Inc.

Howley, C. B., Howley, A., & Yahn, J. (2014). Motives for dissertation research at the intersection between rural education and curriculum and instruction. *Journal of Research in Rural Education (Online), 29*(5), 1. Retrieved from http://citeseerx.ist.psu.edu

Howley, C., Johnson, J., Passa, A., & Uekawa, K. (2014). College enrollment and persistence in rural Pennsylvania schools. REL 2015-053. *Regional Educational Laboratory Mid-Atlantic*. Retrieved from ERIC database. (ED547260)

Hox, J. J., Moerbeek, M., & Van de Schoot, R. (2017). *Multilevel analysis: Techniques and applications* (3rd ed.). New York, NY: Routledge.

Hoxby, C. M., & Avery, C. (2013). *The missing "one-offs": The hidden supply of high-achieving, low-income students*. Washington, DC: The Brookings Institution.

Hurtado, S., Han, J. C., Sáenz, V. B., Espinosa, L. L., Cabrera, N. L., & Cerna, O. S. (2007). Predicting transition and adjustment to college: Biomedical and behavioral science aspirants' and minority students' first year of college. *Research in Higher Education, 48*, 841–887. doi: 10.1007/s11162-007-9051-x

Iceland, J. (2013). *Poverty in America: A handbook*. Berkeley, CA: University of California Press.

Imbens, G. W., & Kolesar, M. (2016). Robust standard errors in small samples: Some practical advice. *Review of Economics and Statistics*, *98*(4), 701-712. doi: 10.1162/REST_a_00552

Ishitani, T. T. (2016). First-generation students' persistence at four-year institutions. *College and University*, *91*(3), 22. Retrieved from https://ezp.waldenulibrary.org

Jacob, W. J., Xiong, W., & Ye, H. (2015). Professional development programmes at world-class universities. *Palgrave Communications*, *1*, 15002. doi: 10.1057/palcomms.2015.2

Jarvis, P. (2006). Beyond the learning society: Globalisation and the moral imperative for reflective social change. *International Journal of Lifelong Education*, *25*(3), 201-211. doi: 10.1080/02601370600697011

Jeeshim, K. (2002). Multicollinearity in regression models. Retrieved from http://sites.stat.psu. edu/~ ajw13/SpecialTopics/multicollinearity.pdf

Jenkins-Guarnieri, M. A., Horne, M. M., Wallis, A. L., Rings, J. A., & Vaughan, A. L. (2015). Quantitative evaluation of a first year seminar program: Relationships to persistence and academic success. *Journal of College Student Retention: Research, Theory & Practice*, *16*(4), 593-606. doi: 10.2190/CS.16.4.f

Jensen, M. S., & Finley, F. N. (1996). Changes in students' understanding of evolution resulting from different curricular and instructional strategies. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, *33*(8), 879-900. doi: 10.1002/(SICI)1098-2736(199610)33

Johnson, L., Becker, S., Estrada, V., & Freeman, A. (2014). *Horizon Report: 2014 Higher Education*. Austin, TX: New Media Consortium.

Jones, S., Harvey, M., Lefoe, G., & Ryland, K. (2014). Synthesising theory and practice Distributed leadership in higher education. *Educational Management Administration & Leadership*, *42*(5), 603-619. doi: 10.1177/1741143213510506

Joyce, T., Donovan, J., & Murphy, E. (2006, January). The application of the Box-Tidwell transformation in reliability modeling. In *Reliability and Maintainability Symposium, 2006. RAMS'06. Annual* (pp. 196-200). IEEE. doi: 10.1109/RAMS.2006.1677374

Juszkiewicz, J. (2017, November). *Trends in community college enrollment and completion data, 2017*. Washington, DC: American Association of Community Colleges.

Kahl, D. H., Jr. (2017). Addressing the challenges of critical communication pedagogy scholarship: moving toward an applied agenda. *Journal of Applied Communication Research*, *45*(1), 116-120. doi: 10.1080/00909882.2016.1248468

Kahn, L., Hurth, J., Kasprzak, C. M., Diefendorf, M. J., Goode, S. E., & Ringwalt, S. S. (2009). The national early childhood technical assistance center model for long-term systems change. *Topics in Early Childhood Special Education*, *29*(1), 24–39. doi: 10.1177/0271121409334039

Kanter, M. J. (2011). American higher education: "First in the world." *Change: The Magazine of Higher Learning*, *43*(3), 7-19. doi: 10.1080/00091383.2011.568896

Kast, F. E., & Rosenzweig, J. E. (1972). General systems theory: Applications for organization and management. *Academy of Management Journal*, *15*(4), 447-465. doi: 10.5465/255141

Kelley, B., Cruz, L., & Fire, N. (2017). Moving toward the center: The integration of educational development in an era of historic change in higher education. *To Improve the Academy, 36*(1). doi: 10.1002/tia2.20052

Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Wilkinson-Flicker, J. Z. S., ... Velez, E. D. (2015). *The condition of education: 2015*. Washington, DC: U.S. Department of Education. Retrieved from http://nces.ed.gov/pubs2015/2015144.pdf

Kezar, A., & Gehrke, S. (2014). Grassroots leadership: Responding to declining shared governance in the neoliberal world. In *Survival of the Fittest* (pp. 101-117). Berlin, Germany: Springer International.

Kilgo, C., Ezell Sheets, A., & Pascarella, J. (2015). The link between high-impact practices and student learning: Some longitudinal evidence. *Higher Education*, *69*(4), 509-525. doi: 10.1007/s10734-014-9788-z

Kimbark, K., Peters, M. L., & Richardson, T. (2017). Effectiveness of the student success course on persistence, retention, academic achievement, and student engagement. *Community College Journal of Research and Practice*, *41*(2), 124-138. doi: 10.1080/10668926.2016.1166352

King, G., & Roberts, M. E. (2015). How robust standard errors expose methodological problems they do not fix, and what to do about it. *Political Analysis*, *23*(2), 159-179. doi: 10.1093/pan/mpu015

Kisker, C. B., Cohen, A. M., & Wagoner, R. L. (2010). Reforming transfer and articulation in California. Retrieved from the Center for the Study of Community Colleges website: http://www.cscconline.org/files/5412/7360/3157/Reforming_Transfer_and_Articulation_in_California.pdf

Koch, S. S., Griffin, B. Q., & Barefoot, B. O. (2014). *National survey of student success initiatives at two-year colleges*. Brevard, NC: John N. Gardner Institute for Excellence in Undergraduate Education.

Koricich, A., Chen, X., & Hughes, R. P. (2018). Understanding the effects of rurality and socioeconomic status on college attendance and institutional choice in the United States. *The Review of Higher Education*, *41*(2), 281-305. doi: 10.1353/rhe.2018.0004

Kruse, T., Starobin, S. S., Chen, Y., Baul, T., & Santos Laanan, F. (2015). Impacts of intersection between social capital and finances on community college students' pursuit of STEM degrees. *Community College Journal of Research and Practice*, *39*(4), 324- 343. doi: 10.1080/10668926.2014.981893

Krzywinski, M., & Altman, N. (2014). Points of significance: Visualizing samples with box plots. *Nature Methods 11,* 119-120. doi: 10.1038/nmeth.2813

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (July 2006). What matters to student success: A review of the literature. *Commissioned Report for the National Symposium on Postsecondary Student Success*. Retrieved from http://nces.ed.gov/npec/pdf/kuh_team_report.pdf

Kuh, G. D., & O'Donnell, K. (2013). *Ensuring quality & taking high-impact practices to scale.* Washington, DC: Association of American Colleges and Universities.

Laerd Statistics (2013). Testing for linearity. Retrieved from https://statistics.laerd.com/premium/spss/blr/binomial-logistic-regression-in-spss-6.php

Lawson, R., Taylor, T., French, E., Fallshaw, E., Hall, C., Kinash, S., & Summers, J. (2015). Hunting and gathering: New imperatives in mapping and collecting

student learning data to assure quality outcomes. *Higher Education Research &*
*Development*, *34*(3), 581-595. doi: 10.1080/07294360.2014.911249

Lenning, O. T., & Ebbers, L. H. (1999). The powerful potential of learning communities:
Improving education for the future. *ASHE-ERIC Higher Education Report,* 26(6).
Retrieved from ERIC database. (ED428606)

Lester, J. (2014). The completion agenda: The unintended consequences for equity in
community colleges. In M. B. Paulsen (Ed.), *Higher education: Handbook of*
*theory and research* (Vol. 29, pp. 423–466). Dordrecht, Netherlands: Springer.

Levin, C., & Bohannon, M. (2013). Assessing the true cost of house for community
colleges. *Planning for Higher Education Journal, 41*(4), 117-124. Retrieved from
http://scup.org

Lewis, L. (2019). *Organizational change: Creating change through strategic*
*communication* (2nd ed., pp. 423-466). Hoboken, NJ: Wiley-Blackwell.

Lichter, D. T., & Brown, D. L. (2014). The new rural-urban interface: Lessons for higher
education. *Choices, 29*(1), 1-6.

Lodico, M., Spaulding, D., & Voegtle, K. (2010). *Methods in educational research:*
*From theory to practice* (Laureate Education, Inc., custom ed.). San Francisco,
CA: John Wiley & Sons

Long, J. S., & Freese, J. (2006). *Regression models for categorical dependent variables*
*using Stata*. College Station, TX: Stata Press.

Lom, B. (2012). Classroom activities: Simple strategies to incorporate student-centered
activities within undergraduate science lectures. *The Journal of Undergraduate*

*Neuroscience Education, 11*, A64-A71. Retrieved from

https://www.ncbi.nlm.nih.gov

Low, S. (2016). *Spatializing culture: The ethnography of space and place*. New York,

NY: Routledge.

Lumpkin, A., Achen, R. M., & Dodd, R. K. (2015). Student perceptions of active

learning. *College Student Journal*, *49*(1), 121-133. Retrieved from https://search-

ebscohost-com.ezp.waldenulibrary.org

Lydon, S., & King, C. (2009). Can a single, short continuing professional development

workshop cause change in the classroom? *Professional Development in

Education*, *35*(1), 63-82. doi: 10.1080/13674580802264746

Ma, J., & Baum, S. (2016). Trends in community colleges: Enrollment, prices, student

debt, and completion. *College Board Research Brief*. Retrieved from

http://trends.collegeboard.org/sites/default/files/trends-in-community-colleges-

research-brief.pdf

Malik, T. (2011). *College success: First year seminar's effectiveness on freshman

academic and social integration, impact on academic achievement and retention

at a southern institution* (Doctoral dissertation). Retrieved from ProQuest

Dissertations and Theses Full Text database. (UMI No. 852661182).

Marti, C. N. (2004). Overview of the CCSSE instrument and psychometric

properties. Retrieved from

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.572.1322&rep=rep1&t

ype=pdf

Marti, C. N. (2008). Dimensions of student engagement in American community colleges: Using the Community College Student Report in research and practice. *Community College Journal of Research and Practice, 33*(1), 1–24.

Martin, D. G. (2013). Place-frames: Analysing practice and production of place in contentious politics. In W. Nicholls & B. Miller (Eds.), *Spaces of Contention: Spatialities and Social Movements* (pp. 85-102). New York, NY: Routledge.

Martin, K., Galentino, R., & Townsend, L. (2014). Community college student success: The role of motivation and self-empowerment. *Community College Review*, *42*(3), 221-241. doi: 10.1177/0091552114528972

Mason, C. H., & Perreault, W. D., Jr. (1991). Collinearity, power, and interpretation of multiple regression analysis. *Journal of Marketing Research*, 268-280. doi: 10.1177/002224379102800302

Mattern, J. (2013, June 6). How to write a white paper. *Directory Journal*. Retrieved from http://www.dirjournal.com/business-journal/how-to-write-awhite-paper/

McClenney, K. M. (2007). Research update: The community college survey of student engagement. *Community College Review,* 35(2), 137-146. doi: 10.1177/0091552107306583

McClenney, K. M, & Waiwaiole, E. N. (2005). Focus on student retention: Promising practices in community colleges. *Community College Journal, 75*(6)*,* 36-41.

McClenney, K. M. (2008). *2008 institutional report: Benchmarks of effective educational practice.* Retrieved from http://www.ccsse.org/publications/ CCSSE%20Working.

McDonald, J. H. (2014). *Handbook of biological statistics* (3rd ed.). Retrieved from http://www.biostathandbook.com/Handbook BioStatThird.pdf

McKelvey, B. (2006). Van De Ven and Johnson's "engaged scholarship": Nice try, but…. *Academy of Management Review*, *31*(4), 822-829. doi: 10.5465/amr.2006.22527451

McKeon, P. (2005). Eight rules for creating great white papers. *KnowledgeStorm: The Content Factor.* Retrieved from http://www.idemployee.id.tue.nl/g.w.m.rauterberg/lecturenotes/Eight-Rules-for-Writing-Great-White-Papers.pdf

McPhail, C. J. (2011). The completion agenda: A call to action. *American Association of Community Colleges.* Retrieved from http://www.aacc.nche.edu/Publications/Reports/Documents/CompletionAgenda_report.p df

Meeuwisse, M., Severiens, S. E., & Born, M. P. (2010). Learning environment, interaction, sense of belonging and study success in ethnically diverse student groups. *Research in Higher Education, 51*, 528–545. doi: 10.1007/s11162-010-9168-1

Mellow, G. O., & Heelan, C. M. (2014). *Minding the dream: The process and practice of the American community college.* Lanham, MD: Rowman & Littlefield.

Merriam, S. (2009). *Qualitative research: A guide to design and implementation.* San Francisco, CA: Wiley, Jossey-Bass.

Mertes, S. J., & Hoover, R. E. (2014). Predictors of first-year retention in a community college. *Community College Journal of Research and Practice, 38,* 651-660. doi: 10.1080/10668926.2012.711143

Mertes, S. J., & Jankoviak, M. W. (2016). Creating a college-wide retention program: A mixed methods approach. *The Community College Enterprise*, *22*(1), 9.

Mertler, C. A., & Reinhart, R. V. (2016). *Advanced and multivariate statistical methods: Practical application and interpretation* (6th ed.). New York, NY: Routledge.

Miao, K. (2012). Performance-based Funding of higher education: A detailed look at best practices in 6 states. *Center for American Progress*. Retrieved from https://files.eric.ed.gov/fulltext/ED535548.pdf

Midi, H., Sarkar, S. K., & Rana, S. (2010). Collinearity diagnostics of binary logistic regression model. *Journal of Interdisciplinary Mathematics, 13*(3), 253-267. doi: 10.1080/09720502.2010.10700699

Monaghan, D. B., & Attewell, P. (2015). The community college route to the bachelor's degree. *Educational Evaluation and Policy Analysis*, *37*(1), 70-91. doi: 10.3102/0162373714521865

Morrison, C. (2014). The learning function's latest role: Organizational change agent. *TD: Talent Development*, *68*(10), 24–24.

Moscovici, S. (1976). *La Psychoanalyse: Son Image et son Public*. Paris, France: Presses Universitaires de France.

Moscovici, S. (1981). On social representation. In J. Forgas, (Ed.), *Social cognition: Perspectives on everyday understanding* (pp. 181-209). London, England: Academic Press.

Moscovici, S. (1984). The phenomenon of social representations. In R. Farr & S. Moscivici, (Eds), *Social Representations* (pp. 3-69). Cambridge, MA: Cambridge University Press.

National Center for Education Statistics . (2014). *Institutional retention and graduation rates for undergraduate students*. Retrieved from: http://nces.ed.gov/programs/coe/indicator_cva.asp.

National Center for Education Statistics. (2016). *Digest of Education Statistics: 2014* (NCES 2016-006). Retrieved from https://nces.ed.gov/programs/digest/d14/index.asp

National Center for Educational Statistics. (2017). IPEDS data center: Retention and graduation. Retrieved from https://nces.ed.gov/ipeds/datacenter/InstitutionProfile.aspx?unitId=adafabb1b0b2.

Nau, R. (2016). Linear regression models. *Statistical forecasting: Notes on regression and time series analysis*. Fuqua School of Business, Duke University. Retrieved from http://people.duke.edu/~rnau/testing.htm

Newman, F., Couturier, L., & Scurry, J. (2004). *The future of higher education: Rhetoric, reality, and the risks of the market.* San Francisco, CA: Jossey-Bass.

Nganga, L. W. (2005). *Multicultural curriculum issues in Wyoming early childhood programs* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Full Text database. (UMI No. 3188215).

Nicol, D., Thomson, A., & Breslin, C. (2014). Rethinking feedback practices in higher education: a peer review perspective. *Assessment & Evaluation in Higher Education*, *39*(1), 102-122. doi: 10.1080/02602938.2013.795518

Noar, S. M., Grant Harrington, N., Van Stee, S. K., & Shemanski Aldrich, R. (2011). Tailored health communication to change lifestyle behaviors. *American Journal of Lifestyle Medicine*, *5*(2), 112-122. doi: 10.1177/1559827610387255

Nora, A., Crisp, G., & Matthews, C. (2011). A reconceptualization of CCSSE's benchmarks of student engagement. *The Review of Higher Education*, *35*(1), 105-130. doi: 10.1353/rhe.2011.0036

Obama, B. (2009). Remarks by the President on the American Graduation Initiative. Retrieved from: https://www.whitehouse.gov/the-press-office/remarks-president-american-graduation-initiative-warren-mi

Office of the Press Secretary (2009, July 14). Excerpts of the President's remarks in Warren, Michigan and fact sheet on the American graduation initiative. *The White House: Briefing Room*. Retrieved from https://www.whitehouse.gov/the-press-office/excerpts-presidents-remarks-warren-michigan-and-fact-sheet-american-graduation-init

Ortquist-Ahrens, L. (2016). Beyond survival: Educational development and the maturing of the POD network. *To Improve the Academy*, 35: 1–34. doi: 10.1002/tia2.20031

Pascarella, E., & Chapman, D. (1983). A multi-institutional, path analytic validation of Tinto's model of college withdrawal. *American Educational Research Journal, 20*, 87-102. doi: 10.3102/00028312020001087

Pascarella, E., & Terenzini, P. (2005). *How college affects students (Vol. 2): A third decade of research*. San Francisco, CA: Jossey-Bass.

Pehmer, A. K., Gröschner, A., & Seidel, T. (2015). How teacher professional development regarding classroom dialogue affects students' higher-order learning. *Teaching and Teacher Education*, *47*, 108-119. doi: 10.1016/j.tate.2014.12.007

Peng, C. Y. J., So, T. S. H., Stage, F. K., & John, E. P. S. (2002). The use and interpretation of logistic regression in higher education journals: 1988–1999. *Research in higher education*, *43*(3), 259-293. doi: 10.1023/A:1014858517172

Penny, K., Frankel, E., & Mothersill, G. (2012). Curriculum, climate and community: A model  for experiential learning in higher education. In *International Technology, Education and Development Conference (INTED) Proceedings (6th)* (pp. 3-4). Retrieved from https://www.ryerson.ca

Permzadian, V., & Credé, M. (2016). Do first-year seminars improve college grades and retention? A quantitative review of their overall effectiveness and an examination

of moderators of effectiveness. *Review of Educational Research*, *86*(1), 277-316.

doi: 10.3102/0034654315584955

Peters, M. A. (2012). Neoliberalism, education and the crisis of Western capitalism.

*Policy Futures in Education, 10*(2), 134–141. doi: 10.2304/pfie.2012.10.2.134

Petrin, R. A., Schafft, K. A., & Meece, J. L. (2014). Educational sorting and residential

aspirations among rural high school students: What are the contributions of

schools and educators to rural brain drain? *American Education Research*

*Journal, 51*(2), 294-326. doi: 10.3102/0002831214527493

Petty, R. E., & Cacioppo, J. T. (1984). The effects of involvement on responses to

argument quantity and quality: Central and peripheral routes to

persuasion. *Journal of Personality and Social Psychology, 46*(1), 69-81. doi:

10.1037/0022-3514.46.1.69

Phillips, B. C., & Horowitz, J. E. (2013). Maximizing data use: A focus on the

completion agenda. *New Directions for Community Colleges*, *2013*(164), 17–25.

doi: 10.1002/cc.20077

Phillips, L. T., Stephens, N. M., & Townsend, S. S. (2016). Access is not enough:

Cultural mismatch persists to limit first-generation students' opportunities for

achievement throughout college. *Academy of Management Proceedings, 2016(1),*

*15696*.

Popova, V., & Sharpanskykh, A. (2011). Formal modelling of organisational goals based

on performance indicators. *Data & Knowledge Engineering*, *70*(4), 335-364. doi:

10.1016/j.datak.2011.01.001

Powell, V. (2012). Revival of the position paper: Aligning curricula and professional competencies. *Communication Teacher*, *26*(2), 96–103. doi: 10.1080/17404622.2011.643805

Price, D. V., & Tovar, E. (2014). Student engagement and institutional graduation rates: Identifying high-impact educational practices for community colleges. *Community College Journal of Research and Practice, 38*(9), 766-782. doi: 10.1080/10668926.2012.719481

Quaye, S. J., & Harper, S. R. (2014). *Student engagement in higher education: Theoretical perspectives and practical approaches for diverse populations*. New York, NY: Routledge.

Rainwater, T. S. M. (2016). Teaching and learning in competency-based education courses and programs: faculty and student perspectives. *The Journal of Competency-Based Education*, *1*(1), 42-47. doi: 10.1002/cbe2.1008

Ratcliffe, M., Burd, C., Holder, K., & Fields, A. (2016). *Defining rural at the U.S. Census Bureau*. Retrieved from the U.S. Census Bureau website https://www2.census.gov/geo/pdfs/reference/ua/Defining_Rural.pdf

Reason, R. D. (2009). An examination of persistence research through the lens of a comprehensive conceptual framework. *Journal of College Student Development*, *50*(6), 659-682. doi: 10.1353/csd.0.0098

Riordan, D. G. (2014). STEM education centers: a national discussion. *APLU/SMTI Paper 8*. Washington, DC: Association of Public and Land-Grant Universities.

Retrieved from http://www.aplu.org/projects-and-initiatives/stem-education/SMTI_Library/stem-educationcenters-report/file

Rios-Aguilar, C., & Deil-Amen, R. (2012). Beyond getting in and fitting in: An examination of social networks and professionally relevant social capital among Latina/o university students. *Journal of Hispanic Higher Education, 11*, 179-196. doi: 10.1177/1538192711435555

Roberts, J. K. (2017). Meeting needs or exacerbating barriers: The role of Ohio's early college policy in rural students' college enrollment and persistence. *Texas Education Review, Volume 5*(1), 40-52.

Rubin, M., Denson, N., Kilpatrick, S., Matthews, K. E., Stehlik, T., & Zyngier, D. (2014). "I am working-class": Subjective self-definition as a missing measure of social class and socioeconomic status in higher education research. *Educational Researcher, 43*(4), 196-200. doi: 10.3102/0013189X14528373

Rural Community College Alliance. (2017). Why rural community and tribal colleges matter. Retrieved from: http://www.ruralccalliance.org/

Sakamuro, S., Stolley, K., & Hyde, C. (2016). White paper: Purpose and audience. *Purdue University Online Writing Lab.* Retrieved from https://owl.english.purdue.edu/owl/resource/546/1/

Salmerón Gómez, R., García Pérez, J., López Martín, M. D. M., & García, C. G. (2016). Collinearity diagnostic applied in ridge estimation through the variance inflation factor. *Journal of Applied Statistics*, *43*(10), 1831–1849. doi: 10.1080/02664763.2015.1120712

Santiago, C. D., Gudiño, O. G., Baweja, S., & Nadeem, E. (2014). Academic achievement among immigrant and U.S.-born Latino adolescents: Associations with cultural, family, and acculturation factors. *Journal of Community Psychology, 42*(6), 735-747. doi: 10.1002/jcop.21649

Schademan, A. R., & Thompson, M. R. (2016). Are college faculty and first-generation, low-income students ready for each other? *Journal of College Student Retention: Research, Theory & Practice*, *18*(2), 194-216. doi: 10.1177/1521025115584748

Schafft, K. A. (2016). Rural education as rural development: Understanding the rural school–community well-being linkage in a 21st-century policy context. *Peabody Journal of Education*, *91*(2), 137-154. doi: 10.1080/0161956X.2016.1151734

Schafft, K. A., Killen, K. M., & Morrissey, J. (2010). The challenges of student transency for rural schools and communities in the era of No Child Left Behind. In K. A. Schafft & A. Jackson (Eds.), *Rural education for the twenty-first century: Identity, place and community in a globalizing world* (pp. 95-114). University Park, PA: Penn State Press

Schudde, L. (2019). Short-and long-term impacts of engagement experiences with faculty and peers at community colleges. *The Review of Higher Education*, *42*(2), 385-426. doi: 10.1353/rhe.2019.0001

Schuhmann, R. A., & Skopek, T. A. (2016). " ...Timid and fearful? Wise and safe?". *California Journal of Politics and Policy*, *8*(1), 1-18. doi: 10.5070/P2cjpp8129974

Schutz, A. (1970) *On Phenomenology and Social Relations*. Chicago, IL: University of Chicago Press.

Seidman, A., Astin, A., & Berger, J. (2012). Taking action: A retention formula model for student success. In A. Seidman (Ed.), *College student retention: Formula for student success* (2nd ed., pp. 267-284). Blue Ridge Summit, PA: Rowman & Littlefield Publishers.

Shapiro, D., Dundar, A., Yuan, X., Harrell, A. T., & Wakhungu, P. K. (2014). *Completing college: A national view of student attainment rates--Fall 2008 Cohort* (Signature Report No. 8). Herndon, VA: National Student Clearinghouse Research Center.

Shapiro, D., Dundar, A., Ziskin, M., Chiang, Y., Chen, J., Harrell, A., & Torres, V. (2013). *Baccalaureate attainment: A national view of the postsecondary outcomes of students who transfer from two-year to four-year institutions*. Herndon, VA: National Student Clearinghouse Research Center.

Shea, P., & Bidjerano, T. (2014). Does online learning impede degree completion? A national study of community college students. *Computers & Education, 75*, 103-111. doi: 10.1016/j.compedu.2014.02.009

Shields, R. (1991) *Places on the margin*. London, England: Routledge.

Shockley-Zalabak, P., Barge, J. K., Lewis, L., & Lynn Simpson, J. (2017). Engaged scholarship. *The International Encyclopedia of Organizational Communication*, 1-15. doi: 10.1002/9781118955567.wbieoc071

Schultz, C. (2014). Learning is change: Creating an environment for sustainable

organizational change in continuing and higher education. *Canadian Journal of University Continuing Education, 40*(1), 1-26. doi: 10.21225/D5602Q

Smith-Blair, N., & Porche, D. J. (2017). Aligning mission and position in a critical policy leadership tool: SNRS nursing research white paper message from the president. *Research in Nursing & Health*, *40*(2), 96-98. doi: 10.1002/nur.21788

Smith, C. A., Baldwin, C., & Schmidt, G. (2015). Student success centers: Leading the charge for change at community colleges. *Change: The Magazine of Higher Learning, 47*(2), 30–39. doi: 10.1080/00091383.2015.1018087

Smith, C. L., & Allen, J.M. (2014) Does contact with advisors predict judgments and attitudes consistent with student success? A multi-institutional study. *NACADA Journal,* 34(1), 50-63. doi: 10.12930/NACADA-13-019

Snyder, M. M., Murphy-Nugen, A., Rose, A., Wells, G., & MacKusick, C. (2017). Implementation of competency based educational strategies into a first-year seminar for interprofessional healthcare science majors. *Internet Journal of Allied Health Sciences and Practice*, *15*(3), 4.

Soper, D. S. (2015). A priori sample size calculator for multiple regression. Retrieved from http://www.danielsoper.com/statcalc3/calc.aspx?id=1

Southgate, E., Brosnan, C., Lempp, H., Kelly, B., Wright, S., Outram, S., & Bennett, A. (2016). Travels in extreme social mobility: How first-in-family students find their way into and through medical education. *Critical Studies in Education, 57*(1), 1-19. doi: 10.1080/17508487.2016.1263223

Stage, F., & Vaisman, J. C. (2010). Why now? Assessing assessment. Commentary. *Association for the Study of Higher Education*. Retrieved from https://files.eric.ed.gov/fulltext/ED530830.pdf

StataCorp. 2017. Stata statistical software: Release 12. College Station, TX: StataCorp LLC.

Stibe, A., & Cugelman, B. (2016, April). Persuasive backfiring: when behavior change interventions trigger unintended negative outcomes. In A. Meschtscherjakov, B. De Ruyter, V. Fuchsberger, M. Murer, & M. Tscheligi (EDS.), *Persuasive technology* (pp. 65-77). Cham, Switzerland: Springer Nature.

Stuart, G. R., Rios-Aguilar, C., & Deil-Amen, R. (2014). "How much economic value does my credential have?": Reformulating Tinto's model to study students' persistence in community colleges. *Community College Review*, *42*(4), 327–341. doi: 10.1177/0091552114532519

Stewart, S., Lim, D. H., & Kim, J. (2015). Factors influencing college persistence for first-time students. *Journal of Developmental Education*, *38*(3), 12. Retrieved from https://files.eric.ed.gov/fulltext/EJ1092649.pdf

Stoltzfus, J. C. (2011). Logistic regression: A brief primer. *Academic Emergency Medicine*, *18*(10), 1099-1104. doi: 10.1111/j.1553-2712.2011.01185.x

Tagg, J. (2003). *The learning paradigm college*. San Francisco, CA: Jossey-Bass.

Taylor, E. W. (2017). Transformative learning theory. In *Transformative learning meets bildung* (pp. 17-29). Rotterdam, Netherlands: SensePublishers.

Thornton, Z. M., & Friedel, J. N. (2016). Performance-based funding: State policy

influences on small rural community colleges. *Community College Journal of

Research and Practice*, *40*(3), 188-203.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent

research. *Review of Educational Research, 45*, 110. doi:

10.3102/00346543045001089

Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of

student leaving. The Journal of Higher Education, 59(4), 438-455. doi:

10.1080/00221546.1988.11780199

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition*.

Chicago, IL: University of Chicago Press.

Tinto, V. (2006). Research and practice of student retention: What next? *Journal of

College Student Retention: Research, Theory & Practice*, *8*(1), 1-19. doi:

10.2190/4YNU-4TMB-22DJ-AN4W

Tinto, V. (2010). From theory to action: Exploring the institutional conditions for student

retention. In *Higher education: Handbook of theory and research* (pp. 51-89).

Dordrecht, Netherlands: Springer.

Tinto, V. (2012). *Completing college: Rethinking institutional action*. Chicago, IL: The

University of Chicago Press.

Trochim, W. (2006). Research methods knowledge base. Retrieved from

http://www.socialresearchmethods.net/kb/index.php

Tovar, E. (2015). The role of faculty, counselors, and support programs on Latino/a

community college students' success and intent to persist. *Community College Review*, *43*(1), 46–71. doi: 10.1177/0091552114553788

Tuchman, G. (2009). *Wannabe U: Inside the corporate university*. Chicago, IL: University of Chicago Press.

Tukibayeva, M., & Gonyea, R. (2014). High-impact practices and the first-year student. *New Directions for Institutional Research, 2013*(160), 19-35. doi: 10.1002/ir.20059

Turner, P., & Thompson, E. (2014). College retention initiatives meeting the needs of millennial freshman students. *College Student Journal, 48*(1), 94-104. Retrieved from https://search-ebscohost-com.ezp.waldenulibrary.org/login.aspx?direct=true&db=a9h&AN=96336714&site=ehost-live&scope=site

U.S. Census Bureau. (2010). *2010 census urban and rural classification and urban area criteria*. Retrieved from http://www.census.gov/geo/www/ua/2010urbanruralclass.html.

U.S. Department of Agriculture. (2017). *What is rural?*. Retrieved from https://www.nal.usda.gov/ric/what-is-rural

U.S. Department of Education. (2015). *College completion*. Retrieved from http://www.ed.gov/category/keyword/college-completion

Upcraft, M., Gardner, & Barefoot, B. (Eds.). (2005). *Challenging and support: Creating climates for first-year student success.* San Francisco, CA: Jossey-Bass.

van den Bergh, L., Ros, A., & Beijaard, D. (2014). Improving teacher feedback during active learning: Effects of a professional development program. *American Educational Research Journal*, *51*(4), 772-809. doi: 10.3102/0002831214531322

van den Bergh, L., Ros, A., & Beijaard, D. (2015). Teacher learning in the context of a continuing professional development programme: A case study. *Teaching and Teacher Education*, *47*, 142-150. doi: 10.1016/j.tate.2015.01.002

Van de Ven, A. H. (2007). *Engaged scholarship: A guide for organizational and social research*. Oxford, England: Oxford University Press.

Van Osselaer, S., & Janiszewski, C. (2012). A goal-based model of product evaluation and choice. *Journal of Consumer Research*, *39*(2), 260–292. doi: 10.1086/670195

Voigt, L., & Hundrieser, J. (2008). Student success, retention, and graduation: Definitions, theories, practices, patterns, and trends. *Noel-Lewitz Retention Codifications. November*, 1-22.

Wang, X., Chan, H. Y., Soffa, S. J., & Nachman, B. R. (2017). A nuanced look at women in STEM fields at two-year colleges: Factors that shape female students' transfer intent. *Frontiers in Psychology*, *8*, 146. doi: 10.3389/fpsyg.2017.00146

Watty, K., McKay, J., & Ngo, L. (2016). Innovators or inhibitors? Accounting faculty resistance to new educational technologies in higher education. *Journal of Accounting Education*, *36*, 1-15. doi: 10.1016/j.jaccedu.2016.03.003

Willerton, R. (2013). Teaching white papers through client projects. *Business Communication Quarterly*, *76*(1), 105–113. doi: 10.1177/1080569912454713

Wilson, A., Greenacre, L., Pignata, S., & Winefield, A. (2016). Challenging the notion of the transition year: The experiences of rural and urban tertiary students. *International Journal of Educational Reserach, 79*, 21-30. doi: 10.1016/j.ijer.2016.06.002

Wilson, S. D. (2016). At issue: Lack of persistence in college and the high-achieving, low-income student: A review of the literature. *The Community College Enterprise, 22*(2), 42.

Williams, R. (2015). Multicollinearity. Retrieved from http://www3.nd.edu/~rwilliam /stats2/l11.pdf

Wilson-VanVoorhis, C. R., & Morgan, B. (2007). Understanding power and rules of thumb for determining sample sizes. *Tutorials in Quantitative Methods for Psychology*, *3*(2), 43-50. doi: 10.20982/tqmp.03.2.p043

Wolf, D. A. P. S., Perkins, J., Butler-Barnes, S. T., & Walker, T. A., Jr. (2017). Social belonging and college retention: Results from a quasi-experimental pilot study. *Journal of College Student Development*, *58*(5), 777-782. doi: 10.1353/csd.2017.0060

Wood, J. L., & Ireland, S. M. Y. (2014). Supporting Black male community college success: Determinants of faculty–student engagement. *Community College Journal of Research and Practice*, *38*(2-3), 154-165.

Wood, J. L., Newman, C. B., & Harris III, F. (2015). Self-efficacy as a determinant of academic integration: An examination of first-year Black males in the community

college. *Western Journal of Black Studies*, *39*(1), 3. Retrieved from

https://www.researchgate.net

Wood, W. (2000). Attitude change: Persuasion and social influence. *Annual Review of*

*Psychology*, *51*(1), 539-570. doi: 10.1146/annurev.psych.51.1.539

Wooldridge, J. M. (2015). Control function methods in applied econometrics. *Journal of*

*Human Resources*, *50*(2), 420-445. doi: 10.3368/jhr.50.2.420

Wormington, S. V., & Linnenbrink-Garcia, L. (2017). A new look at multiple goal

pursuit: The promise of a person-centered approach. *Educational Psychology*

*Review*, *29*(3), 407-445. doi: 10.1007/s10648-016-9358-2

Wright, M. C., Lohe, D. R., & Little, D. (2018). The role of a center for teaching and

learning in a de-centered educational world. *Change: The Magazine of Higher*

*Learning*, *50*(6), 38-44. doi: 10.1080/00091383.2018.1540826

Xu, D., Jaggars, S. S., Fletcher, J., & Fink, J. E. (2018). Are community college transfer

students "a good bet" for 4-year admissions? Comparing academic and labor-

market outcomes between transfer and native 4-year college students. *The Journal*

*of Higher Education*, *89*(4), 478-502. doi: 10.1080/00221546.2018.1434280

Xu, Y. J. (2017). Localizing college retention efforts: The distance between theoretical

orientation and institution-specific needs. *Innovative Higher Education*, *42*(1), 49-

63. doi: 10.1007/s10755-016-9364-9

Young, D. G., & Hopp, J. M. (2014). *2012–2013 National Survey of First-Year*

*Seminars: Exploring high-impact practices in the first college year*. Columbia,

SC: National Resource Center for the First-Year Experience and Students in
Transition, University of South Carolina.

Yuan, M., & Lin, Y. (2006). Model selection and estimation in regression with grouped variables. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, *68*(1), 49-67. doi: 10.1111/j.1467-9868.2005.00532.x

Zohar, A., & Lustov, E. (2018). Challenges in addressing metacognition in professional development programs in the context of instruction of higher-order thinking. In Y. Weinberger & Z. Libman (Eds.), *Contemporary pedagogies in teacher education and development* [eBook]. Retrieved from https://www.intechopen.com/books/contemporary-pedagogies-in-teacher-education-and-development/challenges-in-addressing-metacognition-in-professional-development-programs-in-the-context-of-instru

Appendix: The Project

# THE INFLUENCE OF RURAL PLACE-FRAMES ON PERSISTENCE AT RURAL COMMUNITY COLLEGES

## PROJECT RESULTS AND RECOMMENDATIONS

*JEANNIE HUNT*

This position paper summarizes a research study about the relationship between academic integration variables and persistence of students from rural places of origin attending ███████ College (███). Using survey data collected from the Community College Survey of Student Engagement (CCSSE) from 2013-2016 at ███, ordinary least square regression analysis demonstrated relationships between two place-frame variables, student age and student intent to transfer, and the academic integration active learning. Binary logistic regression analysis further demonstrated a relationship between active learning scores and student persistence. These results led to evidence-based recommendations for programmatic changes to increase academic integration and student persistence, including data collection and analysis, the use of first-year seminar courses, and the use of a teaching and learning center for faculty professional development.

## EXECUTIVE SUMMARY

A research study examining variables associated with academic integration that are predictive of student persistence in a small, residential community college in a rural or frontier setting was used to better understand integration behaviors of students from rural places of origin. Archival data, collected using the Community College Survey of Student Engagement (CCSSE) from 2013-2016, resulted in 227 student responses for analysis. The data was analyzed using ordinary least square (OLS) regression and binary logistic regressions. OLS regressions demonstrated a relationship between place-frame variables student age and student intent to transfer, and academic integration variable active learning. Binary logistic regression demonstrated a statistically significant relationship between the academic integration variable active learning and student persistence.

The regression results indicated that students who indicate an intent to transfer are more likely to engage in behaviors that are predictive of student integration in the areas of collaborative learning, academic challenge, and active learning. Additionally, increases in active learning scores significantly related to increases in the likelihood of rural student persistence. Results suggested that the more active a student is in their learning, the more likely they are to persist. These results support the theories that active learning has a correlation with student academic and social integration (Braxton, Jones, Hirschy, & Hartley, 2008; Tinto, 2010), and persistence in two-year institutions has a correlation with transfer to four-year institutions (Shapiro et al., 2013; Tinto, 2012). Based on this study, students at ██ who engage in active learning are more likely to persist than their peers who do not engage in active learning.

Using the results of this study, three evidence-based recommendations are forwarded to potentially increase student active learning and persistence. These recommendations include a change in data collection and analysis to focus on localized student data, a reorganization of ██ first-year seminar courses to increase academic integration, and the use of the ██ teaching and learning center to provide on-going faculty professional development opportunities to increase active learning campus-wide. The implications of these recommendations include the possibility for greater student academic integration through active learning, translating to potential increases in persistence and completion.

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## CONCERNING TRENDS

After the announcement of the American Graduation Initiative in 2009 by president Barak Obama (Office of the Press Secretary [OPS], 2009) aiming to increase certificate or degree attainment by an additional 5 million students, community college leaders and state governors shifted institutional priorities to align with goals outlined by the Complete College America agenda (Complete College America, 2014). Specifically, state and institutional leaders engaged in a paradigm shift to move completion to the forefront, tying government funding to student success, and making persistence a key priority. Although completion has become a priority, the completion rate in higher education nationally is only 52.9% (Shapiro, Dundar, Yuan, Harrell, & Wakhungu, 2014) and 40% of community college students depart before their second year of studies (Wilson, 2016). The National Center for Educational Statistics [NCES] (2016) reported that retention rates of first-time students at community colleges have shown little change between 2004 (53.3%) and 2014 (57.3%). Habley, Bloom and Robbins (2012) reported that persistence rates remained relatively stagnant between 1975 and 2010, even with national and local initiatives aimed at increasing persistence and completion (Bers & Schuetz, 2014). This study had two distinct parts: Identifying student place-frames variables that are predictive of academic integration in a small, residential community college in a rural/frontier setting, and identifying whether academic integration variables are predictive of persistence in the same higher education setting.

## THE LITERATURE

### PERSISTENCE

Understanding persistence and completion of community college students presents an even bigger challenge: More than 69% of students at 2-year institutions needing remediation and 40% working full time (Mellow & Heelan, 2014). Rural students in the United States are still behind their urban peers in higher education enrollment and persistence, with only 17% of rural adults 25 or older earning a college degree (Shapiro et al., 2013). Unfortunately, the study of student persistence provides a unique set of challenges, especially at the community college level (Hatch & Garcia, 2017). Goldrick-Rab (2010) suggested that persistence data means little without corresponding data concerning student goals, which are infrequently collected. Additionally, there are relatively few studies examining community college data sets providing information about student-level integration, which includes academic experiences (Hatch & Garcia, 2017). To date, little research concerning persistence or academic integration in rural, 2-year institutions, is available, and almost no research about rural/frontier residential community colleges is available.  An unintended consequence of this lack of rurality research drives rural/frontier, 2-year institutions, like █████, to utilize national studies and statistics, largely based on urban assumptions (Bassett, 2002; Henley & Roberts, 2016), to develop and implement programmatic and policy changes aimed at increasing academic persistence. Because the overall structure of █████ is atypical of a community college in the United States, national trend data may not be sufficient to use as a starting place for interventions designed to improve an above average persistence rate.

### THEORETICAL FRAMEWORK

For the purposes of this study, Tinto's (1993) institutional departure theory guided research concerning persistence, integration and completion strategies and practices at higher education institutions. The use of ruralism theory (Bassett, 2002) and research, rooted in social representations theory (Halfacree, 1993; Moscovici, 1984), helped to identify gaps in practice between persistence strategies on the national level and persistence needs on the local, rural level at █████. Persistence for students is determined by their ability to integrate academically and socially into the institutional systems (Meeuwisse, Severiens, & Born, 2010; Tinto, 1993; Xu, 2017). Social representation theory (SRT) argues that constitutive phenomenology, or the lens through which an individual views the world, also called a place-frame, is based on their everyday realities, including their physical space (Halfacree, 1993; Schutz, 1970).  The theory rejects the idea that behavior follows a predictive, systemic path, relegating understanding to only information processing (Halfacree, 1993). These theories suggest that rural students may not integrate or separate in ways similar to urban students (Burnell, 2003; Guiffrida, 2006; Petrin, Schafft, & Meece, 2014; Tinto, 2010), especially when they attend rural institutions (Quaye & Harper, 2014). Thus, using urban research from traditional, 4-year institutions for persistence modeling may have little relevance to rural community colleges (Crisp & Delgado, 2014; Hlinka, Mobelini, & Giltner, 2015).

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## RESEARCH

### RESEARCH QUESTIONS

| RQ | |
|----|---|
| 1 | For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable student effort? |
| 2 | For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable collaborative learning? |
| 3 | For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable active learning? |
| 4 | For RFCC students with a rural place-frame, what is the predictive relationship between student intent to transfer, student age, and student sex factors and CCSSE integration variable academic challenge? |
| 5 | What is the predictive relationship between CCSSE integration variables, including student effort, collaborative learning, active learning, and academic challenge, and student persistence at RFCC for students with a rural place of origin? |

### RESEARCH METHODOLOGY

The study used a convenience sample of CCSSE surveys completed by ▮▮▮ students and supplied by the ▮▮▮ Institutional Research Office between 2013 and 2016. The study used 38 CCSSE items, which Nora, Crisp, and Matthews (2011) subjected to a quantitative data reduction procedure to produce a five-factor model, collecting integration data based on Tinto's (1993) institutional departure theory. This sample yielded 332 surveys from students with a rural place of origin.

The design included a non-experimental, correlational, quantitative research design with regression analyses. Initially, OLS regression analysis of demographic data was used to determine which predictive variables of place-frames, including intent to transfer, sex, and age, potentially influence variables associated with student persistence measures, including student effort, collaborative learning, active learning, and academic challenge. The initial regressions of demographic data, including academic integration data retrieved from institutional records, was used to determine whether these potential correlates of place-frame types at a rural institution were predictive variables for persistence. Using the five factor model discovered by Nora at al. (2011), data from the CCSSE surveys related to dependent variables had to be transformed to determine variable scores for analysis. To transform this data, a factor score was computed by first converting raw item scores to z scores with a mean

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of zero and a standard deviation of one. Then the total of the z scores were averaged by the number of items. The four factors used for this study concerned academic integration, and included student effort, collaborative learning, active learning, and academic challenge scores. OLS regressions demonstrated some relationships between two of the three predictor (place-frame) variables and academic integration factor scores.

Next, academic integration factor score data was used in a binary logistic regression analysis to determine whether these potential correlates of place-frame types at a rural institution were predictive variables for persistence. Binary logistic regression analysis of four predictor variables to one criterion variable (persistence) determined that only the variable active learning resulted in a statistically significant result.

Holding all else equal, student with scores one standard deviation above the mean of 0.9362 in active learning scores were approximately 9.5% more likely to persist than students with active learning scores one standard deviation below the mean. The predicted probability of persistence increases from approximately 60% chance of persistence for the lowest active learning score reported to approximately 98% chance of persistence for the highest active learning score reported.

*Logistic Regression Results for Explaining the Likelihood of Student Persistence for Rural Students*

| Independent Variable | Coefficient | Robust Std. Error | \|z\| | p-value |
|---|---|---|---|---|
| Constant | 2.706** | 0.312 | 8.67 | 0.000 |
| Student Effort | -0.453 | 0.554 | -0.82 | 0.413 |
| Collaborative Learning | 0.576 | 0.467 | 1.23 | 0.218 |
| Active Learning | 1.127** | 0.419 | 2.69 | 0.007 |
| Academic Challenge | -0.283 | 0.427 | -0.66 | 0.506 |
| N | 227 | | | |
| pseudo R-Squared | 0.0875 | | | |
| Wald *Chi²* | 10.21* | | | |

*Note: *p =< .05 **p<=.01 (two-tailed).*

*Dependent variable: Whether student persisted (1) or not (0). Analysis conducted in Stata 12.1*

Additionally, active learning was significantly related to the predictor variable intent to transfer, resulting in a predicted increase of 0.257 in active learning scores. These results support the theories that active learning has a correlation with student academic and social integration (Braxton et al., 2008; Tinto, 2010), and persistence in two-year

*Effects of Student Active Learning Scores on Predicted Probabilities of Student Persistence*

| | Values of Active Learning Variable | | | | |
|---|---|---|---|---|---|
| | Two Standard Deviations Below Mean | One Standard Deviation Below Mean | Mean | One Standard Deviation Above Mean | Two Standard Deviations Above Mean |
| Probability of Student Persistence | 0.7643 | 0.8734 | 0.9362 | 0.9690 | 0.9852 |

*All dummy variables were set to 0 and other continuous variables set to their means.*

persistence in two-year institutions has a correlation with transfer to four-year institutions (Shapiro et al., 2013; Tinto, 2012).

Based on the results of this study, a relationship between active learning scores, identified as one measure of academic integration, and persistence exists. Additionally, there is a link between academic integration and persistence for rural students. Tinto (1988) posits that student retention is related to student integration in both social and academic areas. Academic integration is the gateway to social integration, suggesting that integrating with faculty and peers during active instruction and learning facilitates social interactions outside of the classroom, increasing the likelihood of persistence (Tinto, 2012; Xu, 2017). A large body of research suggests that active learning not only increases student learning (Abeysekera & Dawson, 2015; Buchenroth-Martin, DiMartino, & Martin, 2017; Crouch & Mazur, 2001; Carr, Palmer, & Hagel, 2015; Hatch & Bohlig, 2016; Jensen & Finley, 1996; Lom, 2012; Lumpkin, Achen, & Dodd, 2015), but is an antecedent of academic integration, and thus persistence (Braxton, Milem, & Sullivan, 2000). This study verified previous findings, indicating a positive relationship between active learning scores and persistence at █████. Because rurality contributes to notions of connectedness, personal relationships and community expectations (Burnell, 2003), integration into institutions of higher education may be important for rural student persistence. This study demonstrates that active learning potentially increases integration opportunities for rural students, increasing persistence.
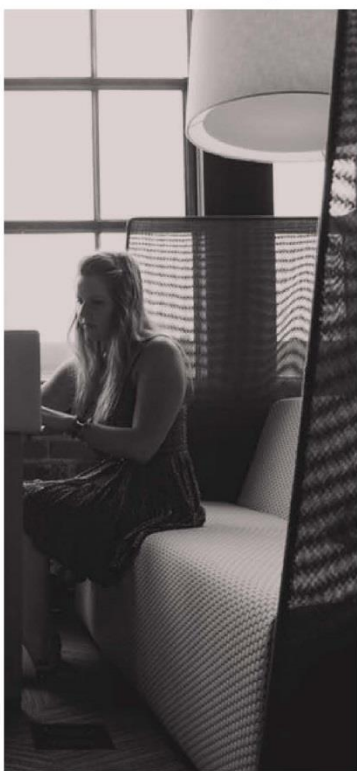
Results from this study form the basis of a position paper for the project deliverable focusing on three specific elements: data gathering and analysis; the use of First Year Seminar (FYS) courses at █████ for student integration; and the possibility of using the █████ Teaching and Learning Center to help faculty investigate ways to increase active learning strategies to potentially increase integration and persistence.

## RECOMMENDATIONS

### RECOMMENDATION #1: LOCALIZED DATA COLLECTION AND ANALYSIS

As the demand for data-driven decision making and strategic planning increases in higher education (Fong, Acee, & Weinstein, 2018), community colleges, in particular, are encountering challenges in data collection and use based on both internal and external factors (Feldman, 2017; Wormington & Linnenbrink-Garcia, 2017). While the practice of using national trend data from sources like the CCSSE are commonplace among community colleges, it may not be the best method of interrogating the needs of a particular campus where persistence and retention are concerned. Because student retention has to happen at the campus level (Cole, Gonyea, & Rocconi, 2017), data collection used to drive campus initiatives aimed at increasing student retention must also happen on the campus level (Fong et al., 2018; Lawson et al., 2015; Xu, 2017).

Community colleges frequently use nationally developed data collection models rather than institution-specific data when identifying issues of student attrition (Mertes & Jankoviak, 2016). The unfortunate side effect of using national trend data, however, is inconsistency in both data collection methods and the use of non-specific results in decision-making (Juszkiewicz, 2017). Often, variables utilized in previous studies fail to generalize from campus to campus with meaningful results (Fong et al., 2018; Mertes & Jankoviak, 2016; Xu, 2017). █████ currently depends primarily on the CCSSE for the majority of data collected, focusing on identification of student learning, goals, external responsibilities and co-curricular time use as they relate to persistence (████ president, personal communication, January 22, 2019). While this may meet some of the needs of ████, no published rationale for using CCSSE over another data collection type, or investigation into best data collection practices at ████ has been offered as a rationale for the continued use of the CCSSE. Data from individual campuses often shows differences in expectations of community college students, as well as actual issues on the individual campuses, as compared national trend data (Feldman, 2017).

Based on these findings, as well as published concerns about the generalizability of CCSSE variable analysis, it is recommended that the institutional research office engage in a local study to help determine if the CCSSE is the best tool to use for collecting this type of data for local use. After conducting the study, recommendations for best strategies for data collection and analyses for ████ could be presented by the end of the spring semester. If it is determined that there could be an alternative to the CCSSE (Dudley, Liu, Hao, & Stallard, 2015; Howley, Howley, & Yahn, 2014; Roberts, 2017; Schafft, 2016; Xu, 2017) for ████ data collection, the office develop a collection tool, engaging campus experts to draft and test the tool through the summer.

## RECOMMENDATION #2: THE USE OF FIRST-YEAR SEMINAR COURSES TO PROMOTE STUDENT INTEGRATION

███ FYS courses are mandatory, and have general education outcomes. However, course content and expectations are inconsistent and sometimes mix high-impact student success expectations with low-level orientation content, creating confusion about the purpose and goal of the course. Many FYS courses engage in a series of lectures from different office directors across campus to provide information about ███ student services, resulting in significant amount of inactive learning.

Active learning, or learning in which students engage in the active construction of their knowledge (Carr et al., 2015), results in academic and social networks (Buchenroth-Martin, DiMartino, & Martin, 2017). Additionally, active learning has been found to be a more effective strategy for student learning than traditional, didactic approaches (Andrews, Leonard, Colgrove, & Kalinowski, 2011; Freeman et al., 2014). Although there are arguments that demonstrate the effectiveness and efficiency of traditional lecture-based instruction, especially in classes with large student numbers (Lom, 2012), students continue to contend that lectures do not keep them engaged in the learning process, and they learn less in lecture-only courses than they do in active learning environments (Lumpkin et al., 2015).

To remedy these inconsistencies, the first year experience coordinator, in collaboration with the dean of academics and student success, the curriculum committee, and the academic advising center, should reevaluate the purpose of the FYS courses on the ███ campus and align outcomes and curriculum to better meet the potential of these courses on campus. In an effort to increase student academic integration, FYS course curriculum should focus less on orientation-based lectures and assignments and shift to high-impact, active learning curriculums that create links between students' area of study and the FYS course. General education students, or students who have not selected a major, should also be engaged in high-impact learning activities (Kilgo, Ezell Sheets, & Pascarella, 2015; Snyder, Murphy-Nugen, Rose, Wells, & MacKusick, 2017; Tukibayeva & Gonyea, 2014).

To accomplish this, faculty will need to revisit their teaching strategies in these courses to meet the learning outcomes, revising their meta-strategies for each outcome. Division chairs should be responsible for ensuring that these courses are not "throw away" courses, providing feedback for faculty on their active learning strategies and support for faculty and students as they transition to this new learning model. Faculty will need to update syllabi to reflect changes in outcomes and course schedules. Non-faculty groups, including library services and the office of instructional technology will need to work collaboratively with faculty to help increase the use of best-practices for active learning. Based on the finding of this study, and significant amounts of literature about ways in which active learning increases student learning and integration, increasing active learning through an already established set of courses on campus is a meaningful way to introduce more active learning across the curriculum.

## RECOMMENDATION #3: INCREASING THE USE OF THE TEACHING AND LEARNING CENTER FOR FACULTY PROFESSIONAL DEVELOPMENT

In order for FYS courses to be effective, or active learning to occur, faculty must engage in successful teaching best practices. College teaching, and especially teaching at the two-year level, requires little formal educational training and has few standard processes for evaluation or remediation of teaching (Gormally, Evans, & Brickman, 2014). When institutional leaders implement initiatives as a reaction to demonstrate compliance with external requirements, changes are often implemented without attention to the teaching needs of the faculty (Gerken, Beausaert, & Segers, 2016). Unfortunately, few instructors at this level have a clear understanding of how to transform their courses into student based, active-learning environments (D'Avanzo, Anderson, Hartley, & Pelaez, 2012). Institutional teaching and learning centers could augment, or even replace, outdates notions of one-time PD opportunities in the workshop setting.

███ has a teaching and learning center (TLC), with a director who emphasizes active learning and collaboration across departments. Faculty development to increase active learning meta-strategies across the curriculum could easily find a home at this TLC. For TLCs to be most effective, managers need to map the space using specific goals and outcomes of the center, and while encouraging existing networks to continue and expand their collaboration efforts to improve teaching methods (Horri et al., 2017). Faculty led initiatives and faculty leadership can increase center use when clear goals have been communicated (Froyd et al., 2017). TLCs are effective at facilitating change through providing individual instructor level support (Horii et al., 2017); engaging faculty about how to teach well, using feedback, collaboration, active learning and observation for metacognitive learning (Horii et al., 2017; Riordan, 2014; Zohar & Lustov, 2018); employing evidence based practices (Horii et al., 2017; Ortquist-Ahrens, 2016); providing safe spaces to practice teaching meta-strategies(Horii et al., 2017; Wright, Lohe, & Little, 2018); and encouraging continued learning in faculty content areas (Horii et al., 2017; Rainwater, 2016).

Through a combination of data collection and analysis and PD in the TLC, ███ could transform teaching and learning, especially in FYS courses, to increase active learning, and thus persistence, on campus.

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## CONCLUSION

Institutions that are willing to self-evaluate to better understand the needs and motivations of their students may be more likely to produce rural educational policies based on localized data, (Schafft, 2016; Mellow & Heelan, 2014). This position paper is designed to communication the potential implications from both the study results and recommendations that may result in increased academic integration and persistence for students at ▬. In the investigation to determine whether there were predictive relationships between academic integration variables and persistence at ▬, it was determined that active learning scores are a measure of student academic integration. These measures also provided a statistically significant predictive relationship with student persistence. The recommendations, using these results as a foundation for to increasing active learning opportunities, have the potential to increase student learning, create greater opportunities for academic integration and persistence, and potentially lead to greater completion rates, affecting the social mobility of students.

Study results using localized data created the foundation for the position paper recommendation, which have the potential to affect local stakeholders by filling a gap in research about persistence at small, rural, residential community colleges. For students, increasing persistence rates increases the likelihood of completion, which potentially affects educational goals, employment opportunities, and lifelong earning potential (Boggs, 2011; Phillips, Stephens, & Townsend, 2016). If localized data is used to create programmatic changes on campuses to increase student learning, a potential affect could be increased completion and on-time graduation rates, reducing the overall costs to students. Education is the best indicator of social mobility (Southgate et al., 2016), making persistence a major step in affecting change for student stakeholders.

Moreover, recommendation from the position paper could have a meaningful impact on how faculty professional development occurs, enhancing opportunities and increasing active learning possibilities for educators. While the subject of higher education is the student, and efforts are rightly focused on student learning, faculty play a key role in that learning process. Including potentially effective programs for faculty development provide a greater role for effecting change in student learning as well as ownership of persistence strategies for faculty members. When faculty have a valid understanding of the reality of proposed academic changes, they are more likely to engage in attitude and behavioral change that benefits the community (Wood, 2000).

Engaging in programmatic change that focuses on student learning and success can have academic and financial benefits for institutions as well. As state resource allocations shift to include more performance-based funding (Friedel, Thornton, D'Amico, & Katsinas, 2013), persistence and completion become as important as enrollment numbers, and perhaps more so. Increased persistence and completions rates also increase the academic reputation of an institution, drawing both student and parent stakeholders, potentially increasing enrollment.

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# REFERENCES

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: definition, rationale and a call for research. *Higher Education Research & Development*, *34*(1), 1-14.

Andrews, T., Leonard, M., Colgrove, C., & Kalinowski, S. (2011). Active learning not associated with student learning in a random sample of college biology courses. *Life Sciences Education, 10*(4), 394-405.

Bassett, D. L. (2002). The politics of the rural vote. Ariz. St. LJ, 35, 743.

Bers, T., & Schuetz, P. (2014). Nearbies: A missing piece of the college completion conundrum. *Community College Review, 42*(3), 167–183.

Boggs, G. (2011) The American community college: From access to success. *About Campus,* 2-10. Doi:10.1002/abc.20055

Braxton, J. M., Milem, J. F., & Sullivan, A. S. (2000). The influence of active learning on the college student departure process: Toward a revision of Tinto's theory. *The Journal of Higher Education*, *71*(5), 569-590.

Braxton, J. M., Jones, W. A., Hirschy, A. S., & Hartley III, H. V. (2008). The role of active learning in college student persistence. *New Directions for Teaching and Learning, 2008*(115), 71-83.

Buchenroth-Martin, C., DiMartino, T., & Martin, A. P. (2017). Measuring student interactions using networks: Insights into the learning community of a large active learning course. *Journal of College Science Teaching, 46*(3), 90.

Burnell, B. A. (2003). The "real world" aspirations of work-bound rural students. *Journal of Research in Rural Education*, *18*(2), 104–113.

Carr, R., Palmer, S., & Hagel, P. (2015). Active learning: the importance of developing a comprehensive measure. *Active Learning in Higher Education 16*, 173-186.

Cole, J., Gonyea, R., & Rocconi, L. (2017). With retention, the key is "act locally.". In R.S. Feldman (Ed.). *The First Year of College:*

*Research, Theory, and Practice on Improving the Student Experience and Increasing Retention*. New York, NY: Cambridge University Press.

Complete College America. (2014). *Four-year myth: Make college more affordable. Restore the promise of graduating on time.* Retrieved from http://completecollege.org/wp content/uploads/2014/11/4-Year-Myth.pdf

Crisp, G., & Delgado, C. (2014). The impact of developmental education on community college persistence and vertical transfer. *Community College Review*, *42*(2), 99-117.

Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results. *American Journal of Physics, 69*, 970–976.

D'Avanzo, C., Anderson, C. W., Hartley, L. M., & Pelaez, N. (2012). A Faculty-Development Model for Transforming Introductory Biology and Ecology Courses. *BioScience*, *62*(4), 416-427.

Dudley, D. M., Liu, L., Hao, L., & Stallard, C. (2015). Student engagement: A CCSSE follow-up study to improve student engagement in a community college. *Community College Journal of Research and Practice, 39*(12), 1153-1169.

Feldman, R. S. (Ed.). (2017). *The First Year of College: Research, Theory, and Practice on Improving the Student Experience and Increasing Retention*. New York, NY: Cambridge.

Fong, C. J., Acee, T. W., & Weinstein, C. E. (2018). A Person-centered investigation of achievement motivation goals and correlates of community college student achievement and persistence. *Journal of College Student Retention: Research, Theory & Practice, 20*(3), 369-387.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and

mathematics. *Proceedings of the National Academy of Sciences*, *111*(23), 8410-8415.

Friedel, J. N., Thornton, Z. M., D'Amico, M. M., & Katsinas, S. G. (2013). Performance-based funding: The national landscape. *Education Policy Center*. Tuscaloosa, AL: The University of Alabama.

Froyd, J. E., Henderson, C., Cole, R. S., Friedrichsen, D., Khatri, R., & Stanford, C. (2017). From dissemination to propagation: A new paradigm for educational developers. *Change:The Magazine of Higher Learning*, 49(4), 35–42.

Gerken, M., Beausaert, S., & Segers, M. (2016). Working on professional development of faculty staff in higher education: Investigating the relationship between social informal learning activities and employability. *Human Resource Development International*, *19*(2), 135-151.

Goldrick-Rab, S. (2010). Challenges and opportunities for improving community college student success. *Review of Educational Research*, *80*(3), 437–469.

Gormally, C., Evans, M., & Brickman, P. (2014). Feedback about teaching in higher ed: neglected opportunities to promote change. *CBE-Life Sciences Education*, *13*(2), 187-199.

Guiffrida, D. A. (2006). Toward a cultural advancement of Tinto's theory. *The Review of Higher Education, 29,* 451-472.

Habley, W., Bloom, J., & Robbins, S. (2012). Increasing persistence: Research-based strategies for college student success. San Francisco, CA:Jossey-Bass.

Halfacree, K. H. (1993). Locality and social representation: space, discourse and alternative definitions of the rural. *Journal of rural studies*, *9*(1), 23-37.

Hatch, D. K., & Bohlig, E. M. (2016). An empirical typology of the latent programmatic structure of community college student success programs. *Research in Higher Education*, *57*(1), 72-98.

Hatch, D. K., & Garcia, C. E. (2017). Academic Advising and the Persistence Intentions of Community College Students in their First Weeks in College. *The Review of Higher Education*, *40*(3), 353-390.

Henley, L., & Roberts, P. (2016). Perceived Barriers to Higher Education in STEM Among Disadvantaged Rural Students: A Case Study. *Inquiry: The Journal of the Virginia Community Colleges*, 20(1), 1-20.

Hlinka, K. R., Mobelini, D. C., & Giltner, T. (2015). Tensions impacting student success in a rural community college. *Journal of Research in Rural Education (Online)*, *30*(5), 1.

Horii, C., Redd, K., Ouellett, M., Finkelstein, N., Beach, A., Carlisle, D., ... Weaver, G. (2017, November 17). Collaborating at the centers: Report from a STEM education transformation workshop Involving leaders of centers for teaching and learning and STEM education centers. https://doi.org/10.31219/osf.io/pknbf

Howley, C. B., Howley, A., & Yahn, J. (2014). Motives for dissertation research at the intersection between rural education and curriculum and instruction. *Journal of Research in Rural Education (Online), 29*(5), 1.

Jensen, M. S., & Finley, F. N. (1996). Changes in students' understanding of evolution resulting from different curricular and instructional strategies. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, *33*(8), 879-900.

Juszkiewicz, J. (2017, November). *Trends in community college enrollment and completion data, 2017*. Washington, DC: American Association of Community Colleges.

Kilgo, C., Ezell Sheets, A., & Pascarella, J. (2015). The link between high-impact practices and student learning: Some longitudinal evidence. *Higher Education*, *69*(4), 509-525.

Lawson, R., Taylor, T., French, E., Fallshaw, E., Hall, C., Kinash, S., & Summers, J. (2015). Hunting and gathering: new imperatives in mapping and collecting student learning

data to assure quality outcomes. *Higher Education Research & Development*, *34*(3), 581-595.

Lom, B. (2012). Classroom activities: simple strategies to incorporate student-centered activities within undergraduate science lectures. *Journal of Undergraduate Neuroscience Education, 11*(1), A64.

Lumpkin, A., Achen, R. M., & Dodd, R. K. (2015). Student perceptions of active learning. *College Student Journal*, *49*(1), 121-133.

Meeuwisse, M., Severiens, S. E., & Born, M. P. (2010). Learning environment, interaction, sense of belonging and study success in ethnically diverse student groups. *Research in Higher Education, 51*, 528–545.

Mellow, G. O., & Heelan, C. M. (2014). *Minding the dream: The process and practice of the American community college.* Lanham, MD: Rowman & Littlefield.

Mertes, S. J., & Jankoviak, M. W. (2016). Creating a college-wide retention program: A mixed methods approach. *The Community College Enterprise*, *22*(1), 9.

Moscovici, S. (1984) The phenomenon of social representations. In R. Farr & and S. Moscivici, (Eds), *Social Representations* (pp. 3-69). Cambridge University Press: Cambridge.

National Center for Education Statistics (2016). *Digest of Education Statistics: 2014* (NCES 2016-006). Retrieved from https://nces.ed.gov/programs/digest/d14/index.asp

Nora, A., Crisp, G., & Matthews, C. (2011). A reconceptualization of CCSSE's benchmarks of student engagement. *The Review of Higher Education*, *35*(1), 105-130.

Office of the Press Secretary (2009, July 14). Excerpts of the President's remarks in Warren, Michigan and fact sheet on the American graduation initiative. *The White House: Briefing Room*. Retrieved from https://www.whitehouse.gov/the-press-office/excerpts-presidents-remarks-warren-michigan-and-fact-sheet-american-graduation-init

Ortquist-Ahrens, L. (2016). Beyond survival: Educational development and the maturing of the POD network. *To Improve the Academy*, 35: 1–34.

Petrin, R. A., Schafft, K. A., & Meece, J. L. (2014). Educational sorting and residential aspirations among rural high school students: What are the contributions of schools and educators to rural brain drain? *American Education Research Journal, 51*(2), 294-326.

Phillips, L. T., Stephens, N. M., & Townsend, S. S. (2016). Access is not enough: Cultural mismatch persists to limit first-generation students' opportunities for achievement throughout college. *Journal of Personality and Social Psychology.*

Quaye, S. J., & Harper, S. R. (2014). *Student engagement in higher education: Theoretical perspectives and practical approaches for diverse populations.* New York, NY: Routledge.

Rainwater, T. S. M. (2016). Teaching and learning in competency-based education courses and programs: faculty and student perspectives. *The journal of Competency-Based Education*, *1*(1), 42-47.

Riordan, D. G. (2014). STEM education centers: a national discussion. *APLU/SMTI Paper 8.* Washington, DC: Association of Public and Land-grant Universities. Retrieved from http://www.aplu.org/projects-and-initiatives/stem-education/SMTI_Library/stem-educationcenters-report/file

Roberts, J. K. (2017). Meeting needs or exacerbating barriers: The role of Ohio's early college policy in rural students' college enrollment and persistence. *Texas Education Review, Volume 5*(1), 40-52.

Schafft, K. A. (2016). Rural education as rural development: Understanding the rural school–community well-being linkage in a 21st-century policy context. *Peabody Journal of Education, 91*(2), 137-154.

Schutz, A. (1970) On Phenomenology and Social Relations. University of Chicago Press, Chicago.

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Shapiro, D., Dundar, A., Yuan, X., Harrell, A. T., & Wakhungu, P. K. (2014). Completing College: A National View of Student Attainment Rates--Fall 2008 Cohort (Signature Report No. 8). Herndon, VA: National Student Clearinghouse Research Center.

Shapiro, D., Dundar, A., Ziskin, M., Chiang, Y., Chen, J., Harrell, A., & Torres, V. (2013). Baccalaureate attainment: A national view of the postsecondary outcomes of students who transfer from two-year to four-year institutions. Signature Report, 5.

Snyder, M. M., Murphy-Nugen, A., Rose, A., Wells, G., & MacKusick, C. (2017). Implementation of Competency Based Educational Strategies into a First-Year Seminar for InterProfessional Healthcare Science Majors. *Internet Journal of Allied Health Sciences and Practice, 15*(3), 4.

Southgate, E., Brosnan, C., Lempp, H., Kelly, B., Wright, S., Outram, S., & Bennett, A. (2016). Travels in extreme social mobility: how first-in-family students find their way into and through medical education. Critical Studies in Education, 57(1), 1-19.

Tinto, V. (2012). *Completing college: Rethinking institutional action*. Chicago, IL: The University of Chicago Press.

Tinto, V. (2010). From theory to action: Exploring the institutional conditions for student retention. In *Higher education: Handbook of theory and research* (pp. 51-89). Springer: Netherlands.

Tinto, V. (1993). *Leaving college: Rethinking the causes   and cures of student attrition*. Chicago, IL: University of Chicago Press.

Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. The Journal of Higher Education, 59(4), 438-455.

Tukibayeva, M., & Gonyea, R. (2014). High-impact practices and the first-year student. *New Directions for Institutional Research, 2013*(160), 19-35.

Wilson, S. D. (2016). At issue: Lack of persistence in college and the high-achieving, low-income student: A review of the literature. *The Community College Enterprise, 22*(2), 42.

Wood, W. (2000). Attitude change: Persuasion and social influence. *Annual review of psychology, 51*(1), 539-570.

Wormington, S. V., & Linnenbrink-Garcia, L. (2017). A new look at multiple goal pursuit: The promise of a person-centered approach. *Educational Psychology Review, 29*(3), 407-445.

Wright, M. C., Lohe, D. R., & Little, D. (2018). The role of a center for teaching and learning in a de-centered educational world. *Change: The Magazine of Higher Learning, 50*(6), 38-44.

Xu, Y. J. (2017). Localizing college retention efforts: The distance between theoretical orientation and institution-specific needs. *Innovative Higher Education, 42*(1), 49-63.

Zohar, A., & Lustov, E. (2018). Challenges in addressing metacognition in professional development programs in the context of instruction of higher-order thinking. In Y. Weinberger & Z. Libman (Eds.), *Contemporary pedagogies in teacher education and development* [eBook]. IntechOpen. doi: #10.5772/intechopen.76592.