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Successful community college students: A case study of the path to transfer

Nancy Gartland
Rowan University

SUCCESSFUL COMMUNITY COLLEGE STUDENTS: A CASE STUDY OF THE PATH TO TRANSFER

by

Nancy Gartland

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Dedications

I would like to dedicate this manuscript to my family. My husband Pat is an awesome father to our children and grandfather to our grandkids. He has been at my side for 40 years, taken care of me when I was sick, and kept me calm enough to finish this project. I would not have completed this work without him. Pat, you are the funniest person I have ever known. Thank you for being my best friend. I love you. My children, Patrick, Stephanie, John, Erin, Michael, Alexis, and Sean, are my reason for being. I love you all more than life itself. My grandchildren, Rosalind, John Michael, and Ophelia, bring me more joy than I could have ever dreamed was possible. I am the luckiest Gramma in the world.

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Abstract

Nancy Gartland
SUCCESSFUL COMMUNITY COLLEGE STUDENTS: A CASE STUDY OF THE
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Monica Reid Kerrigan, Ed.D.
Doctor of Education

Efforts to expand equity within post-secondary education, and to increase the number of people who acquire a college degree or certificate nationally, depend on community colleges. The rate of success for community college students, measured in persistence and completion rates, is relatively low.

In the U. S. in the fall of 2017, sixty three percent of the 5.9 million community college students attended part-time (NCES, 2019). Outside of class engagement is difficult for these students who spend limited time on campus. A program design that promotes a high level of engagement may contribute to student success. Thus, I set out to study how the design of a community college program promoted success through engagement. I proposed that the design of the Pre-Nursing (PRN) program at a suburban community college supported engagement. Engagement provided opportunities for the acquisition of social capital and social capital promoted success.

This qualitative holistic single-case study investigated the path to successful transfer for a cohort of students who were enrolled in the PRN major. Findings indicate that the small and interactive design of the laboratory classes, not the design of the program as a whole, promoted engagement. Engagement provided opportunities for the acquisition of social capital. Social capital promoted student success, as measured by attaining the minimum requirements for transfer from this college into a nursing program

Table of Contents

Table of Contents (Continued)

Table of Contents (Continued)

Table of Contents (Continued)

Table of Contents (Continued)

List of Figures

List of Tables

Chapter 1

Introduction

Background

In 2016 there were more than thirteen million health professionals working in the United States (U. S. Bureau of Labor Statistics, 2018). Twenty of the 30 fastest growing occupations between the years 2014 and 2024 in the U.S. will be in the health care professions. Registered nursing, one of the health professions projected to have the most growth, will add nearly 440,000 new positions and will replace more than 600,000 positions vacated mainly due to retirement during that same 10-year period (Center for Health Workforce Studies, 2016). According to the U. S. Bureau of Labor Statistics (2018) there were more than 2.95 million Registered Nurses (RN's) in the U. S., whose median income was 70,000 USD in 2016. Educating future health professionals is an enormous task. In the U. S. in the 2014-2015 academic year, 1,895,000 baccalaureate degrees were conferred, of which more than 216,000 were in the health professions. This number ranked second only behind business degrees. In that same year the greatest number of doctoral degrees, 71,000, were conferred in the health profession (NCES, 2018).

The community college (two-year, associate degree, and certificate granting programs) is the place where many students begin on the educational path to a career in the health professions. In the fall of 2017, there were 5.9 million students (NCES, 2019) enrolled in 1,108 community colleges in the U.S. (Juszkiewicz, 2017). While there are some community colleges and some programs within other community colleges which are selective, the vast majority of community colleges in the U. S. have open admission

policies which grant admission to nearly all students who apply (Cohen & Brawer, 2003; Goldrick-Rab, 2010; Levine, 2007). The open admission policies at many of these colleges, and the relatively low cost, leads to a student population which varies in a number of ways, especially in regard to prior academic experiences, skills, and competing priorities. Cohen and Brawer (2003) stated that community college students can best be described using two words: varied and numerous.

Generally, the rate of success at community colleges is relatively low (Bailey, Jaggars, & Jenkins, 2015; Bailey, Leinbach, & Jenkins, 2006). However, Jenkins (2014) noted that certain programs like nursing and automotive technology are more purposefully designed, and have greater rates of student success. For example, Jeffreys (2006) retrospectively evaluated 112 nursing students enrolled in an associate degree program and found that there was a 75% first year rate of retention. The National League for Nursing (2008) reported a slightly higher, 80.3% first year retention rate for nursing students in associate degree granting institutions, as compared to a little greater than 60% retention rate for all students in these same institutions in 2006-2007. In addition to purposeful design, these nursing an automotive technology programs often have selective admission which may contribute to student success. However, the pre-nursing (PRN) program at the community college where this study was conducted had open admission. There were approximately 1,473 PRN students enrolled at this community college (CC, 2019). Each one was hoping to become a Registered Nurse (RN). The PRN students took the prerequisite courses at the community college, and then applied for admission into selective nursing programs. The study participants were successful members of this PRN group, in that they had achieved the minimum requirements for acceptance for transfer

from this college into a Bachelor's of Science in Nursing (BSN) or an Associate's of Science in Nursing (ASN) program. Understanding their path to successful transfer should be an educational priority.

Problem Statement

Efforts to expand equity and acquire college attainment depend on community colleges (Jenkins & Rodriguez, 2013). However, research has shown that student progress through community colleges is generally slow, rates of dropout are high, and rates of success are relatively low (Bailey, Jaggars, & Jenkins, 2015; Bailey, Leinbach, & Jenkins, 2006). Student success is often measured by graduation/completion rates and/or transfer rates. In 2018 the Integrated Postsecondary Education Data System (IPEDS) reported that only 24% of the first-time, full-time, degree and certificate seeking students at public two-year colleges graduate within three years (the 150% graduation rate at a two-year college). At public four-year institutions 59% of first-time, full-time, degree seeking students graduate within 6 years (the 150% graduation rate at a four-year institution).

As the price of a college education continues to rise, students, parents, and politicians are increasingly expecting higher education institutions to improve, and to verify their productivity and efficiency (Gansemer-Topf & Schuh, 2006). This has contributed to a change in the national community college agenda from access to success (Sutherland, 2011). In order for broad access public institutions like community colleges, which are more dependent on public funding than more selective institutions, to continue to serve their rather large and varied student population, they must at least maintain, or increase, their level of public funding (Jenkins & Rodriguez, 2013). Therefore,

community colleges must demonstrate success. Community colleges are seeking ways to increase student success without lowering their academic standards.

Purpose of the Study

The program goal at the community college where this study was conducted was to successfully prepare the Health Professional (HP) students for transfer. The 1,473 students enrolled in Pre-nursing (PRN), a major within the HP program, were working toward acceptance into either a BSN or an ASN transfer program. These PRN students often had competing priorities, varied backgrounds, and differing levels of academic preparedness and ability. Yet many were successful in that they gained acceptance into relatively competitive transfer programs.

The purpose of this qualitative holistic single-case study (Yin, 2014) was to explain the path to successful transfer for a cohort of students who were enrolled in the PRN major in a suburban community college. In this study achieving the minimum requirements for acceptance for transfer from this college into a BSN or ASN program was the definition of success. I examined the design of this particular program, which was similar to Guided Pathways (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014). I investigated whether this design supported engagement as defined by Kuh, Cruce, Shoup, Kinzie, and Gonyea (2008), who proposed that engagement: student involvement and integration supported by institutional design or educational practices, supports educational success. Then I considered whether engagement provided opportunities for the acquisition of social capital. Social capital in an educational setting was first studied by Coleman (1987; 188). Ultimately, I investigated if social capital, acquired due to

4

engagement at this community college, promoted student success, as Harper (2008) found when he studied engagement, social capital, and success at four-year institutions.

Overview of the Students and the Program

College students tend to be viewed from a four-year college or university perspective. These "traditional" college students are generally considered to be the norm. Silverman, Aliabadi, and Stiles (2009) defined traditional college students in the U.S. as residential, full-time, and first-year enrollees directly out of high school. Generally, traditional students also tend to be native English language speakers, the second or third generation in their family to attend college, members of the middle-class, and have aspirations of obtaining a college degree (Levin, 2007).

There are many, varied definitions of nontraditional college students. They can be identified by the acronym CPTR, which stands for Commuter, Part-time, Transfer, or Returning students (Silverman, Aliabadi, & Stiles, 2009). Schuetze and Slowey (2002) defined nontraditional students as students who either have an educational biography which includes a winding path through college, enter college later then their traditional counterparts and study part-time, or have competing priorities like family commitments and jobs. According to NCES (2015), at least 70% of college students in the U.S. are nontraditional.

The vast majority of community college students, including those who are enrolled in the pre-nursing courses at the community college where this study was conducted, are by either definition, nontraditional. Researchers agree that nontraditional students have unique characteristics and needs (Levin, 2007). They often have varied academic experiences prior to enrolling at the community college. Nearly 75% of

community college students delayed their entry into college because of limited finances and/or to raise their family. Approximately 62% of community college students attend part time (Moschetti & Hudley, 2015), and nearly 75% of them are employed (Goldrick-Rab, 2010). Their part-time status is often due to the fact that they work in order to support themselves and/or their families. In addition to their varied academic experiences prior to college, and their competing priorities, community college students also differ in level of skill. Nearly 61% of community college students must enroll in at least one remedial course (Goldrick-Rab, 2010). They are racially diverse. For example, 58% of African American students, and 66% of all Hispanic students are enrolled in community colleges (Goldrick-Rab, 2010).

The diversity of the student population (Goldrick-Rab, 2010) and some other factors including the number and variety of programs offered at community colleges (Bailey, Jaggars, & Jenkins, 2015; Jenkins & Cho, 2014) have created a number of challenges. In order to support these unique students in their progress toward completion and/or transfer, the college must understand the unique characteristics and somehow meet the unique needs of nontraditional students, like those in the pre-nursing program in this study.

Success for community college students has been very limited. Only 24% of first-time, full-time community college students, who enrolled in 2014 with the intention of graduating, attained a degree or certificate of any kind by 2017 (NCES, 2018). There are many part-time students at community colleges. Therefore, a three-year completion rate may not be reflective of these students. However, expanding the time to completion to six years for students enrolling in 2009 only increases the number of students who attained

an academic credential of any kind to 41% (Juszkiewicz, 2016). Graduation is not the goal for every community college student. If the student's goal is to transfer, then transfer rate is the appropriate measure of success. However, the six-year rate of transfer form a two year college was only 12.8% (Juszkiewicz, 2016).

The community college students in this study have been successful in that they have completed at least 30 credits in the PRN program, and have achieved a minimum G.P.A. of 3.0. Thus, they are on the path to attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. Of the 1,473 students enrolled in the PRN major in the fall of 2019, there were 390 who were successful according to my definition (CC, 2019). Once they complete their transfer program and pass their licensure exam, they will enter a field in which positions are plentiful and the pay is reasonably good.

Health Professions

Health professional is a general term for a person who is trained to work in any field of mental or physical health. Registered Nurses (RN's) are a subset of the health professions. The RN's assess patient health, develop and implement nursing care plans, maintain medical records, and administer care to ill, injured, disabled, or recuperating patients. Registered Nurses are either educated through a four-year Bachelor of Science in Nursing (BSN) program, a three-year Associate of Science in Nursing (ASN) program, or a three-year hospital sponsored training program.

There are approximately 12,000 students at the suburban community college where this study was conducted, of whom 1,473 were matriculated in the pre-nursing (PRN) major (CC, 2019). These students take the pre-requisite courses at the community

college and then transfer to either a BSN program at a four year institution, or continue their education at a hospital sponsored training program. Those students who attend the hospital sponsored programs will ultimately complete an Associate Degree from the community college, and perform the clinical rotations required for licensure at the hospital (ASN). After completing course work and clinical rotations, students from both the BSN and ASN groups must pass the same state licensing exam to become a licensed RN.

The PRN Major: A Guided Pathways Type of Program

There will be openings for more than 1,000,000 new nurses in the U.S. from 2014-2024 (Center for Health Workforce Studies, 2016), and there are a large number of PRN students enrolled at the college. It is important that as many of these students as possible are successful. The PRN major in the HP program was purposefully designed to support success. First, each student's immediate goal was the same: to transfer into a BSN or ASN program. The program was designed to ensure that courses are taken in a required sequence and electives are limited. Advising was required at a common advising session, and then offered throughout the program by two dedicated advisors. The path to completion and transfer seemed clear and easy to navigate, and the students were offered guidance and support. Faculty, staff, and students were supposed to communicate often to keep the students on the correct path to transfer. This design predates Guided Pathways. However, it is very similar to the guided pathways model (Jenkins, 2014), a curricular framework which includes specific academic and career goals, clearly designed curricular paths, and required advising at strategic points along the educational journey.

Engagement in the Pre-Nursing Program

Laboratory courses within the PRN program were generally small, and the lab sections were interactive. The same instructor taught both the lecture and laboratory part of a course. The design encouraged involvement right in the classroom and laboratories, and promoted opportunities for students to interact with each other, with advisors, and with the faculty. Specifically, these PRN students had opportunities to become socially integrated with other students, faculty, and key staff. Being involved and integrated leads to increased learning and personal development (Astin, 1999; Tinto, 1975). Kuh, Cruce, Shoup, Kinzie, and Goyea (2008) define engagement as involvement and integration supported by the effective educational practices of an institution. Many studies (Astin, 1999; Hu & Kuht, 2002; Kezar & Kinzie, 2006; Ream & Rumberger, 2008; Tinto, 1975; Tinto, 1997) have found that engagement promotes success.

Was it engagement that directly led to success? Harper (2008) interviewed 32 high achieving African American male students at six, large, public, four-year research universities in the Midwestern U.S. The participants were chosen to take part in the study because they had high GPA's and a record of leadership and involvement. In other words, they were academically successful and engaged. Harper found that because they were engaged on campus, the students acquired social capital. He found that social capital supported their success.

I agree with Harper (2008). Engagement provides opportunities for the acquisition of social capital. However, for community college students the opportunities for engagement are limited. For the PRN students in this study, the laboratory provided a space for engagement. The community college students in my study were engaged in the

laboratory classroom, as opposed to the out-of-class engagement experienced by the baccalaureate students in his study. However, for both groups of students, engagement provided opportunities for the acquisition of social capital, which supported student success.

Social Capital in the Pre-Nursing Program

I suggest that the path to successful transfer for the students in this study was supported by the PRN program design and by the engagement made possible by the design. However, the factor which was the most important for these particular students was that the program design and their engagement provided opportunities for the acquisition social capital. Social capital in the forms of obligations and expectations, information sharing, and shared norms (Coleman, 1987; Coleman, 1988) directly promoted success. I formulated a conceptual framework for the path to successful transfer that included: program design, engagement, social capital, and success (see Figure 1).

Student Success

1.

2.

3.

4.

5.

Social Capital

Engagement
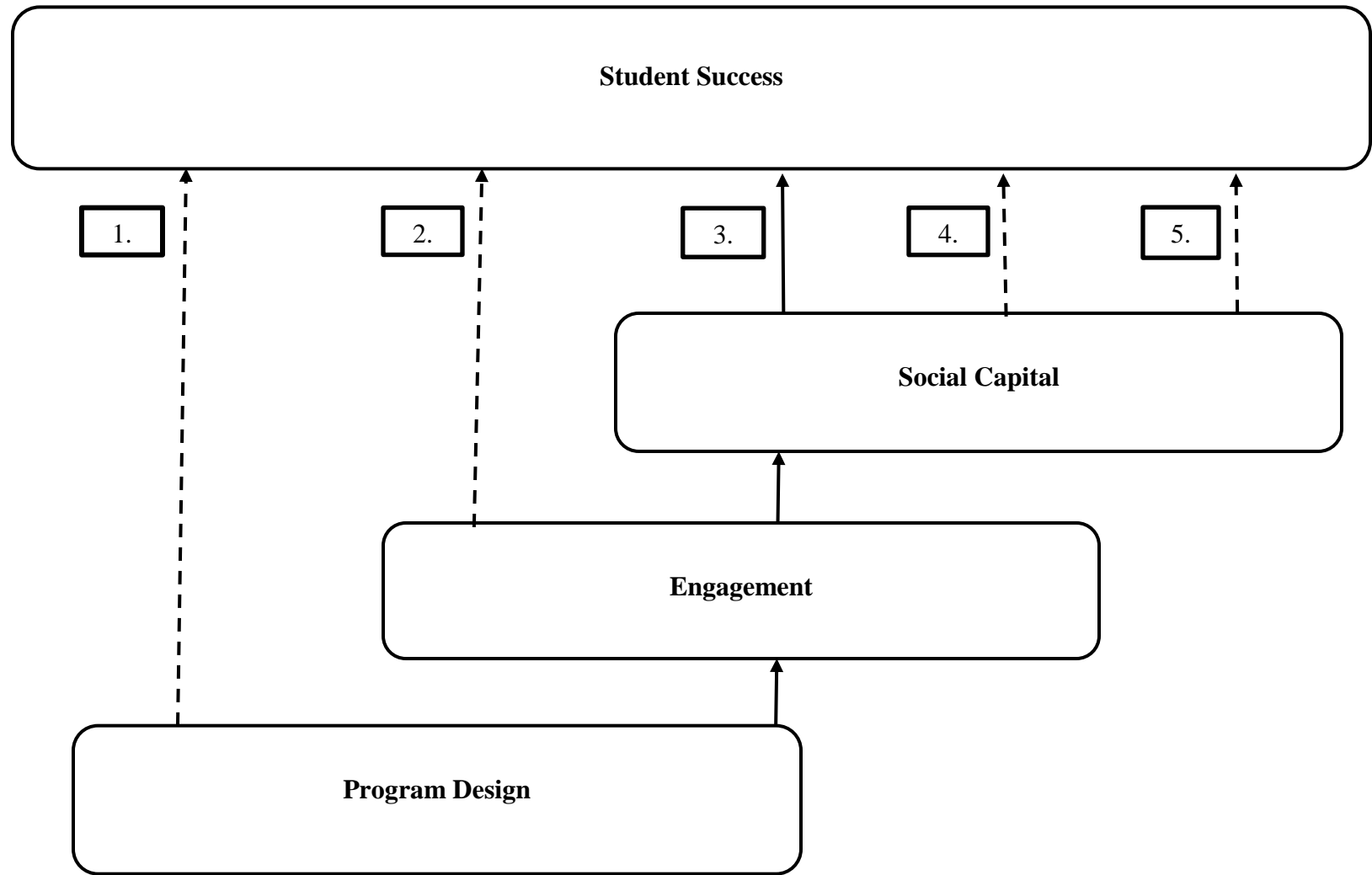
Program Design

Figure 1. Conceptual Framework

Research Questions

I contemplated five possible paths to success for these HP students as shown in the conceptual framework above. Path #1 proposed that the program design directly promoted success. Path #2 proposed that engagement promoted success. Path #3 proposed that the program design promoted engagement, engagement provided opportunities for the acquisition of social capital, and social capital supported success. Path #4 proposed that engagement provided opportunities for the acquisition of social capital, and social capital supported success. Path # 5 proposes that social capital supported success. As previously stated, I suggest that the PRN program design promoted engagement, engagement provided opportunities for the acquisition of social capital, and social capital supported success. In other words, I suggest that the third path in the conceptual framework was the path that leads to success. Studies regarding guided pathways (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014; Jenkins & Rodriguez, 2013), engagement (Kuh, et.al., 2008), the relationship between engagement and social capital (Harper, 2008), and the role of social capital in educational success (Coleman, 1987; Coleman, 1988) provided the foundation upon which I formulated the following research questions:

How did the structural design of the Pre-nursing (PRN) major in the Health Professional (HP) program promote student success as measured by attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program?

Sub-question #1.

Did the structural design of the PRN major promote engagement?

Proposition.

1A. The design component of the PRN major promoted engagement.

Alternate explanations.

1B. The students in the PRN major were not engaged. This is typical of

community college students, who have been described as Commuter, Part-time,

Transfer, and Returning (CPTR). They have less time to become involved in

educationally purposeful activities, and few opportunities to interact with other

students, faculty, or staff. Thus, engagement is limited.

1C. The students were engaged due to some other factor besides the design of the

program.

1D. The design of the program, as a whole, directly promoted success.

Sub-question # 2.

Did engagement provide opportunities for the acquisition of social capital?

Proposition.

2A. Engagement provided opportunities for the acquisition of social capital.

Alternate explanations.

2B. The students acquired social capital from other sources, and not from

engagement in the classroom, labs, and advising sessions.

2C. Engagement directly promoted success.

Sub-question #3.

Did the forms of social capital including: obligations and expectations,

information, and norms contribute to the success of these PRN students as

measured by achieving the minimum requirements for acceptance for transfer from this college into a BSN or ASN program?

Proposition.

3A. Social capital contributed to success.

Alternate explanation.

3B. Students were successful due to a characteristic or influence such as: a common history, their own internal motivation, external support from family, friends, and colleagues, or some other factor, but not due to design, engagement, or social capital.

Significance of the Study

In the fall of 2017, there were 5.9 million students (NCES. 2019) enrolled in 1,108 community colleges in the U.S. (Juszkiewicz, 2017). Despite efforts to the contrary research has shown that student progress through community colleges is generally slow, rates of dropout are high, and rates of success are relatively low (Bailey, Jaggars, & Jenkins, 2015; Bailey, Leinbach, & Jenkins, 2006). As the price of a college education continues to rise, higher education institutions are expected to improve, and to verify their productivity and efficiency (Gansemer-Topf & Schuh, 2006). Thus, increasing the rate of persistence and student success continues to be an important issue for policy makers, administrators, and educational researchers alike.

According to recent research regarding student persistence at commuter colleges, there are three major factors which influence the decision to persist, and may influence learning, development, and success. These factors are: entry characteristics, external influences, and internal campus environment (Braxton, Hirschy, & McClendon, 2004). It

is difficult for community colleges to affect or control entry characteristics, due in part to their mission of access (Cohen & Brawer, 2003; Goldrick-Rab, 2010; Levin, 2007). It is also difficult for a community college to affect the external environment experienced by students who live and work off campus. In order to be effective, the effort to promote persistence and success in community colleges, should focus on the internal campus environment, a factor over which the college administration, faculty, and staff have more influence.

Possibly the desire to positively influence the internal campus environment is the reason for the recent interest by both college administrators and researchers in Guided Pathways (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014), a curricular framework which includes specific academic and career goals, clearly designed curricular paths, and required advising at strategic points along the educational journey. It may also be the reason for the sustained interest in engagement (Astin, 1999; Tinto, 1993) for more than 30 years. What is lacking is an understanding of the mechanism by which either guided pathways or engagement promote persistence and success. In other words, how do they really work? I proposed that guided pathways and engagement support student success because they provided opportunities for the acquisition of social capital. Social capital supported success.

The number of community college students is high, and the rates of success tend to be low. It is essential that community colleges understand what works and why, in regard to student persistence and success. This information will guide how best to spend limited time and resources, while supporting student success.

Scope of the Study

This qualitative holistic single-case study (Yin, 2014) was conducted at a northeast suburban community college in the spring and summer of 2019. The sample was comprised of successful PRN students, as measured by achieving the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. The study included document collection, observation, and in-depth interviews to elucidate the factors that contributed to each student's success.

Definition of Terms

Guided pathways: is a curricular and student support framework designed to promote student success (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014; Jenkins & Rodriguez, 2013). It involves redesigning both academic programs and student support services, creating a more clearly structured path to the end goal of successful completion in a timely manner (Jenkins & Cho, 2014; Van Noy, Trimble, Jenkins, Barnett, & Wachen, 2016).

HP: the Health Professions program, within which the PRN major is housed, prepares students for transfer and/or careers in mental and physical health.

Criterion-Based Sampling: choosing participants who meet a predetermined criterion. In this study the criterion was success, as measured by achieving the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. Studying these particular participants may help to uncover the characteristics or components of a process that support the predetermined criterion (success) (Patton, 2015).

PRN: pre-nursing major/program. Students enrolled in this major are preparing for transfer into a BSN or ASN degree programs.

Social capital: a valuable commodity gained from social interactions which has a structural component, the social network, and functional components, actions of the individuals or the group facilitated by the interactions within the network. Forms of social capital are based in trustworthiness and trust of the members of the social network (Kezar, 2014) and include: obligations and expectations, informational channels, and social norms (Coleman, 1988).

Engagement: As defined by Kuh, et al. (2008), has the following components:

a. The level of agreement between the student's beliefs, values, attitudes and norms, and that of the social system of the college. It is reflected in the student's level of involvement in that social system, including his/her interactions with faculty, staff, and students

b. The effort that the college devotes to effective design and instructional strategies which support both involvement and integration.

Success: attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program.

Limitations

This was a study of the path to successful transfer. It was a study of process. A purposeful sample of successful, community college, PRN students were studied in order to address gaps in the research, which tends to be from a deficit view in regard to progress and completion in community colleges. Thus, this study focused on the process and progress of successful students, and would not be applicable to students who have not been as successful as these study participants. The study participants were community college students. Thus, study findings may not be transferrable to other types

of higher education institutions. For example, nursing students at baccalaureate institutions may gain social capital outside of the classroom, and the program design and social capital acquired in the laboratory classroom may not be as essential to their success.

This was a qualitative study. The expected acquisition of social capital due to the engagement of the participants was investigated. However, a quantitative measurement of the amount of social capital potentially gained was not be measured.

Chapter 2

Literature Review

I was interested in studying a group of Health Professional (HP) community college students because they have been "successful". These students were enrolled in the Pre-Nursing major (PRN), and had achieved the minimum requirements for acceptance for transfer from this college into a Bachelor's of Science in Nursing (BSN) and/or an Associate's of Science in Nursing (ASN) program at a time when many of their community college counterparts had not been able to thrive and succeed as they had done. Using Yin's (2014) holistic single-case design, I investigated the PRN program design, and the engagement and social capital acquired because of this design, which I thought led to their success. The purpose of this chapter is to review the literature upon which this case study was based. It is divided into three sections. The first section introduces guided pathways (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014; Jenkins & Rodriguez, 2013; Van Noy, Trimble, Jenkins, Barnett, & Wachen, 2016), a curricular and student support framework designed to promote student success. The PRN major in the HP program in my study could be described as a modified guided pathways program. Next, there is a description of involvement (Astin, 1999) integration (Tinto, 1993; Tinto, 1997) and engagement (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008). The design of the PRN program provided students the opportunity to interact with fellow students, faculty, and advisors in the classroom and in advising sessions. Kezar and Kinzie (2006) argued that a college's structural characteristics may influence engagement. I agree with them and suggest that this PRN program design provided opportunities for and influences engagement. Engagement sets these students apart from other community college

students, who have been described as Commuter, Part-time, Transfer, or Returning (CPTR) students (Silverman, Aliabadi, & Stiles, 2009). The CPTR students tend to leave campus as soon as their classes are done. The limited time that they spend on campus as compared to four-year students, reduces opportunities to engage with other members of the college community in dorms, clubs, sports, and other extracurricular activities (Silverman, Aliabadi, & Stiles, 2009). I think this limits their chances of success. Finally, there is a section regarding social capital theory and student success (Coleman, 1988; Dika & Singh, 2002). Social capital theory posits that social networks have value. The relationships formed among the PRN students can provide assistance, support, and information. These are valuable resources (Stanton-Salazar, 2001). Coleman (1987 & 1988) investigated the role of social capital in the development of human capital, specifically in educational settings. His emphasis, like mine, was on the role of social capital in regard to the academic achievements of both individual students and groups of students.

In summary I propose that the PRN program design provided these community college students opportunities for engagement with other students, faculty, and advisors during specific classes and required advising sessions. The components/features of engagement: involvement and integration, are two variables that have been found to be important for student outcomes (Kuh, et. al., 2008) I propose that like the high-achieving African American male students in Harper's (2008) study, the successful PRN students in this study acquired social capital through engagement. Thus, engagement is critical for the success of these particular students because it provided opportunities for the

acquisition of social capital. For both the students in Harper's (2008) study and the PRN students in this study, social capital promoted success.

Academic Success can be measured in many ways: test scores, grades, persistence, completion, and development, to name a few. Dika and Singh (2002) linked social capital and success, as measured by educational attainment. In this study success, achieved through the acquisition of social capital, was measured by the attainment of the minimum requirements for acceptance for transfer from this college into a BSN or ASN program.

Program Design

Guided Pathways was described by Jenkins (2014). However, it is based on a history which began with the study of student success in courses that were constructively aligned (Biggs, 1996). Once success in aligned courses was confirmed, alignment was expanded to include entire curricula (Larkin & Richardson, 2013). Jenkins (2014) noted that certain programs like nursing and automotive technology, which were more purposefully designed, had greater rates of student success. He took the idea of course and curricular alignment one step further by proposing that an entire college can increase student success by being more purposeful in program design and student support services (Jenkins, Brown, Fink, Lahr, & Yanagiura, 2018; Jenkins & Rodriguez, 2013) via the framework known as guided pathways.

Constructive alignment. In 1996 Biggs described the principles of constructive alignment. Constructive alignment refers to a teaching environment where learning outcomes, teaching methods, and assessments are aligned in an effort to improve educational outcomes. In aligned courses students' learning outcomes (SLO's), the goals,

are clearly and specifically defined. After identifying the SLO's the next step is to map a path of teaching methods and activities to attain the goals, (Biggs & Tang, 2007). Then assessments, which are aligned with both the goals and the map, are developed and implemented. Many recognize the importance of alignment, but the literature relating to its use tends to be limited to individual subjects or courses (Israel, Pitman, & Greyling, 2007) as opposed to the curriculum as a whole.

Curriculum design and management. Larkin and Richardson (2013) explored applying constructive alignment across a curriculum, as opposed to applying it to individual courses, when they studied an occupational therapy program. They included baselines for comparison, used student outcome measures, and showed statistically significant improvement in those outcomes. In his review of curriculum design and management literature, Thompson (2010) identified six components of institutional structures which support student improvement: organizational factors, design of the curriculum, equity indicators, formal assessments, and facility and budgetary support for instruction. In part his findings support that a formal curriculum which includes strict pre-requisite requirements and course enrollment according to a pre-determined schedule promote success. Students at community college often take courses part-time, and in an order/sequence that is independent of curricular design and more dependent on their own personal, familial, or work scheduling needs. However, the health professional students are supposed to follow a pre-determined curricular path. It is very likely that the most successful students carefully followed the curricular design very closely.

The results of a study by Fowler and Boylan (2010) suggest that an increase in retention and success is achieved when students are given clear guidelines,

developmental course work is integrated with first year course work, intrusive academic

advising occurs and includes support in nonacademic areas, and academic support such

as tutoring is obtained. In this work it is again evident that a curriculum which includes

clearly stated goals and guidelines, as well as academic advising to keep students on the

correct curricular path is a large part of successful student retention and achievement.

Guided pathways. Most community colleges offer a large array of courses and

programs but provide little guidance (Jenkins & Cho, 2014), potentially contributing to

the relatively low rates of student success. Jenkins and Rodriguez (2013) proposed that in

order to improve program completion without either reducing quality or increasing costs,

colleges must change the way they organize and manage programs, not simply align

courses and/or curricula. A guided pathways approach in higher education applies the

combination of course constructive alignment (Biggs, 1996), curricular design and

management (Larkin & Richardson, 2013), and support services (Fowler & Boylan,

2010) to college programs. The guided pathways model involves redesigning both

academic programs and student support services, creating a more clearly structured path

to the end goal of successful completion in a timely manner (Bailey, Jaggars, & Jenkins,

2015; Van Noy, Trimble, Jenkins, Barnett, & Wachen, 2016). Support for guided

pathways is grounded in research which shows that structure and guidance, support

completion. Given the right guidance, students will generally enroll in the correct courses

in the correct sequence, helping them to stay on track (Fink, 2017).

According to Jenkins (2014) programs offered at community colleges that are

regulated either by licensure, like nursing, or by industry standards like automotive

technology and protective services, tend to be more clearly designed, and students in

these programs are more closely monitored. Students in these programs tend to be more successful, and indicate that enrollment in a college program with a clearly defined and monitored pathway increased their chance of success (Jenkins, 2014). However, admission to community college programs, like nursing and automotive technology, is often selective. Jenkins neither acknowledges the selective admission process, nor its potential effect on completion and success. Also, although many students are pleased with educational planning and program mapping, two components of guided pathways, some students are not. Fink (2017) found that some students feel that: the planning stage is overwhelming, the choices are limited, changing majors would be difficult, and the process can be frustrating.

When a college program's framework is designed as a guided path, students define their educational and career goals as soon as possible. They choose a major which is aligned with their goals. All classes within the curriculum are constructively aligned, and curricula are carefully designed and managed throughout the program. Advising is not offered, it is required. Progress monitoring with feedback at strategic points is provided along the way. Although it predates the guided pathways model, the framework for the HP program in my study is similar to guided pathways. The students in my study decided to become a nurse, chose the PRN major, are supposed to be adhering to the curriculum for this major closely, and are required to attend advising sessions.

Jenkins and Rodriguez (2013) propose that the guided pathways framework promotes completion and success. I propose that the success attributed to this framework is actually achieved because the HP program design provides opportunities for involvement and integration, two variables that have been found to be important for

student outcomes (Kuh, et., al., 2008). These variables will be discussed in the next section.

Engagement

  Astin's student involvement theory. Astin's student involvement theory was first published in 1984. He defined involvement as the amount of "physical and psychological energy that the student devotes to the academic experience" (Astin, 1999, p. 518). His student involvement theory has five postulates: involvement requires both physical and psychological energy, involvement occurs on a continuum, involvement has both quantitative and qualitative factors, the amount of student learning and personal development is directly proportional to the quality and quantity of student involvement, and the effectiveness of educational policy and practice is directly related to the ability of that policy or practice to increase student involvement (Astin, 1999, p. 519).

  According to Astin (1999) students' chances of dropping out are substantially greater at a two-year college as compared to a four-year college. He posits that one reason for the high dropout rate in community colleges is that involvement of both students and faculty seems to be minimal. A large number of community college students attend on a part-time basis, and most are commuters. Similarly, a large proportion of faculty members are part-time college employees. As Chang (2005) noted the students and the many part-time instructors come to the community college for their courses and tend leave immediately after the class is done limiting opportunities and time for involvement. The PRN students who were participants in my study were commuters, and many attended college part-time. There were approximately 350 part-time faculty but only about 100 full-time faculty at the college. These characteristics could have led to

low levels of involvement. However, the design of the PRN program brought students and faculty together in an interactive classroom environment, and provided opportunities for discourse, potentially increasing involvement. Being involved leads to increased learning and personal development (Astin, 1999).

Tinto's model of student departure. Tinto's (1975, 1997) model of student departure begins with the premise that a student enters college with individual attributes, family background and a pre-college schooling history which determine the student's commitment to the goal of completion, and his/her level of commitment to the institution. Academic integration involves incorporating the academic norms of the college, and meeting the academic standards set forth by the college. Social integration is a level of agreement between the student's beliefs, values, attitudes and norms, and that of the social system of the college. It is reflected in the student's level of involvement in that social system, including his/her interactions with faculty, staff, and students (Braxton, Hirschy, & McClendon, 2004). According to Tinto (1975) it is the student's integration into the academic and social system of college that mostly determine his or her continuing commitments to the goal of completion and to the institution. Ultimately, academic integration and social integration positively influence a student's decision to continue in that college.

Combining involvement and integration. Educators have varying views of the concept of engagement. For me engagement combines the concepts of involvement and integration, and includes an institutional effort in support of involvement and integration. I defined and used the term engagement in a manner that is most similar to Kuh, Cruce, Shoup, Kinzie, and Gonyea (2008). They say the first step toward engagement requires

that the student devotes time and energy to educationally purposeful activities. That is, the student must be involved. The second component of engagement is achieved when the institution uses its organization and resources to guide the student toward acceptance of the norms of the college and achievement of the desired outcomes; including persistence, learning, and completion. That is, when the institution fosters student integration.

In other words, the quality and quantity of a student's educational activities, and the quality and quantity of his or her interaction with members of the college community, are that student's level of involvement (Astin, 1999). If and when a student incorporates the academic norms of the college, meets the academic standards set forth by the college, and attains agreement between his or her beliefs, values, attitudes and norms, and that of the social system of the college, that student is integrated (Tinto, 1975). Thus, the concepts of involvement and integration are related, but not exactly the same. A student's level of integration is generally reflected by his or her involvement (Braxton. Hirschy, & McClendon, 2004). When an institution devotes effort to a design or educational practices which promote involvement and integration, its students have opportunities for engagement (Kuh, et.al., 2008).

Characteristics of an engaged student. Generally engaged students have studied with peers, joined a subject matter or special interest club, joined a social club, call faculty by first name, and/or have been invited to a faculty member's home (Pascarella, 1985). They interact with peers and faculty, and have used institutional resources (Hu & Kuht, 2002). They have friends who attend class regularly and who get good grades

27

(Ream & Rumberger, 2008), have joined a learning community, have a positive perception of faculty, and are involved with other students (Tinto, 1997).

Engagement at community colleges. The participants in most of the early studies (Astin, 1999; Hu & Kuht, 2002; Pascarella, 1985; Ream & Rumberger, 2008; Tinto, 1975; Tinto, 1997) regarding involvement and integration were traditional four-year college students. Studies including community college students (Chang, 2005; Greene, Marti, & McCleney, 2008; Tinto & Russo, 1994) confirmed the importance of involvement and integration in persistence and success. Student persistence at commuter colleges, like the community college where this study was conducted, is dependent on three major factors. These factors influence the decision to persist, and may influence learning, development, and success. One of these factors involves engagement. The three factors are; entry characteristics, external influences, and the internal campus environment (Braxton, Hirschy, & McClendon, 2004).

Examples of entry characteristics include parental level of education, motivation, etc. Traditionally, part of the mission of community colleges is access. Community colleges tend to accept nearly every student who applies (Cohen & Brawer, 2003; Goldrick-Rab, 2010; Levin, 2007). It would difficult for a community college to increase persistence and success by affecting or controlling entry characteristics of the students, without limiting its level of access.

External influences are factors such as finances, work, and family (Tinto, 1993). It is also difficult for a community college to affect the external environment experienced by students who live and work off campus (Braxton, Hirschy, & McClendon, 2004).

28

The internal environment of a campus includes the learning communities of the campus, and the institutional environment in regard to cost, integrity, and commitment to student welfare (Braxton, Hirschy, & McClendon, 2004). Supporting an internal campus environment rich in opportunities for engagement is an area where a college could make purposeful changes. I think that the PRN program design in this study fostered engagement for these students whose entry characteristics and external influences were varied.

Program design and engagement. A program design that promotes a high level of engagement may contribute to student persistence and to student success. The work of many researchers supports this theory (Kezar & Kinzie, 2006; Kuh, et al., 2008; Porter, 2006; Tinto, 1997; Tinto & Russo, 1994). For example, Porter (2006) found that institutional structure can influence student engagement. His results showed, in part, that small, selective, baccalaureate schools with a low student to faculty ratio have higher levels of integration. In a community college where time is such a precious resource, and students and faculty tend to spend limited time on campus (Chang, 2005), it is important to help students become involved and integrated by maximizing interactions and creating community within individual courses (Chickering, 2000; Tinto, 1997). At the college in my study, the PRN program design included small and interactive classrooms, low student to faculty ratios, required advising, and laboratory groups of peers who shared a common goal: to become a nurse. This was a purposeful design which potentially contributed to engagement in the classroom and especially in the laboratory.

Measuring engagement in the laboratory. Engagement can be measured in many ways. There is wide spread use of the Community College Survey of Student

Engagement (CCSSE), developed by the Center for Community College Student

Engagement (2012) in Austin, Texas. This survey tool allows for large scale quantitative

data collection to help identify and improve practices that support engagement at two-

year institutions. The Institutional Practices Inventory, the IPI, is a "classroom

observation tool that allows for comprehensive yet unobtrusive data gathering about

instructional practices and student engagement" (Painter & Valentine, 1996, p. 26). It

allows for systematic yet unobtrusive observations in traditional classrooms. I studied

engagement in the laboratory setting using the Laboratory Instructional Practices

Inventory (Sadler, Puig, & Trutschel, 2011). The LIPI is a modification of the IPI. This

tool allowed for the collection of data regarding student engagement in the laboratory

setting. I used it because my study was small scale and qualitative, and the laboratory was

the place where these students engaged and acquired social capital.

   In summary. Engaged students persist, learn, develop, and are successful (Astin,

1999; Hu & Kuht, 2002; Kuh, et al., 2008). For the community college students in this

study, opportunities for engagement occurred in the small interactive laboratories. I

proposed that engaged students had opportunities to acquire social capital. Social capital

supported persistence, learning, development, and success.

Social Capital Theory

   Forms of capital. In economics, the term capital refers to a type of wealth/good

that could be consumed immediately but if invested, will potentially yield a profit in the

future (Bartee & Brown, 2007). All systems require both economic capital, which

historically was termed physical capital, and human capital to be successful and

sustainable (Nahapiet & Ghoshal, 1998). Physical capital, including infrastructure and

facilities, has a financial cost, is tangible and observable. Human capital includes the knowledge and abilities of a person or group which could be of value to the person, the group, or both. High levels of both physical and human capital tend to support productive activity. Social capital can aid in the creation of human capital (Coleman, 1988).

Social capital. The crux of social capital theory is that social networks have value. The relationships formed in social networks can provide assistance, support, and information in a given social situation (Stanton-Salazar, 2001). These are valuable resources for the persons involved. In regard to higher education social network analysis (SNA) has examined issues of access and success. These studies have examined how social networks connect students to important information and needed support and thus foster the development of social and/or cultural capital (Kezar, 2014).

Many people attribute social capital theory to Bourdieu (1987), Putnam (1994), and Coleman (1988). Bourdieu (1987) described the underlying forces of power in society. He was especially interested in the role of social capital in power transfer and social class maintenance across generations. Putnam (1994) studied the relationship between social capital and public affairs. Specifically, he investigated civic engagement and its effect on the economic development and prosperity of communities. Coleman was a sociologist who studied social capital in educational settings. He investigated the social networks, the relationship between adults and children, and the norms and values which aided and guided children. He noted the importance of the connection between community, families, and schools in the achievements of individual high school students and certain groups of high school students (Coleman, 1987; Coleman, 1988). He investigated the role of social capital in the development of human capital, specifically in

educational settings, and his emphasis was on the academic achievements of both individuals and groups of students. Therefore, I will rely heavily on Coleman's interpretation of social capital.

Social capital has a structural component, the social network, and functional components, actions of the individuals or the group facilitated by the interactions within the network. Forms of social capital are based in trustworthiness and trust of the members of the social network (Coburn & Russell, 2008) and include: obligations and expectations, informational channels, and social norms (Coleman, 1988).

Obligations and expectations. Obligations and expectations can be explained in the following manner. Sometimes person "A" in the social network needs the assistance of someone else, person "B". The help is given, and no formal payment is requested. However, this seemingly altruistic deed is more like a credit slip. Person "B" trusts that if he needs assistance on the future, it will be given to him in return (Coleman, 1988). This sort of exchange occurred in the PRN classrooms all of the time. If one student was absent, another would record the lecture for him or her. If one student did not understand a concept, another was there to explain it. Students shared books, lab equipment, models, and specimens frequently. This can be termed mutual aid, reciprocity, or obligations and expectations. It is more likely to occur among the students who interact in the small, relatively informal lab settings experienced by the PRN students than among the more typical community college students who are enrolled in larger, more traditional classes, and leave immediately after class is done (Chang, 2005).

Information sharing. Acquiring information can be difficult, time consuming, and even costly. Members of a social network are often able to obtain valuable

information from the other members of the group much more easily and at a much lower cost than those outside of the group (Coleman, 1988). Information like assignment due dates, application deadlines, interview techniques, and financial opportunities for example, are essential for academic achievement, and successful transfer. While working in the lab, the students interacted more readily with faculty and fellow students. Faculty often offered advisement about course work and/or strategies for academic success. The students reminded each other of important dates, discussed interviews they had at the HP schools to which many of the students apply, and made suggestions about financial opportunities, child care, course section scheduling, and much more.

Norms supporting success. A norm is a commonly held value of proper behavior, which binds the members of a group. Norms guide, regulate, or control group members' behaviors and are supported by sanctions: rewards for appropriate behaviors and/or disapproval for inappropriate ones (Coleman, 1988). An educational system's goals are supported by norms of cooperation, information transfer, and of academic success. This can be observed when the members of a lab group work together and encourage each other, and when they congratulate each other for good work and/or improvement. Sometimes the students even had a friendly competition between members for the highest grade in a practical or lecture exam. The support for positive performance would only occur if the students trusted each other enough to share this information, and if they interacted enough to care. Within the lab groups norms often constrained inappropriate behavior. Students who distracted the others or failed to contribute to the group would be sanctioned. For example, after multiple late arrivals, the other members stopped

disinfecting a late member's bench or refused to loan materials to help the "offender" catch up.

      Social capital theory and educational success. Coleman (1988) was the first to apply theories of social capital to educational settings. He used quantitative data and focused on high school students, who acquired social capital mostly from their family members. More recent studies have integrated qualitative methods like interviews and case studies, have focused on racial minorities and low SES students (Conchas, 2001; Esau, 2015; Gonzales, 2013; Gonzalez, Stoner, & Jovel, 2003; Goyette & Conchas, 2002; Hill, Bregman, & Andrade, 2014; Stanton-Salazar, 2011), and have included college students as opposed to high school students (Esau, 2015; Gonzales, 2013; Jensen & Jetten, 2015; Moschetti & Hudley, 2015).

      Although current research supports Coleman's claim that family social networks are important for the success of some groups (Hill, Bregman, & Andrade, 2014), recent work has expanded the social network to include the school environment in addition to family. These studies indicate that the social capital acquired from fellow students and institutional agents like faculty (Gonzales, Stoner, & Jovel, 2003; Hill, Bregman, & Andrade, 2014; Stanton-Salazar, 2011) may play a larger role in the success of the students as compared to social capital acquired from family members. Some studies focus on school design (Conchas, 2001) and seem to indicate that institutional design and culture can contribute to development (Kezar & Kinzie, 2006)) and success (Conchas, 2001; Gonzalez, Stoner, & Jovel, 2003). Success has been measured by achievement, attainment, and psychosocial factors that affect educational development (Dika & Singh,

2002). I measured success by the attainment of the minimum requirements for acceptance for transfer from this college into a BSN or ASN program.

Social capital and network members.

Family. Using High School and Beyond data, Coleman (1988) demonstrated that greater amounts of social capital lead to lower dropout rates for high school students. Coleman's work regarding social capital was focused on high school students and limited the relevant social network from which the social capital was obtained to family structure and parent-child interactions. For example, he studied the influence of two parent households, smaller numbers of siblings, higher parental educational aspirations, and intergenerational closure.

Hill, Bregman, and Andrade (2014) collected and analyzed survey data from sophomores and seniors at two urban magnet schools. The student populations were multiracial but predominantly African American, and both schools had a higher than average college acceptance rate. The social network analysis revealed that those students whose SNFC (social network for college) was dominated by peers were less likely to choose a selective institution for college, and were less likely to pursue college right after high school. Those whose social network was dominated by parents and school personnel were more likely to attend college right after high school and more likely to choose a selective college. These data suggest that for at least some groups of adolescents, family remains an important component of their social network. This work also suggests that information regarding college options and opportunities should be shared with family to ensure that they become/ remain accurate sources of information about college access.

Institutional agents (faculty and staff). In 1995 Stanton-Salazar and Dornbusch conducted semi-structured interviews with Mexican origin high school students and found that students who had higher grades and higher status expectations generally had social capital stemming from personal ties with those who controlled institutional resources. These findings moved away from the exclusive role of social capital gained from family to that obtained from ties and networks within an educational institution. Stanton-Salazar (2011) then developed a conceptual framework for studying institutional agents and the role they play in supporting working-class minority youth, and helping them gain access to social capital.

Based on 150 life history interviews about the adult experiences of undocumented immigrants, Gonzales (2013) compared the experiences of undocumented Mexican college-goers versus early exiters. The students had similar family, community, and school profiles. Prior school experience seemed to stand out when assessing the divergent trajectories of the two groups. Those who succeeded in college had experienced positive K-12 school environments and school based social capital, including positive relationships with teachers and counselors, and positive peer group support and information sharing. Esau (2015) studied the role of support programs, college counselors, and faculty in the persistence and success of Latino/a community college students. In part, Esau found that interactions with agents of the institution, which increased social capital, supported a small but significant positive effect on student success. Institutional agents, like the teachers and counselors in these two studies, are high-status, non-kin individuals. They have relatively high positions in an institution, and are therefore able to provide important forms of social and institutional support (Stanton-

Salazar, 2011). The PRN program design at the community college in this study

promoted opportunities for interaction between the student participants and institutional

agents like faculty and advisors. Social capital acquired by the students due to these

interactions, was an important contributor to student success.

Jensen and Jetten (2015) interviewed 37 Danish and Australian college students.

They found that bridging social capital (student to faculty) facilitated professional

identity formation and bonding social capital (student to student) facilitated academic

identity formation. Bonding social capital hindered bridging social capital. The

researchers concluded that providing opportunities for interaction with faculty is

necessary to promote professional identity development.

Moschetti and Hudley (2015) investigated the formal and informal social

relationships of white, working-class, first generation community college students. They

found that these students had obstacles, like familial and work responsibilities, which

made it difficult for them to integrate themselves on the college campus. They did not

form important relationships with college personnel or with fellow students. Thus, they

lacked the opportunity to obtain social capital at the college. Also, because they were

first generation college students, they did not have the opportunity to acquire social

capital relevant to college life from parents or family members. The lack of social capital

put these students at a disadvantage.

Social capital and institutional design. Conchas (2001) conducted observations,

interviews, and took field notes in a case study of a large, predominantly racial minority

urban high school. He found that in the Medical Arts Academy, a school within the

school, Latino/a students tended to be successful due to the supportive and inclusive

structure and culture of the academy. In 2002, Goyette and Conchas analyzed quantitative data from the 1988-1990 NELS and qualitative data from observations and interviews. They concluded that Vietnamese students study more than their Mexican counterparts, because the Vietnamese students had more positive peer relationships and more supportive relationships with teachers as compared to the Mexican students.

Gonzalez, Stoner, and Jovel (2003) continued the work regarding social capital, attainment, and minority students when they used life history research methods to study the post-secondary opportunities for Latino/a students. They found that those students who were tracked in GATE and Honors/AP classes were exposed to agents of social capital in the high school who provided emotional support, access to information, and access to opportunities, positively affecting their college enrollment behavior. Students who were tracked into general education, special education, and/or English as a second language programs for extended periods of time received low levels of social capital and occasionally institutional neglect or abuse. This negatively affected their college enrollment behavior.

Social capital research summarized. Social capital has been investigated using both qualitative methods (Gonzales, 2013; Gonzalez, Stoner, & Jovel, 2003; Jensen & Jetten, 2015; Moschetti & Hudley, 2015) and case studies (Conchas, 2001). It was first explored in a high school setting by Coleman (1988), but recent work has included social capital in college settings (Esau, 2015; Gonzales, 2013; Jensen & Jetten, 2015; Moschetti & Hudley, 2015). These studies support my use of a qualitative single- case study (Yin, 2014) to analyze social capital in a community college setting.

There has been extensive research regarding social capital, but there are still gaps in the literature. Some researchers have examined the impact of institutional design and culture on social capital and success (Conchas, 2001; Gonzalez, Stoner, & Jovel, 2003). However, an explanation of the institutional design of a community college and its effect on social capital has yet to be fully investigated. Much of the community college research has been from a deficit perspective. For example, Moschetti and Hudley, (2015) studied community college students who were underprepared, lacked social capital, and as a result, had limited retention and success. There have not been any studies surrounding a cohort of community college students with varied levels of academic preparedness who acquired social capital and became successful. Research surrounding successful students has focused on baccalaureate institutions, where social capital could be obtained outside the classroom, laboratory, and/or advising sessions. For example, the setting for Harper's study (2008), involving engagement, social capital, and success was a baccalaureate institution, and not a community college. With this study I will address these gaps.

This Study

The design of a college program, like the guided pathways framework (Jensen, 2014) for example, can provide opportunities within the classroom and advising sessions for involvement (Astin, 1999) and integration (Tinto, 1997), two variables that have been found to be important for student outcomes (Kuh, et al., 2008). Through engagement on their college campuses, some students acquire social capital (Harper, 2008). Social capital has a structural component, the social network, and functional components, the actions of the individuals or the group facilitated by the interactions within the network. The relationships formed in social networks can provide assistance, support, and

39

information in a given social situation (Stanton-Salazar, 2001; Stanton-Salazar, 2011). Acquisition and activation of social capital contributes to student success (Harper, 2008).

I studied successful PRN students who, due to the design of their community college program, had the opportunity for engagement. Through engagement they acquired social capital from fellow students and faculty in a laboratory classroom setting. I proposed that like the students in Coleman's study they obtained the benefits of obligations and expectation, information, and norms (Coleman, 1988). These benefits promoted success. However, unlike the high school students in Coleman's work, these college students acquired social capital from members of the social network within the PRN program like fellow students and institutional agents like faculty, as opposed to a traditional family. For this group of students, social capital promoted success as measured by the attainment of the minimum requirements for acceptance for transfer from this college into a BSN or ASN program.

Chapter 3

Methodology

There were 2.95 million registered nurses (RN's), whose median income was 70,000 USD in 2016 (U.S. Bureau of Labor Statistics, 2018). We will need to add and/or replace one million nursing positions by the year 2024 in order to meet the health care needs of an aging populace (Center for Health Workforce Studies, 2016). Thus, nursing positions are relatively abundant and considerably well paid. Successfully preparing college students to enter this field should be an educational priority.

In the fall of 2017 there were 5.9 million students enrolled in community colleges in the U. S. (NCES, 2019). Research has shown that student progress through community colleges is generally slow, rates of dropout are high, and rates of success are relatively low (Bailey, Leinbach, & Jenkins, 2006). There were 1,473 pre-nursing (PRN) students enrolled at the community college where this study will be conducted (CC, 2019). The study participants were successful members of this PRN group, in that they had achieved the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. Considering the large number of community college students, and their relatively low rates of success (Bailey, Leinbach, & Jenkins, 2006), understanding the framework and characteristics of community college programs which successfully prepare students for transfer, should be an educational priority.

This qualitative holistic single-case study (Yin, 2014) examined a group of health professional (HP) community college students who were enrolled in the Pre-nursing (PRN) major, and had attained the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. This study of the PRN program design,

the engagement and the social capital acquired because of this design, will contribute to the understanding of how and why these students have prospered when many of their community college student counterparts have not.

This chapter provides specific details regarding the design of this qualitative holistic single-case study (Yin, 2014). It begins with the purpose statement and the research questions. Then, it provides a description of the setting, the research design, and the rationale for my choice of qualitative holistic single-case study as the method of inquiry. Next it will lay out the sampling strategy, data collection methods and analysis. Finally, this chapter includes a discussion of validity, a statement regarding the role of the researcher, an account of ethical considerations, and study limitations.

Purpose Statement

The program goal at the community college where I conducted this study is to successfully prepare its Health Professional (HP) students for transfer. There were 1,473 students enrolled in Pre-nursing (PRN), a major within the HP program (CC, 2019). They were working toward acceptance into either a Bachelor's of Science in Nursing (BSN), or an Associate's of Science in Nursing (ASN) degree program. These PRN students often had competing priorities, varied backgrounds, and differing levels of academic preparedness and ability. Yet many were successful in that they gained acceptance into relatively competitive transfer programs.

The purpose of this qualitative holistic single-case study (Yin 2014) was to explain the path to successful transfer for a cohort of students who were enrolled in the PRN major in a suburban community college. In this study attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program

42

was the definition of success. I examined the design of this particular program, which is similar to Guided Pathways (Jenkins, 2014). I investigated whether this design promoted engagement as defined by Kuh, et al. (2008), who stated that engagement: involvement and integration supported by the institutional design or educational practices, supports educational success. Then I considered whether engagement provided opportunities for the acquisition of social capital as defined by Coleman (1987 and 1988). Ultimately, I investigated whether as Harper (2008) found, that for engaged students, social capital supported student success.

Research Questions

The research questions that guided this study were designed to address the gaps in the literature regarding student success at community colleges, and to add to the research on guided pathways, engagement, and social capital in community college settings. The research questions arose from my decade of teaching the laboratory based prerequisite courses required for transfer into nursing programs. The curriculum at the college was specifically designed and includes: required orientation and advising, specific academic and career goals, relatively inflexible curriculum, and small interactive laboratory classes. This program design promoted engagement. I proposed that the engagement which resulted from the design provided opportunities for the acquisition of social capital. Social capital provided the foundation for success. Studies regarding guided pathways (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014; Jenkins & Rodriguez, 2013), engagement (Kuh, et. al., 2008), the relationship between engagement and social capital (Harper, 2008), and the role of social capital in educational success (Coleman, 1987;

Coleman, 1988) provided the foundation upon which I formulated the following

questions:

How did the structural design of the Pre-nursing (PRN) major in the Health Professional

(HP) program promote student success as measured by attainment of the minimum

requirements for acceptance for transfer from this college into a BSN or ASN program?

Sub-question #1.

Did the structural design of the PRN major promote engagement?

Proposition.

1A. The design component of the PRN major promoted engagement.

Alternate explanations.

1B. The students in the PRN major were not engaged. This is typical of

community college students, who have been described as Commuter, Part-time,

Transfer, and Returning (CPTR). They have less time to become involved in

educationally purposeful activities, and few opportunities to interact with other

students, faculty, or staff. Thus, engagement is limited.

1C. The students were engaged due to some other factor besides the design of the

program.

1D. The design of the program, as a whole, directly promoted success.

Sub-question # 2.

Did engagement provide opportunities for the acquisition of social capital?

Proposition.

2A. Engagement provided opportunities for the acquisition of social capital.

Alternate explanations.

2B. The students acquired social capital from other sources, and not from engagement in the classroom, labs, and advising sessions.

2C. Engagement directly promoted success.

Sub-question #3.

Did the forms of social capital including: obligations and expectations, Information sharing, and norms contribute to the success of these PRN students as measured by achievement of the minimum requirements for acceptance for transfer from this college into a BSN or ASN program?

Proposition.

3A. Social capital contributed to success.

Alternate explanation.

3B. Students were successful due to a characteristic or influence such as: a common history, their own internal motivation, external support from family, friends, and colleagues, or some other factor, but not due to design, engagement, or social capital.

The Setting

The research site was a public, suburban, community college in the northeastern United States. Spring 2017 enrollment totaled 12, 232 students, of whom 1,517 were enrolled in courses in the PRN major (CC, 2017). The student body was comprised of 50.1% full-time students, and 49.9% part-time students. The average age of all students was 27. Female students were 56.9% of the population, with male students accounting for the remaining 43.1% of the student body. The ethnic composition of the student body was

48.5% White (non-Hispanic), 19.9% African-American, 14.7% Hispanic, 6.1% Asian, 1.5% American Indian/Alaskan Native, 0.2% Native Hawaiian/Pacific Islander, 0.7% two or more races, and 6.6% unreported. In fiscal year 2016, student tuition ($107 per credit for in county residents) and fees accounted for 62% of the college budget. A total of 33.6% of the students were PELL grant recipients (CC, 2017).

Within the PRN major specifically, female students were 84.7% of the group, with male students accounting for the remaining 15.3% of the students in this major. The ethnic composition of the PRN students was 34.5% White (non-Hispanic), 31.6% African-American, 23.6% Hispanic, 7.9% Asian, 0.8% American Indian/Alaskan Native, 0.2% Native Hawaiian/Pacific Islander, 0.5% two or more races, and 0.9% unreported (CC, 2017).

Research Design

The study was intended to address the following research questions. The design of this study is included in figure 2.

Goal
- Describe the process though which a suburban community college prepares its PRN students for transfer

Conceptual Framework
- Varied PRN Students on the path to transfer
- PRN Program Design
- Engagement
- Social Capital
- Achievement of transfer requirements

Research Questions
How did the structural design of the PRN major in the Health Professional (HP) program contribute to student success as measured by attainment of the minimum requirements for acceptance for transfer from this college into a BSN or ASN program?
- Did the structural design of this PRN major promote engagement?
- Did engagement provide opportunities for the acquisition of social capital?
- Did the forms of social capital including: obligations and expectations, information, and norms contribute to the success of these PRN students?

Methods
- Used transcripts to choose successful (varied) participants
- Program documents: curriculum path in the program guide
- Participant observation
- Interviews

Validity and Reliability
- Triangulation
- Chain of evidence
- Member checking
- Pattern matching
- Rival explanations
- Relying on theory
- Documentation

Figure 2. Design Map.

Rationale for and assumptions of a qualitative methodology. "Qualitative researchers tend to see the world in terms of people, situations, events, and the processes that connect these; explanation is based on analysis of how some situations and events influence others" (Maxwell, 2013, p. 29). In qualitative research the researcher is the key instrument, who reflects about his or her role, background, culture, experiences, and the effect of all of these on the study. This strategy of inquiry tends to take place in a natural setting, and relies on multiple sources of data. The design, although tentatively preplanned, tends to be emergent, and the data analysis is initially inductive but is at times, deductive. Qualitative researchers attempt to describe a holistic account of a studied phenomenon with a focus on the meaning that the participants hold about the phenomenon (Creswell, 2014).

Thus, the rationale for the use of qualitative strategies for this study is that they allowed me the opportunity to observe, to question, and to describe a rather complex phenomenon (Rubin & Rubin, 2012). Qualitative strategies supported the use of various data collection methods for a more holistic interpretation of the phenomenon. Most importantly, qualitative strategies encouraged a connection with the student participants. This connection led to a deeper and richer understanding of the role of the program design, engagement, and social capital in their success.

Case study. I investigated the role of the HP program's structural features (its design), and the social capital acquired due to this design in the success of a particular group of students at a suburban community college in the northeastern United States. Qualitative case study is the best methodology to explore a real life, relatively complex phenomenon, in a contemporary setting, over which the researcher has little or no control.

Case study is "an empirical inquiry that investigates a contemporary phenomenon (the case) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident" (Yin, 2014, p. 16). Because the boundaries between the case, the PRN program, and context, the college, seemed to be a bit blurred, there were many more variables of interest and few data points in this study. For example, personnel changes in the upper administration, re-alignment of academic divisions, and/or curricular and academic policy changes were all variables that could have potentially affected the PRN program. The program did not exist separate from the college. Each one had an effect on the other. In order to cope with this boundary issue, Yin (2014) stresses both the value of triangulation using multiple sources of evidence, and the benefits of developing theoretical propositions and alternate propositions to inform and guide the data collection and analysis components of a study. He does not stress the differences between quantitative and qualitative case study methods (Yazan, 2015). For example, his use of propositions and alternate propositions is similar to the formulation of an hypothesis and an alternate hypothesis, that a quantitative researcher might try to disprove. Yin stresses validity (construct, internal, and external) and reliability in every step of the study. He suggests that a researcher can use qualitative methods such as in-depth interviews, and then demonstrate cause and affect relationships by analyzing interview data using logic models. A logic model is an analytic technique often used in case study research that compares empirically observed events to theoretically predicted events, when the events occur as a series of repeated cause and effect relationships. Yin proposes four types of case study designs: single holistic, single embedded, multiple holistic, and multiple embedded. Single-case study design is used

when there is a single unit of analysis that is critical, unusual, common, revelatory, or longitudinal. The single unit of analysis in this study is the PRN program. A holistic approach is used to examine a program or organization as a whole, as opposed to examining each component of a program individually, in great depth. I analyzed the program design as a whole. I did not analyze and compare its component parts.

. There are unique strengths inherent to qualitative case study research. It can elucidate how a system, like this college program, functions (Patton, 2015), and investigate the roles that the program design, engagement, and social capital play in the participants' success. Case study is an in-depth form of inquiry (Yin, 2014). It can draw evidence from a variety of sources, including documents, artifacts, observation, and interviews. The data sources upon which I drew were: documents (student transcripts and the curricular guidelines), observations in the laboratory classroom; and interviews with students who have been attained the minimum requirements for acceptance for transfer from this college into a BSN or ASN program.

This study investigated and explained the process through which this community college successfully prepared its varied health professional students for transfer. It was a contemporary phenomenon whose components: curriculum, student services, and structural features were relatively complex. A history of the college, this program, and the development of the curriculum, support services, and structural features designed to support these students would have been interesting. However, I wanted to know how the program design supported the progress and success of these students at the time of the study, when their number was high and the demand for these professional careers was great. Determining the level of student engagement, that was supported by the program

design, could have been attempted using student and faculty surveys. However, there were many different students, whose needs were varied, and surveys might not have provided the rich detail of the specific differences and needs for this group. Also, determining the relationship between program design, engagement, social capital and student success would be better understood by observing and interviewing these students. Last, I did not have control over all of the variables that either contributed to, or hindered, student progress and/or success. Thus, a quantitative approach in which all variables but one were controlled, the effect of the changing variable being objectively measured, and the numeric data statistically analyzed, was not possible (Creswell, 2014). Using Yin's (2014) qualitative holistic single-case study design provided the opportunity for me to acquire the breadth and depth of information necessary to understand and explain this program's influence on student success. It also satisfied my personal positivist epistemological perspective. It was the best method of inquiry for this study.

  Sampling design. "Qualitative inquiry focuses in depth on relatively small samples, even single cases (n=1), selected for a quite specific purpose" (Patton, 2015, p. 264). The type of sample a researcher chooses should follow from and support inquiry into the research questions he or she is asking. I intend to explain the process through which a suburban community college successfully prepares a sample of its Pre-nursing (PRN) students for transfer into either a Bachelor's of Science in Nursing (BSN) or an Associate's of Science in Nursing (ASN) degree program. The PRN students at the community college where I will conduct this study often have competing priorities, varied backgrounds, and enter college with differing levels of academic preparedness and ability. In regard to the student participants, I will use criterion-based sampling (Patton,

2015): choosing participants who meet a predetermined criterion. In this study the criterion is success, as measured by attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. In order to select study participants, I began with the use of transcripts to identify PRN students who have G.P.A.'s of 3.0 or above, have completed 30 credits, and completed certain courses in this major. This process is described in the data collection section, under the transcript heading.

These student participants were enrolled in the same program and have had academic success. However, they students varied in ways that many community college students do. I included participants who varied according to the characteristics described by Silverman, Aliabadi, and Stiles (2009). They described nontraditional students using the acronym CPTR which stands for commuter, part-time, returning, and transfer. I intended to choose at least two participants from each of the four non-traditional student types. Thus, a minimum of eight student participants would be included. The sampling information is included in table 1.

Table 1

Participant Sample

Participant	Description
Commuter	Full time students who entered college in the semester after high school graduation, but do not live on campus
Part-time	Were enrolled in less than 12 credits in one or more semesters
Transfer	Had course work completed at another college and/or had a degree in another major, and were taking pre-requisite courses for transfer
Returning students	Began at a community college more than five years before, stopped out, and returned

Data collection. Prior to data collection I sought the approval to conduct this research from the Institutional Review Board of Rowan University, and the Institutional Review Board of the Community College where this study was conducted. Once approved, data collection included: document collection, participant observation, interviews, and a research journal. The documents collected include the following: transcripts and program guides. The transcripts initially identified the potential student participants. Then the transcripts and program guides demonstrated, at the very least, the degree to which the students followed the guided path toward completion of their program. The observations helped to reveal the students' level of engagement. The interviews helped to verify the guided path, the level of engagement, and shed light on the social capital these students may have acquired while in this program.

Document collection. Document analysis is a systematic procedure for reviewing both printed and electronic material. It is often used in combination with other data

53

collection methods which include: observation, interviews, and physical artifacts (Yin, 2014). Documents are readily available, accurate and stable sources, generally rich in information, often legally unassailable, and nonreactive (Lincoln & Guba, 1985). They can provide background and context, bring to mind questions that should be asked and observations that should be made, can be a means of tracking changes over time, offer additional data, and triangulate and verify findings (Bowen, 2009). The documents I collected are transcripts and the program guide.

   Transcripts. The college does not tract acceptance into BSN and ASN programs. Thus, in order to select my participants, I began with an analysis of the transcripts of all students at the college in the Pre-Nursing Major (PRN). In this study the criterion for participation, was success, as measured by attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. Using the transcripts I identified students in the PRN major, who had a G.P.A. as 3.0 or higher, and who had completed more than 30 credits. I chose this G.P.A. lower limit because it matched the minimum requirement for admission into most nursing schools. I chose the credit number to limit the transcripts to students who had either completed or were currently enrolled in no less than four of the required prerequisite courses for transfer which include: Biology I, Microbiology, Anatomy and Physiology I and II, Organic and Biological Chemistry I and II, and Nutrition. Studies addressing the impact of social capital on first year students (Brouwer, Jansen, Flache, & Hofman, 2016; Mc Cormick, 2017; Stephenson, 2010; Wang, Wickersham, Lee, & Chan 2018) also influenced my choice to include students who have completed 30 credits. Participants in these studies

acquired social capital in their first year of college. I wanted to ensure the participants

had at least one year to have acquired social capital.

The participants in this study had the same goal, were enrolled in the PRN major

at the same community college, and fit my criteria for success. They had many

characteristics in common. However, like all community college students they are varied.

Their differences can be identified by the acronym CPTR, which means they can be

grouped into the following categories: Commuter, Part-time, Transfer, or Returning

students (Silverman, Aliabadi, & Stiles, 2009). I included at least two students from each

of these four groups, a minimum of eight students, in order to ensure that conclusions

represent the entire range of variation and not a subset of this range (Maxwell, 2013). I

attempted to ensure that the demographics of my participants reflect the demographics of

the PRN program as a whole. Thus, transcript collection and analysis was initially used as

a part of the participant selection process. Once participant selection was completed, I

conducted observations of the student participants in the laboratory classes, and

interviewed each one.

Program guides. The program guide (Appendix B) listed all academic programs

offered at the college. It included both the associate degree programs and majors that

were designed to prepare a student for transfer into a baccalaureate degree program, and

certificate programs that provide a specialized skill set so that graduates were prepared

for employment in specific careers. In addition the program guide listed all required

courses within a program or major, indicated the order that classes should be taken, and

specified the semester in which courses should be taken. It provided the academic path

toward timely and successful completion.

Each participant's transcript was compared to the program guide. The comparison of the transcript with the program guide provided insight into the student's adherence to a guided path. Thus, the transcripts were used in both sampling and data collection.

Laboratory observation. Settings, historical perspectives, human interactions, the meaning of language, and the perceptions and experiences of the participants in a study can be accurately, authentically, and reliably described by researchers who have been trained and are prepared to observe them (Patton, 2015). In the interactive laboratory settings these students had the opportunity to become engaged with other students and faculty, potentially leading to the acquisition of social capital. As Yin suggested (2014) the labs were real world settings and could be directly observed. Observations were as unobtrusive as possible. However, participant reactivity, defined as a "participant's altered behavior in response to being observed" (Paradis & Sutkin, 2016, p. 31) is a relatively common criticism of observational research. In her review of methodological issues with direct observation, Gardner (2000) found that the observer's presence in a natural setting does not change the nature of interactions. Paradis and Sutkin (2016) agree with her findings. However, in order to minimize any possible effect, they suggest the following: if possible, using multiple observers; collecting data over a prolonged period of time; and having an observer record any possible examples of participant reactivity in their field notes. I reduced participant reactivity by observing the student participants in their typical laboratory classrooms. I was present in the lab rooms for at least three periods, six hours, prior to beginning the collection of data. I recorded any indications of participant reactivity in the observation field notes.

I approached the faculty who taught these student participants in order to explore the willingness of these faculty to allow me into their laboratory classrooms to do the observations. I observed the social environment of the classroom; noting for example, the ways in which either the instructor organized, or the students organized themselves, into lab groups. Most of my observations occurred during the planned laboratory exercises in a classroom. Observing and then analyzing planned activities, such as these, is a central element of fieldwork (Patton, 2015). However, some instructors allowed for some student self-directed time in the lab. In these cases I was able to observe some unplanned activities as well. I captured some of the verbal and nonverbal communication between the student participants. Throughout my observational data collection I was unobtrusive and reflexive as possible. During the analysis phase of the study, I combined, by addition, the observation data obtained using the LIPI, and reviewed the notes taken during the observations looking for patterns and themes (Patton, 2015).

The LIPI. In this study the term engagement combined the concepts of involvement and integration, and included an institutional effort in support of involvement and integration. I defined and used the term engagement in a manner that was most similar to Kuh et. al., (2008). They said the first step toward engagement requires that the student devotes time and energy to educationally purposeful activities. That is, the student must be involved. The second component of engagement is achieved when the institution uses its organization and resources to guide the student toward acceptance of the norms of the college and achievement of the desired outcomes; including persistence, learning, and completion. That is, when the institution fosters student integration.

In order to investigate engagement I used a modified version of the Laboratory

Instructional Practices Inventory (LIPI) (Sadler, Puig, & Trutschel, 2011) provided in

Appendix C. This observation tool was designed to gather data regarding engagement in

a laboratory setting, as relatively easy to use, and allowed for the relatively

comprehensive, yet unobtrusive collection of data. Observations focused on two

dimensions: that which the LIPI labels as engagement, and student discourse.

I renamed the first dimension of the LIPI "involvement" as opposed to

"engagement". Involvement is a component of engagement that indicates the amount of

energy the student is devoting to the educational activity: the laboratory exercise. I made

this choice because I think the term "involvement" better reflects this first dimension of

the inventory which categorizes focus, energy, and "involvement in the laboratory

activity" (Sadler, Puig, & Trutschel, 2011, p 27). There were four categories of

involvement: dis-involvement (DI), passive involvement (PI), task-orientated

involvement (TI), and epistemic involvement (EI). A dis-involved student was not

focused on the laboratory activities. A passively involved student was receiving

information or directions, as when listening to the instructor describing the lab protocol.

Level three and four indicated increasingly more active forms of involvement. Task

oriented involvement was occurring when a student was working, either alone or with a

group, on the laboratory experiment. For example, the student was comparing a labelled

diagram to a model. Epistemic involvement was reached when a student was focused on

cognitively demanding components of scientific work. For example, the student was

making a video of themselves identifying the anatomy on a model, or making notes about

the connection between the anatomy and the physiology as opposed to just pointing to the anatomical parts.

Integration is reflected in the student's level of involvement in a social system, including his/her interactions with faculty, staff, and students (Braxton, Hirschy, & McClendon, 2004). Student discourse is an observable form of interaction. In other words discourse, a form of interaction, reflects integration, the second component of engagement. Thus, using the LIPI noted and documented five categories of discourse: no discourse (ND), off-task discourse (OD), procedural discourse (PD), conceptual discourse (CD), and integrative discourse (ID) (Sadler, Puig, & Trutschel, 2011). No discourse occurred when the students were not talking. In off-task discourse students were talking about topics that were not related to the laboratory. During procedural discourse students were talking about specimens, lab equipment, protocols, etc. Conceptual discourse involved discussion of basic scientific concepts, as when students were working together using a lab list to name the parts, but are not connecting the anatomy either to the physiology or to any homeostatic imbalances. Integrative discourse included conversation regarding the integration of the laboratory findings with scientific theory, connecting the anatomy to physiology, or discussing homeostatic imbalances

The goal of Sadler, Puig, and Trutschel (2011) in designing this tool was to illustrate the pattern of student engagement for most or all of the students in an entire laboratory classroom and groups of classes. I used this tool to characterize the level of involvement and discourse for each of my student participants in his or her own laboratory classroom. Thus, the original users of this tool were looking around an entire

classroom and deciding the predominant activity patterns and recording those. I specifically observed my student participant, and recorded his or her activities.

At 20 minute intervals (five per laboratory), I observed a student participant, and characterized his/her predominant level of involvement and principal type of discourse. Using a pre-formatted sheet, involvement and discourse were coded, and a brief written description was included. I observed each student participant in three lab sessions, at 20 minute intervals, for a range of nine to 15 discrete observations per student. The number of observations for the entire group of participants was 153. The LIPI (Sadler, Puig, & Trutschel, 2011) proposed this time interval (every 20 minutes) and the total number of observations (at least 100). During the first 15 to 20 minutes in lab classrooms, the students were generally setting up for lab. Thus, observations did not begin until 20 minutes of class time had elapsed.

At the conclusion of the three laboratory sessions, totals for each student's level of involvement and type of discourse were calculated. I added each student's totals for involvement and discourse to obtain a value representative of his/her engagement. I combined the observation data for the group (calculated the average), to characterize the overall level of engagement of these successful PRN students.

Interviews. In-depth, semi-structured interviewing is a qualitative research technique (Patton, 2015) that allows researchers to explore participants' subjective experiences, unspoken assumptions, and meaning making (Healey-Etten & Sharp, 2010). The advantages to interviewing are: it provides more detailed information than surveys, it provides context and a more complete picture than documents, and it can provide insights into how and why events occurred from the perspective of the participant as compared to

observation. In my study interviews also provided an opportunity for triangulation as well.

I interviewed the successful PRN student participants. The protocol is in Appendix D. I explored their path to degree completion. I included questions regarding the order in which courses were taken and the number of times these students obtained academic advising. I also investigated the level of engagement for these participants to confirm my observation data. I asked questions regarding social capital, including in the context in which social capital was acquired, and the value of social capital in regard to successful completion and transfer.

Research questions and data collection methods. The relationship between the research question and the data collection methods is illustrated by the following tables. Table two compares the research sub-questions to the data collection methods. Table three includes the propositions and the alternate propositions, and compares them to the data collection methods.

Table 2

Research Sub-Questions, Sampling and Data Collection Methods

Data Collection	Design	Engagement	Social Capital	Sampling
Transcripts	X			X
Observation		X		
Interview Ques.1				X
Interview Ques. 2				X
Interview Ques. 3		X		
Interview Ques. 4			X	
Interview Ques. 5			X	
Interview Ques. 6		X	X	
Interview Ques. 7		X	X	
Interview Ques. 8	X			
Interview Ques. 9	X			
Interview Ques. 10	X	X	X	
Interview Ques. 11			X	
Interview Ques. 12			X	
Interview Ques. 13	X		X	
Interview Ques. 14			X	
Interview Ques. 15			X	
Interview Ques. 16	X	X	X	
Interview Ques. 17	X	X	X	

Note. Sub-question #1 "did the structural design of the PRN major promote engagement?" was addressed by data collection methods checked in the design and engagement columns. Sub-question #2 "did engagement provide opportunities for the acquisition of social capital?" was addressed by data collection methods checked in the engagement and social capital columns. Sub-question #3 "did the forms of social capital including: obligations and expectations, information sharing, and norms contribute to the success of these students as measured by attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program?" was addressed by data collection methods checked in the social capital column.

Table 3

Propositions, Alternate Explanations, and Data Collection Methods

Data Collection	1A	1B	1C	1D	2A	2B	2C	3A	3B
Transcripts	X		X	X					X
Observations	X	X	X	X	X	X	X		X
Interview Ques. 1									
Interview Ques. 2									
Interview Ques. 3	X		X	X					X
Interview Ques. 4					X	X	X	X	X
Interview Ques. 5					X	X	X	X	X
Interview Ques. 6					X	X	X	X	X
Interview Ques. 7					X	X	X	X	X
Interview Ques. 8	X		X	X					
Interview Ques. 9	X		X	X					
Interview Ques. 10	X		X	X	X	X	X	X	X
Interview Ques. 11					X	X	X	X	X
Interview Ques. 12					X	X	X	X	X
Interview Ques. 13	X		X	X	X	X	X	X	X
Interview Ques. 14					X	X	X	X	X
Interview Ques. 15					X	X	X	X	X
Interview Ques. 16									X
Interview Ques. 17									X

Note. Proposition 1A: The design component of the PRN major promotes engagement. Alternate Explanation 1B: The students in the PRN major were not engaged. Alternate Explanation 1C: The students are engaged due to some other factor besides the design of the program. Alternate Explanation 1D: The design of the program, as a whole, directly promotes success. Proposition 2A: Engagement provides opportunities for the acquisition of social capital. Alternate Explanation 2B: The students acquire social capital from other sources, and not from engagement in the classroom, labs, and advising sessions. Alternate Explanation 2C: Engagement directly promotes success. Proposition 3A: Social capital contributes to success. Alternate Explanation 3B: Students are successful due to a characteristic or influence such as: a common history, their own internal motivation, external support from family, friends, and colleagues, or some other factor, but not due to design, engagement, or social capital.

Data was collected and analyzed in order to answer the overriding research

question: How did the structural design of the Pre-nursing (PRN) major in the Health

Professional (HP) program promote student success as measured by achievement of the minimum requirements for acceptance for transfer from this college into a BSN or ASN program?

Pilot study. I conducted a pilot study at the site in the spring of 2019. Its purpose was to test the document collection procedures, the observation protocol, and interview protocol; and to address internal validity. Transcripts of the students enrolled in an Anatomy and Physiology course were collected and sorted using the same criteria as in the study. Those students with a minimum GPA of 3.0, and a completion minimum of 30 credits were approached for participation. Observations in the laboratory, and an interview with an interested student participant was conducted in order to test the instruments. This afforded me the opportunity to practice and improve both my observation and interviewing techniques. Additionally the pilot study allowed me to explore whether I was able to collect the data I needed, to make valid inferences from those data, and ultimately to answer my research question and sub-questions with confidence.

Data Analysis

Analytic strategy. According to Yin (2014) there are four general strategies for analyzing case study data. These strategies include: relying on theoretical propositions, working data from the ground up, developing a case description, and examining plausible rival explanations. I used a combination of relying on theoretical propositions and examining rival explanations. The original objectives and design of my study were based on theoretical propositions regarding program design, engagement, social capital, and student success. The propositions upon which my case study was based are reflected in

my research questions and guided my entire analysis. These initial theoretical propositions also helped me to develop hypotheses regarding possible rival explanations. The greater the number of rival explanations I considered and rejected with relative certainty, the more confidence I had in my findings.

Analytic technique – logic models. A logic model is an analytic technique often used in case study research (Yin, 2014). It is similar to pattern matching in that empirically observed events are compared/matched to theoretically predicted events. Logic models are more useful than simple pattern matching when the events occur as a series of repeated cause and effect relationships. In this case a logic model can provide a clear conceptualization of conditions, interventions, or activities that are required to achieve intended outcomes in a series including: immediate outcomes, followed by intermediate outcomes, and eventually the ultimate goal (Yin, 2014). Thus, a logic model can explain the path to an ultimate goal or outcome. In my case study the condition was the design of the PRN program. I proposed the following: the immediate outcome was that each student participant became engaged, the intermediate outcome was that the student acquired social capital, and the ultimate goal was the attainment of the minimum requirements for acceptance for transfer from this college into a BSN or ASN program, my definition of student success.

Transcript and program guide analysis. By reviewing the student transcripts I compared the order in which my participants took their classes with the path proposed by the program guide. I took note of and recorded the number of times each student strayed from the proposed path. If it was the design of the program and the pathway provided for the students that contributed to their success, I would have expected that the students took

the courses in the prescribed order. During the interviews I asked the student participants questions regarding their curricular path, reasons for any variation from the program guide, and about the possibility of the formation of cohorts of students taking classes together on a common path. Cohorts may have encouraged engagement and the acquisition of social capital.

LIPI data tally. Using the data sheets from Appendix C I calculated the average level of involvement, and the average level of discourse for each student participant. I added these data to provide an overall level of engagement (involvement plus discourse) for each individual. I then calculated an average level of engagement for the group as a whole.

Interview data analysis. After the completion of each recorded interview, I generated a verbatim transcription of the recording. I included notations of participants' behaviors, inflections, pauses, or any other potentially distinguishing mannerisms which occurred during the interviews. I read the transcriptions multiple times. I generated codes from each interview which attributed meaning to the interview data. These codes were inserted into the spreadsheet described in the next section to help with organization. I systematically classified the codes into categories. The result of coding, recoding, categorizing, and reflecting on the data analytically was the development of themes which connected the experiences of the participants. According to Rubin and Rubin (2012) themes are summary statements, causal explanations, or conclusions that could be articulated by interviewees, but that often must be formulated by the researcher by linking concepts introduced by the interviewees.

Spreadsheet. At the conclusion of data collection, after the LIPI observation tallying, and at the completion of the interview transcription, coding, categorizing, and organizing transcription data into themes, I organized the data by creating a spreadsheet.

1. Participant columns included:

    a. the participant's program enrollment (which should be PRN),

    b. GPA (which should be 3.0 or greater),

    c. credit completed number (a minimum of 30 credits completed), obtained from the transcript review, and verified during interview,

    d. CPTR status.

2. Curriculum path columns that included:

    a. the deviations from the program guide's path (obtained by comparing the student's timeline with the program guide).

3. Advising columns that included:

    a. Attendance in the common advising sessions (yes or no),

    b. The number of times the participant received advising in addition to the required session,

    c. The timing of these additional sessions (by semester),

    d. The college representative (by title or pseudonym) from whom he/she received advising,

    e. Brief description of the content of the sessions.

4. Engagement information columns:

    a. For each student participant there was a column for the involvement, discourse, and engagement from the LIPI observations protocol.

5. Social capital information:

    a. For each participant there was a column for obligation and expectations,

    b. For each participant there was a column for information sharing,

    c. For each participant there was a column for norms supporting success.

Ultimately, I constructed a profile of each student participant. The profile included: a description of the type of student (commuter, part-time, returning, or transfer) taken from the transcript analysis and the interviews; a list of the student participant's adherence to a guided path (including following the program and obtaining advising) obtained from transcript analysis and interviews; a description of the student's level of engagement acquired during laboratory observations; and an accounting of the student's social capital from the interview sessions. I analyzed each students' profile and then combined them looking for common patterns in their paths toward successful transfer.

Validity

Yin (2014, p. 45) proposed four criteria for judging the quality of exploratory and/or descriptive case study work: construct validity, internal validity, external validity, and reliability. These criteria must be considered during data collection, data analysis, and interpretation.

Construct validity. Construct validity is the "accuracy with which a case study's measures reflect the concepts being studied" (Yin, 2014, p. 238). In designing this study, I relied on the literature to design and employ appropriate measures. I used the following approaches to ensure construct validity: triangulation, chain of evidence and member checking. Triangulating involved comparing data from different sources to determine whether findings were consistent. I compared the transcript information with the

interview questions to ensure that my participants met the sampling criteria. I compared

the observation and interview data to compare engagement I observed with the lived

experience of each student. Chain of evidence is linking the findings to the data and the

data to the protocol. It was accomplished by keeping the data organized and comparing

findings to the propositions and alternate propositions. Member checking occurred when

I requested participant feedback to validate my findings. Although an interview protocol

will be used, it is difficult to ensure the validity of the data obtained during the

interviews. Validity is based largely on the student participant's willingness to provide

forthright, as opposed to expected, responses to the interview questions. I stressed to each

participant their freedom to participate or not, and their choice to answer only questions

they are comfortable answering.

Internal validity. Establishing causal relationships versus spurious ones, and

making valid inferences promoted internal validity. Theory based pattern matching and

the rejection of rival hypotheses (my alternate explanations) contributed to the internal

validity of my study.

External validity. External validity was the extent to which the case study

findings could be analytically generalized to settings or conditions outside of the original

case. The findings from case studies may be "generalizable to theoretical propositions

[but] not to populations" (Yin, 2014, p. 21). As is true with all qualitative case studies,

my findings are transferrable to theoretical concepts, but the findings are neither

generalizable to all college students nor to all programs in all higher educational

institutions.

Reliability. I documented the protocols and data bases, using a spreadsheet, in order to promote reliability, the repeatability of the research methods.

Validity concerns. A validity concern arose from the difficulty in determining whether a successful student entered the college with social capital. During the interviews, student participants were asked to describe themselves upon entrance into the program. They were be observed in the laboratory classroom, and asked to describe the social capital acquired there. However, valid and reliable conclusions regarding prior social capital cannot be ascertained with absolute certainty.

Another concern was the variability among the individual lab courses. The Anatomy and Physiology labs were designed for nearly constant, interactive work in small groups. The Organic and Biological Chemistry lab and the Human Genetics (an approved elective) lab were more experimental in design. There was time for some potentially independent work in those classes. Thus, the level of discourse was potentially affected due to design.

Role of the Researcher

I entered college as a math and natural science student, and have degrees in the biological sciences. I have done research in early brain development, and been a college level instructor in the biological sciences for three decades. I have had the privilege of teaching in health professional graduate programs at two universities, in an undergraduate program at a four-year institution, and at a two-year college. I am currently a professor of biology at the community college where this study was conducted. Over the years I have taught many students who have been successful, but there also have been some who were

not. I have spent countless hours reading about, and pondering, the characteristics and influences that contribute to student success and to failure.

Those who study mathematics and the natural sciences tend to search for universal laws, seek empirical verification, use deductive reasoning, define variables in their work clearly and concisely, and document replication, falsification, and generalization. Like me, they tend to be positivists. Ultimately, positivists believe that real scientific knowledge must be logically deduced, operationally measured, and experimentally validated (Patton, 2015).

However, my years of observing students in science laboratory classrooms have taught me that deducing causality with certainty, when you are studying people, is challenging. Students are all different, and the number of variables that affect their lives and their possibilities for success, are numerous. I see the value in the breadth and depth of information that can be obtained from qualitative methodologies, especially when the study participants are people. Thus, I used qualitative methodologies. However, my positivist nature led me to seek out Yin whose use of propositions and alternate propositions is reminiscent of hypotheses and alternate hypotheses used by positivists (Yazan, 2015). I am a positivist, but I am also a pragmatist. I sought practical and useful answers to address the concrete problems (Patton, 2015) regarding how the structural design of this program promoted success for these varied participants.

Ethical Considerations

I have pondered since very early in my career as a college level biology instructor, the possible reasons why some students are successful while others are not. Over the years I noticed that more often than not, the literature tends to explore the

conditions and characteristics of those who have difficulty or who fail, as compared to the ones who are successful. Identifying conditions that foster success might encourage colleges to adjust their program designs to better support student success, to the benefit of everyone. I fully intended to conduct this project in an ethical manner. However, ethical issues can arise during any research project. Researchers, like myself, need to anticipate ethical issues, make every effort to avoid them when possible, and address them if they arise (Creswell, 2014).

I was granted permission by the Institutional Review Committee at CC and the Institutional Review Board at Rowan University to conduct this study at this site. I chose a study that I hoped would benefit community college students, and disclosed the purpose of this study to my participants. I provided the student participants with the appropriate informed consent form, and did not pressure anyone to sign it. I made every effort to respect both the participants and the other members of the college community at the site.

I did a pilot study, and followed the study protocols in order to ensure that all participants received the same treatment. All data was analyzed and reported, not only the data that supported my propositions. Throughout this process I respected and will continue to respect the privacy and confidentiality of my student participants, and would not disclose information that might harm them.

I have taught students at this site, in this major, for almost 15 years. All the while I have been considering the conditions which support student success. I am therefore very familiar with the students, the setting, and the PRN program. However, this level of familiarity warrants a discussion of the possibility of power dynamics effecting the study and the risk of preconceived notions (bias) influencing the research. I made every effort

to ensure that potential participants understand that: it was their choice to participate, and that they should only respond to questions that they are comfortable answering. I used an observation protocol that was developed by others and did not stray form the interview protocol that I created. Practicing during the pilot study helped. I was reflexive: constantly considering how my background and familiarity might shape my interpretations. I offered to share my findings with the participants, to help ensure that these findings are not biased.

Limitations

This was a study of the path to successful transfer. It was a study of process. A purposeful sample of successful, community college, PRN students was studied in order to address gaps in the research, which tends to be from a deficit view in regard to progress and completion in community colleges. Thus, this study focused on the process and progress of successful students, and would not be applicable to students who have not been as successful as these study participants. The study participants were community college students. Thus, study findings would not be transferrable to other types of higher education institutions. For example, nursing students at baccalaureate institutions may gain social capital outside of the classroom, and the program design and social capital acquired in the laboratory classroom may not be as essential to their success.

This is a qualitative study. The acquisition of social capital due to the engagement of the participants was investigated. However, a quantitative measurement of the amount of social capital potentially gained was not be measured.

Conclusion

In conclusion I was interested in studying a group of successful PRN community college students. Their number was high, and for the ones who were successful, their potential for a fulfilling and relatively high paying career was great. The participants in my study have attained the minimum requirements for acceptance for transfer from this college into a BSN or ASN program at a time when many of their community college counterparts have not been able to thrive and succeed as they have done. This qualitative holistic single-case study (Yin, 2014) of the PRN program design and the social capital acquired because of this design may illuminate how and why these students have prospered.

Chapter 4

Findings

The purpose of this qualitative holistic single-case study (Yin, 2014) was to explain the path to successful transfer for a cohort of students who were enrolled in the PRN major in a suburban community college. In this study achieving the minimum requirements for acceptance for transfer from this college into a BSN or ASN program was the definition of success. I examined the design of this particular program, which is similar to Guided Pathways (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014). I investigated whether this design supported engagement as defined by Kuh, Cruce, Shoup, Kinzie, and Gonyea (2008), who proposed that engagement: student involvement and integration supported by institutional design or educational practices, supports educational success. Then I considered whether engagement provided opportunities for the acquisition of social capital. Social capital in an educational setting was first studied by Coleman (1987; 1988). Ultimately, I investigated if social capital, acquired due to engagement at this community college, promoted student success, as Harper (2008) found when he studied engagement, social capital, and success at four-year institutions.

This chapter presents the findings of this qualitative case study. It includes an analysis of the student participants' transcripts, a comparison of each transcript to the PRN program guide, the observation data, and the interviews. Data from the students' transcripts was collected, and the observations occurred, during the spring semester of 2019. Student interviews took place during the early summer of that same year.

The Case

Pre-Nursing is a major in the Health Profession Program at a public, suburban, community college in the northeastern United States. Within the PRN major specifically, female students were 84.7% of the group, with male students accounting for the remaining 15.3% of the students in this major. The ethnic composition of the PRN students was 34.5% White (non-Hispanic), 31.6% African-American, 23.6% Hispanic, 7.9% Asian, 0.8% American Indian/Alaskan Native, 0.2% Native Hawaiian/Pacific Islander, 0.5% two or more races, and 0.9% unreported (CC, 2017).

According the college's Academic Program Guide (2018), the PRN major was specifically designed to prepare the students for transfer into a BSN or ASN program. The program goals included: providing students with a foundation in general education, providing a concentration of course work appropriate for the first two years of a baccalaureate program in nursing, and ensuring transferability of course work to a baccalaureate program in nursing and related science-based health careers.

There was a four semester course sequence, comprised of 19 classes, including 2 electives. The electives were supposed to be used to fulfill the unique requirements of the BSN or ASN transfer programs. There were six required laboratory science classes including: Biology I, General Organic and Biological Chemistry I and II, Anatomy and Physiology I and II, and Microbiology. The program guide lists attendance at a Nursing Information Session as a requirement for students in this major (Academic Program Guide, 2018).

The laboratory science sections were held to a maximum of 26 students. There were many sections of each required laboratory science course. For example, there were

24 sections of Biology I in the fall of 2019. All of the courses within this major were offered on the main campus, and some were offered on the two satellite campuses. This study took place during the spring semester of 2019 on the college's main campus.

Total enrollment at the suburban community college in the spring 2017 was 12, 232 students, of whom 1,517 were enrolled in courses in the PRN major (CC, 2017). The student body was comprised of 50.1% full-time students, and 49.9% part-time students. The average age of all students was 27. Female students were 56.9% of the population, with male students accounting for the remaining 43.1% of the student body. The ethnic composition of the student body was 48.5% White (non-Hispanic), 19.9% African-American, 14.7% Hispanic, 6.1% Asian, 1.5% American Indian/Alaskan Native, 0.2% Native Hawaiian/Pacific Islander, 0.7% two or more races, and 6.6% unreported. In fiscal year 2016, student tuition ($107 per credit for in county residents) and fees accounted for 62% of the college budget. A total of 33.6% of the students were PELL grant recipients (CC, 2017).

Participants

All of the students participants were enrolled in the PRN major, completed at least 30 credits, and had a G.P.A. of 3.0 or better. In the spring of 2019, they were meeting the minimum requirements for transfer from this college into a BSN or ASN program, my definition of success. Initially there were 15 students in this study. One student's G.P.A. dropped below the 3.0 minimum at the end of the spring semester. Thus, data for only 14 qualifying participants were analyzed and are included here. Of the 14 participants six came to CC directly from high school. Thirteen students reported that they had jobs. Most of them worked fulltime, including two who worked two jobs each. Their jobs were

varied: bar tending, working in a hair salon, a cashier at a convenience store, cleaning hotel rooms, to name a few. There were four students who had jobs in a health related field. One was a respite worker, another was a dietary aid, one assisted people who had brain injuries, and one was a technician in an emergency department of a hospital. At least four participants had one or more children, and a few were caretakers for other family members. Twelve students are female and two are male. Seven of the students are white, three are black, three are Hispanic, and one is from the Middle East. Five students shared that they grew up in a foreign country, some of whom struggled with learning English and understanding American culture. All of them decided to enter the health care professions, generally due to their desire to help others. In order to protect their confidentiality, all participants have been assigned a pseudonym.

The data regarding the student's educational demographics are included in Table 4. Most of this information was obtained from the students' transcripts. However, some modifications of the transcript information emerged during the interviews.

Table 4

Participant Educational Demographics

Name	CPTR	#Sem	#Years	Total Credits	G.P.A.	Course Path
Prescribed Path		4	2	60		19
May, 2019 Graduates						
Arman[a]	C	4	2	89	4.000	7
Anabella	C/R	4	3	65	3.667	5
Julieta	C/P/R	18	16.5	106	3.588	1
Jermaine[a]	C	5	2.5	65	3.523	4
Mariatu	C/P	6	3	70	3.522	1
Kacy	C	4	2	67	3.448	6
Melissa	C/T	5	2.5	92	3.395	4
Jamie	C/P	8	4	85	3.000	4
Averages		7	4.5	80	3.518	4
Students Continuing at CC						
Susan	C/T	4	2.5	50	3.553	9
Rosalie[a]	C/P	8	5	93	3.402	5
Rachel[a]	C/P	9	5	80	3.362	2
Kailyn	C/P	6	4	68	3.274	6
Charlotte	C/P	5	3	60	3.111	0
Aurelia	C/P	7	3.5	66	3.061	1
Averages		6	4	70	3.294	4

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CPTR is an acronym that stands for commuter, part-time, returning, or transfer (Silverman, Aliabadi, &Stiles, 2009). The #Sem = the total number of fall and spring semesters when the student was actually attending classes. The #Years = the time that passed from the semester that the student first attended CC, up to and including the spring of 2019. Total Credits = credits toward degree plus others including: basic skills classes, courses not in the student's major, etc. The G. P. A. is the student's grade point average on a 4.0 scale. Course Path = one point for each PRN course completed in the correct semester as listed in the program guide. Minimum = 0, no courses taken in the correct semester. Maximum = 19, all courses taken in the correct semester.

[a]Participants did not have transfer credits on their transcript, but shared that they had attended a college or university other than CC.

Eight student participants included in Table 4 graduated in May of 2019, and all were granted admission to nursing schools. Six student participants included in Table 4 will be continuing at CC in the fall, to finish their degrees. All of the students were non-traditional, and could be classified as one or more of the following: commuter, part-time, returning, and/or transfer (Silverman, Aliabadi, & Stiles, 2009). All 14 of the students are commuters. Eight attended CC part-time. Two students stopped out and subsequently returned to CC. The student transcripts indicate that two students were transfers. However, four additional students reported attending another college prior to enrolling at CC during the interviews. Two students attended college in a foreign country, and two were enrolled in an American college for a semester or less. These students were reluctant to share details of their prior college experiences. These four students are not classified as "transfer" in the "CPTR" column, because their credits do not appear on their current CC transcript. Also, these four students actually have more credits than the "total credit" number listed, and have been enrolled in a college for more semesters than indicated in Table 4.

Graduates. The path to completion, outlined in the program guide, was four semesters in length, 60 credits, and 19 courses. The graduates spent four to 18 semesters working toward completion of their degree. On average it took the graduates seven semesters to complete the degree requirements, three more than recommended in the guide. The graduates earned a range of 65 to 106 credits. The average was 80 total credits, 20 more than required. Only three students completed their course work in four semesters, Arman, Anabella, and Kacy. The course path values for the graduates ranged from Julieta's and Mariatu's one, which means that they each took one class in the

80

semester recommended by the program guide, to Arman's seven, which means he took seven classes in the semester recommended by the program guide. The average number of semesters in excess of four, the average number of credits in excess of 60, and the scores tallying each student's deviance from the recommended course sequence, indicate that none of the graduates actually followed the path provided in the program guide.

Continuing students. On average the students who will be continuing their degree studies at CC have been enrolled for six semesters, with a minimum of four semesters, and a maximum of nine. Each of these students has at least one more semester until graduation. They have earned 70 credits, on average, with a minimum of 50 and a maximum of 93, thus far. They have G.P.A.'s that range from 3.061 to 3.553, with an average G.P.A. of 3.294. Like the graduates in this study, the continuing students' course sequences deviated from the recommended path provided in the program guide. None of the continuing students are actually following the path.

Satisfactory academic progress. The graduates were all admitted to nursing schools. They are making progress toward a career in nursing. However, two of the eight took longer than six semesters to complete their associates' degrees. Also, two of the eight accrued more than 90 credits in pursuit of their degree. In total three of the eight successful students would not be making Satisfactory Academic Progress (SAP) according to the federal financial aid 150% guideline for SAP (U.S. Department of Education, 2016). This rule requires completion of a two year degree within three years, and completion of a 60 credit degree with no more than 90 credits. For the continuing students at least four of the six will exceed the six semester time limit, and one of the six has already exceeded the 90 total credit limit.

Engagement

In this study I have defined and used the term engagement in a manner that is most similar to Kuh, et. al., (2008). Engagement combined the concepts of involvement and integration, and included an institutional effort in support of involvement and integration.

In order to investigate engagement, I used a modified version of the Laboratory Instructional Practices Inventory (LIPI) (Sadler, Puig, & Trutschel, 2011) provided in Appendix C. This observation tool is designed to gather data regarding engagement in a laboratory setting, is relatively easy to use, and allows for the relatively comprehensive, yet unobtrusive collection of data. Observations focused on two dimensions: involvement and discourse (which reflects integration). The LIPI suggests at least 100 observations in 20 minute intervals. The student participants in this study were observed in 20 minute intervals, for a total of 153 observations in the laboratory portion of various required laboratory courses in the PRN major.

The Anatomy and Physiology courses mainly involved the use of models and/or specimens. There was normally one model/specimen per pair of students, or one model/specimen per group of four students. The students in Anatomy and Physiology were encouraged to work together. The Organic Chemistry class and the Human Genetics class were designed a bit differently, but they were still designed to be interactive. In these laboratory classes two or three students set up equipment, and the experiment would run for an extended period of time. In each Organic Chemistry lab the students were encouraged to work together on problem sets related to the laboratory, while the experiment was running. Some days the Human Genetics students were encouraged to

work together on problems during the running time, but other days the students were

working on independent projects which limited their discourse. All students were given

scores reflecting their overall level of involvement and their discourse. These two scores,

added together, reflect each student's engagement. These data included in Table 5.

Table 5

Engagement in the Laboratory

Name	Class	Observations (Total =153)	Involvement (Max = 3.0)	Discourse (Max = 4.0)	Engagement (Max = 7.0)
Kailyn	A&P 1	11	3.00	3.18	6.18
Arman	O. Chem.	15	2.73	3.40	6.13
Kacy	A&P 2	11	2.73	3.27	6.00
Susan	A&P 2	13	2.85	3.08	5.92
Rachel	A&P 2	10	3.00	2.90	5.90
Rosalie	A&P 1	9	2.89	3.00	5.89
Melissa	A&P 2	10	2.60	3.20	5.80
Aurelia	A&P 2	11	2.82	2.91	5.73
Anabella	A&P 2	11	2.64	2.82	5.45
Mariatu	A&P 2	11	2.64	2.82	5.45
Jaime	A&P 2	10	2.60	2.80	5.40
Jermaine	A&P 2	11	2.73	2.64	5.36
Charlotte	A&P 2	9	3.00	2.00	5.00
Julieta	H. Gen.	11	2.00	1.36	3.36
Averages		11	2.73	2.81	5.54

Note. The classes are required laboratory classes in the PRN major. Observations of the each student participant occurred in the laboratories at 20 minute intervals. Involvement was scored from a minimum of 0 = dis-involvement, to a maximum of 3 = epistemic involvement. Discourse was scored from a minimum of 0 = no discourse, to a maximum of 4 = integrative discourse (Sadler, Puig, & Trutschel, 2011). Engagement = the sum of involvement + discourse, and could range from zero to seven.

Observations occurred in eight different class sections of four different courses (Anatomy and Physiology 1 and 2, Human Genetics, and Organic and Biological Chemistry), taught by five different instructors, during the spring semester of 2019. The courses are all required, laboratory science classes in the PRN major. Each student was observed between nine and fifteen times for a total of 153 observations. For all of the

students, the average level of involvement was 2.73 out of a possible 3.00. The average

discourse as a 2.81 out of a possible 4.00. Engagement is involvement plus integration

(reflected by their discourse). The average level of engagement for all of the students in

the study was 5.54 out of a possible 7.00, nearly 80% engagement.

LIPI findings. Involvement and discourse were scored according to the LIPI

guidelines (Sadler, Puig, & Trutschel, 2011). The LIPI scored involvement from zero to

three, and discourse form a zero to four. The average for each component of engagement:

involvement and discourse, are recorded in Table 5. For involvement, a zero was earned

for dis-involvement, as when the student was not focused on the laboratory activity. A

one was earned for passive involvement, as when a student was receiving information

regarding the laboratory activity. A two was earned for task oriented involvement, as

when a student was actively involved in the laboratory activity. A three was earned for

epistemic involvement, as when a student was involved in cognitively demanding aspects

of scientific practice. Discourse was scored from zero to four. No discourse was scored a

zero. Off-task discourse was scored a one. Procedural discourse, talking about the

procedures, protocols, and/or equipment, was scored a two. Conceptual discourse, talking

about basic science concepts related to the laboratory activity, was scored a three.

Integrative discourse, talking about the integration of science concepts, theories, and/or

clinical correlations, was scored a four. Thus, a student could earn a maximum of three

points for involvement, and four for discourse. Each student's score for engagement, the

sum of involvement and discourse, could range from zero to seven.

Julieta's scores for involvement, discourse, and engagement were much lower

than the other students. She was the only student observed in the Human Genetics course.

85

It is an approved elective, designed specifically for students applying to a particular nursing program. In Human Genetics the students occasionally worked together on genetics problems while the experiment was running for an extended period, but other times they were given independent work. Therefore, there were times when the lab period was designed to be more interactive, but there were also times when the students worked alone. Working independently would negatively affect the integration scores. For example, during one lab period, while their experiment was running, students watched a ten minute video on CRISPR-Cas 9 technology, and then they were tasked with finding a research article related to the film, that they would present in a subsequent class. Some students went to the library, and others searched for articles on their phones. During all of this time, the students, including Julieta, seemed to be involved. However, they were not talking with each other. This may partially account for the relatively low scores for engagement earned by Julieta in the Human Genetics lab. Later, during the interview section, Julieta shared that she although lab groups can be "helpful for getting the work done", she is generally independent and self-motivated. This too may have contributed to her relatively low score for engagement.

The findings, obtained from the LIPI data and my own observations, confirm that the students were involved in the laboratory activities. They were also interacting with the members of their laboratory group, and with the instructor, as well. The laboratory classroom organization supported these observed behaviors in the participants. The small number of students and the interactive design were key. Thus, the small size and collaborative design of the laboratory courses within the PRN major promoted

engagement, defined by Kuh, et. al., (2008) as: student involvement and integration supported by institutional design or educational practices.

Themes

Semi-structured interviews with each of the 14 participants occurred during the summer of 2019. Seven themes emerged during the interviews. Some of the themes were confirmed during the observations, and some were supported by the transcript analyses. The interviews were transcribed verbatim, and then coded. The first cycle coding method was in vivo coding; in the second cycle I used pattern coding (Saldana, 2013). These processes led to the development of major themes from the interview data which were supported by some of the observations in the laboratory. The themes are presented here. I employed the assistance of two colleagues who also coded the interviews in order to help ensure the reliability of my findings. The first colleague coded ten interviews, the other coded all 14. I used the formula described in Miles and Huberman (1994) to measure reliability: consistency between coders. I found that there was at least 80% agreement, 100% of the time, between my first colleague's coding and mine. There was at least 80% agreement, 95.8% of the time, between my second colleague's coding and mine.

Seven themes emerged during the interviews: students feel anxiety regarding college preparedness, time constraints shape CPTR students' interactions, health professional goals are reflected in personalized plans and individual paths, advising along the path, laboratory groups promoted peer support and faculty interactions, labs promoted valuable faculty interactions, and forms of social capital supported success. Some of these themes were also evident during the laboratory observations. Each theme is described in the next section.

Students feel anxiety regarding college preparedness. I asked the students how they felt on their first days at the college. They responded with descriptions of their academic preparedness and their preparedness for college life. Academically about half of the students felt prepared. They credited their readiness to their high school's rigorous academics and their own hard work. However, a few students felt unprepared and even lost. Rosalie wished she had been more ready for college, stating "I wish I was academically prepared, I would have finished earlier." Aurelia struggled at the beginning of college. She said

> I moved from Mexico when I was 13. When I came here, I was in eighth grade, and I feel like throughout the whole eighth grade year and then high school, I was always concerned with learning English. Nobody really taught me how to speak English. And I just, I still struggle with it a lot. So I feel like I fell behind in my classes. So, I was totally unprepared [academically].

In all about half of the students felt underprepared for the rigors of college level academics.

In regard to college life, nine students used words like nervous and overwhelmed to describe the way they felt on their first days at CC. Rachel, an international student expressed her concerns saying "It was scary. I thought it was the biggest place I had ever been. I didn't know how I would find my classes. It was just, I thought it was the biggest thing in the world." Kailyn said "It was kind of overwhelming. I felt like there were certain things I that I didn't know. You have to talk to the right kind of people in order to get that, the guiding that you need." Anabella, who came to CC right after high school, compared her first days at CC to her first days in high school. She said

I was nervous, as anybody would be on the first day. I was early because in high

school, they take you through orientation and they give you a tour and everything.

And just because I only came here two weeks before the semester started, I didn't

know where the buildings were and I didn't know where I could park and I didn't

know anybody else. So I came really early and I drove around for a while.

Melissa, one of the working parents in the study, stated

I had a little bit of anxiety with deadlines and with personal life. But I think the

fact that I started at a little bit of a slower pace versus taking five classes right off

the bat was beneficial to me. It was my first experience having to go, from work

life, to mom life, and student life. So kind of even though I went at a slower pace,

it was still a lot to juggle three things at once.

In all more than half of the students were nervous during their first days and weeks at the

college.

Time constraints shape CPTR students' interactions. In response to many

questions, participants expressed concerns over their tight schedules which were limited

by their family responsibilities, work demands, and the distances they traveled to get to

campus. These time constraints often informed their class schedules, kept them from

spending more time on campus, interacting with people from the college outside of class,

and limited their ability to study. Arman, Jaime, Kacy, and Rosalie all mentioned the

problem of living and working far from campus. They often found ways to use

technology to reduce the distance. For example, Kacy said "Melissa and I would text

message each other. She lives a little far, so we would Facetime if we wanted to study,

and video chat with each other." Aurelia, Jaime, and Susan cited their work schedules as

89

having an impact on their class schedules. Aurelia noted that "I started working this new job. I went from working five and six days a week to working three [12 hour] days a week. So it allowed me to pick up more classes." When discussing how she builds her class schedule, Rachel said "I have two kids. I consider my kids' schedules. That's what I work around." Like so many other non-traditional college students, these students found that time constraints due to family responsibilities, work hours, and travel time and distance made involvement in college, outside of the classroom, difficult.

HP goals are reflected in personalized plans and individual paths. At the beginning of the study I assumed that students enrolled in a pre-nursing major wanted to be nurses. All 14 wanted to work as health care professionals, only ten actually wanted to be nurses. However, I found that three students, who graduated and have entered nursing schools, ultimately want to become physicians. They see nursing as a stepping stone on the path toward their ultimate goal. One student wants to be an occupational therapist or physical therapist. The students decided that the PRN major courses, closely matched the course sequence they needed in order to attain their individual goals.

The path provided in the program guide. After deciding on their goal, the students set out a plan to achieve that goal. I had assumed that their plan would be closely aligned with the college's program guide. The PRN program is designed as a 60 credit, four semester program that requires the completion of 19 courses. However, the transcript analysis seems to show that the students did not actually follow the path provided in the guide. On average the study participants earned 76 credits, had been taking courses at the college for seven semesters, and had only taken four of their classes in the semester suggested in the program guide.

Deviance from the guided path. Deviance from the path provided in the guide could have many causes. For example, eight of the 14 students in this study needed to complete one or more basic skills classes in order to become ready for college level classes. Six students began their college career in another major. Three students said they received inaccurate advice form the college advisors regarding the classes they needed to take. Each of these situations could have led to paths that deviated from the one suggested in the program guide.

For some students the constraints mentioned in the previous section informed their scheduling choices, and altered their path. For them the altered path was a conscious choice. For example, Julieta and Melissa, both working mothers, defended their decision to start off slowly and ease into college. This method extended their time at CC. However, both students said that it supported their success.

Kacy, who finished the program in four semesters, shared that she enrolled in more general education courses at first and stacked the science classes in the later semesters. Kacy had already started her nursing school classes by the time of her interview. She told me that taking A&P 2, a third semester course in the program guide, in her last semester at CC, helped her to remember key information that was supporting her success in pathology, a difficult, first semester class in nursing school.

For Anabella, taking courses out of order was also a conscious choice. Different nursing programs require that students complete different courses prior to submitting an application. Anabella took classes out of order to satisfy the requirements of her particular transfer institution. Anabella noted that offering a flexible path is good. She

91

said that she would recommend CC because the college allows each student to explore courses and then to decide which path to take.

Advising along the path.

Nursing information sessions. Only four of the 14 students reported that they attended one of the mandatory nursing advising sessions during the interviews. They had attended the sessions prior to becoming part of this study. Thus, it was not possible for me to observe these four students in an actual session. According to the college website these sessions were held at varying times, one all three campuses, about once per week. They lasted about 90 minutes, and were listed as a requirement for graduation in the program guide. Even though they were offered so frequently and seemingly conveniently, only one of the program graduates reported attending the sessions during the interviews. The other seven graduates said they never did.

Those who did attend reported that the sessions included an overview of the nursing professions: CNA (certified nursing assistant), LPN (licensed practical nursing), RN (registered nursing), etc. The sessions also included information regarding the course work for each different certificate and degree in the nursing program at CC, different transfer programs and their respective requirements, insurance requirements, and more.

The experiences of the students varied Charlotte attended a session and thought it was helpful, while Kacy thought it was disorganized because it covered too many topics. Charlotte attended a nursing information session when she first arrived at the college. She said "there was a power point that listed the different [elective course] options. They noted which courses you could take for different transfer programs. It was

kind of helpful". Kacy reported attending an information session in the fall of 2017. She
said

> I went because I was looking at taking the CNA course in the spring of 2018. You
> have to attend an info session in order to register for it. There were a bunch of
> different topics. It wasn't just for CNA, or just for nursing. They would talk about
> one thing and then jump to another. So, I felt like it was all over the place. It was
> kind of confusing.

An assigned/dedicated advisor. Four of the 14 student participants reported
during the interview that they had an advisor whom they could see on a regular basis.
This was a specific advisor who was assigned to the student permanently due in part to
the student's status. One of the four was in the honor's program, and went to the honor's
program advisor; one student, who is in the military, went to the advisor in the veteran's
office; an international student always saw the international student advisor; and one
sought advice from the college transfer advisor. These students reported that they went
for help often, trusted their advisors, and felt that the advice they received was consistent
and good. Mariatu was assigned to the Honor's Program advisor, and described their
interactions this way: "I see her on a regular basis. She is amazing. She has helped me out
in choosing what works for me, and helps me with my progress for transfer." However,
even in these cases, occasionally the student was given incorrect information regarding
courses that are transferrable to a nursing school, the appropriate level of a particular
course for the PRN program and for transfer, and which elective would satisfy the varied
requirements of the many different nursing transfer programs. This may have occurred
because these advisors did not specialize in the health professions.

General advising. For the seven students who went to the college advising office, their assessments regarding the advice they received were generally not positive. Jaime was frustrated because:

> I always ended up with someone different, and that's when you get told something different every time about what you need. 'Oh, now you need this class' after I was told I didn't need it. Or 'now you need this other class.' And so, that's what gets frustrating.

Rachel's experience was similar to Jaime's. She said

> I was lost. Every time I go, I'll get different people. Every time I go they tell me something new. Like, 'you have to take this class, you have to take that. No, you don't need this.' When I already took it.

Arman simply stated "I don't trust them; I know what's best for me." The students who were looking for guidance along their path started to self-advise, to ask advice from fellow students and faculty, and/or to reach out the transfer institutions and follow the guidelines they provided. Twelve study participants reported doing a combination of these actions that I will call, informed self-advising.

Informed self-advising. The students who self-advised sometimes used the CC program guide and asked advice from their faculty and peers. Others used lists of required pre-requisite courses supplied by the transfer programs, and then plotted their own path Anabella explained her process by saying

> I think the first step is go on the [transfer institution's] website, do your own kind of research, you know, formulate any questions you might have. And then if a question does come up, there's bound to be people [other students] around you

94

who are thinking the same thing. And then if you still can't find the answer, then

you go to -- there's a contact person from [her four-year transfer institution] that

I've emailed many times.

Readily available, consistent, and accurate advice regarding required courses, the

appropriate level of courses for each student's goal, and the many and varied

requirements for each transfer institution might keep students on the path to completion

of the PRN major and to successful transfer into a BSN or ASN program.

Laboratory groups promoted peer support and faculty interactions. All of the

student participants performed their lab work in pairs or groups. The students chose their

group, sometimes unintentionally, according to the seat they selected in lab. Students

were not graded as a group, however. This casual arrangement seemed to suit the

students. These lab groups often formed the basis of study groups that communicated,

usually electronically, outside of class. Susan mentioned "So the group that studied

together wasn't completely the lab group. It was mostly lab group. But through the class

we met other people in the lab". She also added "I wouldn't pass alone." When we

discussed working in the lab, Mariatu said "I worked with a group. So, when you work

alone, it's more tedious and overwhelming." When specifically talking about her

Anatomy and Physiology 1 class, Rosalie stated that "I usually like to work in a group for

sure. There's so much -- there's very little time, and for one person to go through [all of

the] slides, it helps." Melissa took a lab science course at another community college in

the area, due to a scheduling difficulty. At the other college, one faculty member teaches

a large lecture cohort which is broken up into different lab sections that are taught by

different, part-time instructors. She stated that because of this design, "It wasn't until

towards the end of the semester that we actually started grouping with people we were sitting next to and creating study partners." Now at CC she is sure to "make a friend, make a group. Oh, yeah, that's one of the first things I tried doing on the first day."

Some students made videos. They shared them with all of the group members, and sometimes with other students in the lab class. Susan's group used a list and said the names of the anatomical parts together, in unison. Mariatu's group was having an anatomy spelling bee during one observation. The group design encouraged discourse among the students. The collaborative nature of the laboratories encouraged it as well. It also encouraged interaction with the lab science faculty.

Support. Students supported each other in the lab groups and in the extended partnerships that grew form the lab groups. Melissa was glad to have "a safe place to talk about things. Because I can't really talk about what I'm learning at home with my boyfriend or with my family because they don't understand what's going on." Anabella described her relationship with her lab partner this way: "We bonded. I don't know why. I don't know if it's because we are both moms." It is difficult for students who are the primary caregivers to their children or other family members, and who spend limited time on campus to bond with other students, faculty or staff. Kailyn added that she and her lab partners would "talk about how nervous we were about tests and stuff like that." Talking with students who understand your concerns might help to make a stressful situation, like preparing for a test, more manageable. Susan probably said it best when she said "It feels a lot less overwhelming when I have someone I can like talk to." Building a support system takes time, but it is valuable endeavor. A support system can help a student to find information and resources, get motivated, and handle difficult or stressful situations. It

96

can help a student to be more successful. The laboratory environment at CC provides opportunities for time-constrained student to build supportive relationships with their peers and with faculty right in the lab classes.

      Labs promoted valuable faculty interactions. Eleven of the 14 student participants described their interactions with their lab science faculty as open, eager, personal, supportive, beneficial, and/or interactive. In other words 11 students interacted with their lab science faculty often, and found the experience to be a positive one. Rosalie described her interactions with faculty this way: "I noticed in my science classes I was more interactive than with my history professor, for example, who had a huge class size. But for science-wise, it's lab time [that] is mainly one on one." Anabella's comments reflected the same experience. She noted that there is some down time in lab, when the instructors circle around the room. Conversations regarding class, and many other topics, like restaurants for example, occurred often. When discussing her lab science instructors, Melissa noted "I think every semester I always had a professor or two where I felt -- I don't want to say a bond but I felt like I had a much closer connection or relation with versus my other professors". Melissa would talk with them and often received "guidance" from them. Rosalie simply stated "I think every semester any lab teacher I have I tend to talk to them a lot." Susan and Kailyn specifically mentioned their chemistry professors. Kailyn noted "It's mainly the science professors. So my Chem[istry] professor, I talk to him a lot. And it just kind of helped me put things into perspective." Susan commented "It's really just in lab, that I interact with professors. Instead of sitting there listening to them talk we're all doing things, and then when I have a question I talk to them." Three of the students reported limited interaction with their lab science instructors. One of the

97

three, Jamie, realized the importance of such experiences and felt she had missed out on a valuable opportunity. She said "I wish I had grown better relationships with my professors, just because I think it would have made some things easier."

The goal of Sadler, Puig, and Trutschel (2011) in designing the LIPI was to illustrate the pattern of student engagement for most or all of the students in an entire laboratory classroom and groups of classes. I used this tool to characterize the level of involvement and discourse for each of my student participants in his or her own laboratory classroom. Thus, the original users of this tool were looking around an entire classroom and deciding the predominant activity patterns and recording those. I specifically observed my student participant, and recorded his or her activities. I observed the student participants in 20 minute intervals and recorded their level of involvement and discourse. For seven of the 14 participants at one or more of the observations times the lab instructor had joined the lab group. The student's engagement, specifically their discourse, involved the instructor at those times.

For example during one observation, an A&P 2 instructor assisted Kacy's group by assessing the answers the students gave while Kacy pointed to the parts of a cat's digestive system. An instructor viewed a video the students in Melissa's group had made together. The instructor ensured the accuracy of the video, and then gave an impromptu verbal quiz to the group. The Instructor in Arman's class was checking the equipment set up, when one of the students in the group asked "is the MCAT required for a Physician Assistant Program", a helpful discussion ensued.

The observations and the interviews confirmed that in many cases the students and the lab science faculty formed relationships that were supportive and positive. The relationships were reinforced by the small, interactive labs.

Forms of social capital supported success. When interacting with the lab science faculty and working within the student groups, the participants found people who were willing to provide support and help to each other. They shared information, too.

Expectations and obligations. The students in the groups helped each other, and both expected and received assistance in return. For example, Aurelia had a lab partner in Chemistry. They worked well together and were having success in the course. The father of the lab partner had cancer, and passed away during the semester. After this difficult time Aurelia helped her partner to catch up in the course. Later, in the same semester, Aurelia's grandfather passed away. She missed almost two weeks, but the partner helped Aurelia. "So she helped me -- like we help each other," Aurelia said. Rosalie described a time when she explained some course material to her lab partners, who were returning students who had been out of college for a few years. Rosalie noted that "then they would get excited if they remembered something and helped the younger people." Melissa's Anatomy and Physiology lab group worked together to figure out the anatomy models. Then, Melissa added "they would be sure we made that video, making sure we all shared it with each other, making sure if one person was missing we had their email. So just working together as a team."

While scoring the students' engagement in the laboratory using the LIPI, I took notes regarding their activities and discussion topics. The students often helped each other. While cleaning up after lab was complete, Kailyn asked another student for her

phone number so she could add her to the group chat, saying "then we can all be ready." Anabella once told the members of her group, not to worry about their lab partner who was absent that day. Anabella said "she is okay and should be back by Wednesday; I will catch her up." The students seemed to take on a certain level of obligation in regard to helping and supporting the members of the group. Then, when needed, the students received help and support in return.

In general the participants reported that they expected the other lab group members to work hard and participate. They expected assistance, when needed, in return. Anabella relayed her expectations this way, "On a more basic level, just put in the same amount of effort that I am." When a student did not put in the same amount of effort as the rest of the group, participants reported that they simply started to exclude them from the group. They were dropped out of group chats, for example.

Information channels. An important form of social capital is the relative ease with which information flows in social networks. It can be difficult and costly to obtain useful information. However, according to Coleman (1988) members of a social network can obtain information relatively easily using social relations sustained for other purposes. He used the example of a person who wanted to be informed about important developments, but who did not want to spend time reading the paper. The person relied on a spouse or friend, who happened to read the paper anyway, to provide such information. This example shows that information channels can provide valuable information, but does not include an obligation on the part of the person seeking information to return the favor.

Participants obtained information in the lab, without an expectation of reciprocity, and included topics not related to the class directly. The participants in this free flow of information involved students who were not always members of a particular lab group, and often included the instructor as well. Some non-class information that was shared included employment opportunities, course scheduling information, transfer requirements, and more.

Jeremiah asked the members of his group for the start time of the practical and whether they had to sign up for a practical spot during one of the observations. There were many times that the information was not course specific, and was freely shared. For example, Jaime's lab partner explained different study techniques to the group. Jaime stated "she told me about this thing called mind mapping. And that seemed to really help me retain knowledge, and I used it for Micro[biology], and I ended up doing well in Micro[biology] because of it."

During my observation of Susan in her lab group, a student mentioned that she is was a CNA. This is often called a technician, and is an entry level job in a health care facility that requires a certification. She informed the other members of the group that CC offers the course needed to become a CNA. She told them that the job pays well, sometimes offers tuition reimbursement, and provides valuable experience in the health care field.

At one point during my observation of Julieta, her discourse was scored as off-task because she as not talking about the experiment. However, the discussion with her lab partner included helpful information regarding which level of physics was required

for the PRN major and for transfer, and which instructors were most supportive and accommodating.

Norms supporting success. I asked the participants why they had been successful, and what advice they would give to a beginning PRN student. They responded by describing shared beliefs and collective behaviors that have contributed to their own success. They described norms. A norm is a commonly held value of proper behavior, which binds the members of a group. Norms guide, regulate, or control group members' behaviors and are supported by sanctions: rewards for appropriate behaviors and/or disapproval for inappropriate ones (Coleman, 1988). For these successful students the norms include: having a goal and a plan; focus and hard work; and finding people who help each other, support each other, and share accurate information.

Anabella, Arman, Mariatu, Julieta, and Melissa stated that you must have a goal, and a plan. A plan is especially important if a student is attempting to transfer into one of many nursing schools, because each school has its own set of requirements. Anabella said "I had a goal. I knew I wanted to do nursing. You have to know what program you want to get into early on, because each program has different requirements." According to the study participants, the plan is not necessarily the one in the college's program guide. It is a more flexible plan that works for each student, with all of their stresses and time constraints. Julieta said "I mean, your schedule is busy. You want to start off slowly. I did one course per semester until I got a little more confident, and then I just started doing two." Kacy's said

> my plan was to only take easy classes my first semester to kind of ease myself
>
> into college. And then I kind of overloaded my second year, which I felt really

prepared me for nursing school because I kind of had a really tough year this past year.

Thus, many students noted that formulating a goal and the planning early on in your academic career is essential.

Arman, Jermaine, and Melissa stressed focus as a key to success. Ten participants said that hard work is essential. Arman stated "I might be a little bit smart, but I work really hard." His advice to others is: "just focus a hundred percent on what you want and what you want to do. And sit in the front. You can see better, you can hear better, and there not so many people around you to distract you."

Charlotte, Jaime, Jermaine, Mariatu, Rosalie, and Susan stressed building relationships as a necessity. Rosalie noted that the key to her success is "developing relationships. Make the most out of learning about other people's experiences, because you can learn from them." Charlotte said if you need help, "Ask people. Talk to people. Make friends in your classes, because it's helpful." Susan's advice is "Talk to your professors. That and talking to the people around you." However, Susan credits her personal success to her classmates. She said "the key to my success: that would probably be the groups". Thus, according to the study participants, the key components of success included the following: having a goal and a plan, focus, hard work, and finding people who are willing and able to give you help, accurate advice and support.

Summary of the Findings

I found that the students did not follow the course path provided in the program guide, and did not attend the required academic advising. In the small and interactive laboratories the participants were engaged, as evidenced by their high scores in both

involvement and integration (as reflected by their discourse) on the LIPI. Seven themes emerged during the interviews, some of which were also observed in the laboratory setting. They are paraphrased here. The students felt anxiety regarding college preparedness, time constraints shaped these CPTR students' interactions, health-care professional goals were reflected in personalized plans and individual paths, students sought out varying methods of advising along the path, laboratory groups promoted peer support and faculty interaction, labs promoted valuable faculty interactions, and the forms of social capital supported success.

Chapter 5

Conclusions and Recommendations

The purpose of this qualitative holistic single-case study (Yin, 2014) was to explain the path to successful transfer for a cohort of students who were enrolled in the Pre-Nursing (PRN) major in a suburban community college. In this study, attaining the minimum requirements for acceptance for transfer from this college into a Bachelor's of Science in Nursing (BSN) or an Associate's of Science in Nursing (ASN) program was the definition of success. I examined the design of this particular program. I investigated whether this design supported engagement as defined by Kuh, Cruce, Shoup, Kinzie, and Gonyea (2008), who proposed that engagement, defined as student involvement and integration supported by institutional design or educational practices, supports educational success. Then I considered whether engagement provided opportunities for the acquisition of social capital, as defined by Coleman (1987; 1988) who was the first to study the forms of social capital: obligations and expectations, information sharing, and shared norms, in an educational setting. Ultimately, I investigated if social capital, acquired due to engagement at this community college, promoted student success, as Harper (2008) found when he studied African American male students, engagement, social capital, and success at four-year institutions.

This chapter includes the answers to the research questions that reflected theoretical propositions regarding program design, engagement, social capital, and student success. The findings indicate that the design of the small and interactive laboratories supported student engagement. The proposal that the design of the program as a whole supported engagement, was not supported. The findings support the

propositions that engagement provided opportunities for the acquisition of social capital, and social capital promoted success. The findings also suggest that involvement, a component of engagement, support from peers and institutional agents, and internal motivation, may also promote student success. Involvement, support, and motivation were not a part of the original conceptual framework of this study. Finally, this chapter includes implications and recommendations for policy, research, and leadership that are based on the findings from this study.

Significance of the Study

There has been extensive research regarding the separate topics of engagement, social capital, and student success. However, there are still gaps in the literature. Some researchers have examined the impact of institutional design and culture on social capital and success (Conchas, 2001; Gonzalez, Stoner, & Jovel, 2003). However, an explanation of the institutional design of a community college and its effect on social capital has not been fully investigated. Much of the community college research has been from a deficit perspective. For example, Moschetti and Hudley, (2015) studied community college students who were underprepared, lacked social capital, and as a result, had limited retention and success. There have not been any studies surrounding a cohort of community college students who acquired social capital due to engagement and became successful. Research surrounding successful students has focused on baccalaureate institutions, where social capital could be obtained outside of the classroom, laboratory, and/or advising sessions. For example, the setting for Harper's study (2008), involving engagement, social capital, and success was baccalaureate institutions, and not a community college. With this study, I addressed these gaps.

Research Questions, Propositions, and Alternate Explanations

Studies regarding guided pathways (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014; Jenkins & Rodriguez, 2013), engagement (Kuh, et.al., 2008), the relationship between engagement and social capital (Harper, 2008), and the role of social capital in educational success (Coleman, 1987; Coleman, 1988) provided the foundation upon which I formulated the following research questions:

How did the structural design of the Pre-nursing (PRN) major in the Health Professional (HP) program promote student success as measured by attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program?

Sub-question #1.

Did the structural design of the PRN major promote engagement?

Proposition.

1A. The design component of the PRN major promoted engagement.

Alternate explanations.

1B. The students in the PRN major were not engaged. This is typical of community college students, who have been described as Commuter, Part-time, Transfer, and Returning (CPTR). They have less time to become involved in educationally purposeful activities, and few opportunities to interact with other students, faculty, or staff. Thus, engagement is limited.

1C. The students were engaged due to some other factor besides the design of the program.

1D. The design of the program, as a whole, directly promoted success.

Sub-question # 2.

Did engagement provide opportunities for the acquisition of social capital?

Proposition.

2A. Engagement provided opportunities for the acquisition of social capital.

Alternate explanations.

2B. The students acquired social capital from other sources, and not from engagement in the classroom, labs, and advising sessions.

2C. Engagement directly promoted success.

Sub-question #3.

Did the forms of social capital including: obligations and expectations, information sharing, and norms contribute to the success of these PRN students as measured by attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program?

Proposition.

3A. Social capital contributed to success.

Alternate explanation.

3B. Students were successful due to a characteristic or influence such as: a common history, their own internal motivation, external support from family, friends, and colleagues, or some other factor, but not due to design, engagement, or social capital.

Using the findings presented in chapter 4, I addressed each of the propositions and alternative explanations in the following section.

Design and engagement. My findings indicate that the design of the laboratory component of the PRN program supported engagement.

Proposition: the design component of the PRN major promoted engagement.
The small size and collaborative design of the laboratory courses within the PRN major promoted engagement, defined by Kuh, et. al., (2008) as: student involvement and integration supported by institutional design or educational practices.

At CC there were 25, related, degree and certificate programs in the Health Professions (HP). The PRN students have declared nursing, one of the HP programs, as their major. The college program guide provided a semester-by-semester list of the required courses for the PRN major. The college was large enough to offer many sections of these courses, so that planning a schedule across semesters was possible. There was a required, common advising session for all PRN students to get the students on the path.

Although the students in this study chose their major and attempted to follow a personal path, they did not follow the plan in the academic program guide. The program guide outlined the PRN major coursework. The program design included completion in four semesters, with a total of 60 required credits, and 19 courses. The program guide listed "attendance at a nursing information session" offered by the advisors, as a program requirement. None of the study participants followed the plan outlined on the program guide. Only three out of 14 students completed their course work in four semesters, and all 14 of them deviated from the planned course sequence. They rarely sought out the college advisors, and only four went to the required information session. For the eight graduates in the study, the average number of credits completed was 80. That was 20 more than required. The framework of the PRN program was similar to the guided pathways model. However, even the students who had completed the program requirements and graduated, had not followed the prescribed plan.

Program design, as a whole. At the onset of this study, my perception of design was on the design of the program as a whole. Although the PRN program at CC predates guided pathways, the program design was similar to the guided pathways model. Guided pathways is a curricular and student support framework designed to promote student success (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014; Jenkins & Rodriguez, 2013). It involves redesigning both academic programs and student support services, creating a more clearly structured path to the end goal of successful completion in a timely manner (Jenkins, Brown, Fink, Lahr & Yanagiura, 2018; Jenkins & Cho, 2014; Van Noy, Trimble, Jenkins, Barnett, & Wachen, 2016). In a college organized via the guided pathways model, students choose a major as early as possible from a group of related majors; the college provides students with curricular maps that include course semester sequence; course schedules across semesters are organized and predictable; and advising is required to keep students on the path. My findings suggest it was one program component, the laboratory classes, not the program design as a whole that promoted engagements.

Design of a program component: laboratory classes. Over the course of this study, my understanding of program design evolved. As I indicated above, at the onset I proposed that it was the design of the program as a whole that had supported engagement. However, for these program participants it was the design of the required laboratory courses specifically, one of the program components, and not the design of the program as a whole, that had the most impact on engagement, social capital, and success. All of the PRN students were required to enroll in six laboratory science classes: biology, organic and biological chemistry I and II, anatomy and physiology I and II, and

microbiology. During the labs the students generally performed their work in pairs or groups. The collaborative nature of the laboratories encouraged interaction with peers and with the lab science faculty, as well.

With regard to the design of the laboratory component of the PRN program, the labs were small, less than 25 students, and the work was interactive. I observed the students working in small groups. The students encouraged each other to stay on task. They analyzed data together, quizzed each other, held group spelling bees, and made videos that were to be used as study tools. I found that interactions with the lab instructor, and with the students in the lab generally had a positive influence on the participants' involvement. My findings regarding these observed, positive, peer influences on behavior were similar to the findings of Goyette and Conchas (2002), who found that the Vietnamese American student participants in their study spent more time studying as compared to the Mexican American student participants due to more positive peer relationships and more supportive relationships with their teachers.

Students scored well on the LIPI, indicating engagement in the laboratories. During the interviews, some students described themselves as focused and hardworking. These descriptors are similar to Astin's (1999) elucidation of involvement, one component of engagement. He defined involvement as the amount of "physical and psychological energy that the student devotes to the academic experience" (Astin, 1999, p. 518). Hard work and focus require both physical and psychological energy. Thus, the students were describing themselves in a way that was very similar to Astin's (1999) concept of involvement. However, involvement is only one component of engagement. The other is integration. Student discourse is an observable form of integration.

111

In the labs discourse occurred nearly continuously between one student and another, and between the students and the lab instructor. The instructors addressed the students by name as they moved continuously around the lab. The discourse related to the course material, academic timelines, student services at the college, job opportunities, family concerns, and more. The study participants reported being able to form study groups that grew out of their lab groups. The students worked together, at times with guidance from the instructor. The participants shared that this helped them to be successful. They also said that they also found it easier to interact with their professors in the labs, where they sought and obtained support and guidance from their professors. Students reported that interacting with fellow students and faculty was not as easy in the large, lecture only type courses. Thus, I found that the participants were integrated in these small and interactive lab settings.

According to Tinto (1975) academic integration involves incorporating the academic norms of the college and meeting the academic standards set forth by the college. Social integration is a level of agreement between the student's beliefs, values, attitudes and norms, and that of the social system of the college. It is the student's integration into the academic and social system of college that mostly determine his or her continuing commitment to the goal of completion at the institution. Ultimately, academic and social integration positively influence a student's chance of success (Tinto, 1975). Integration is reflected in the student's level of involvement in a social system, including his/her interactions with faculty, staff, and students (Braxton, Hirschy, & McClendon, 2004).

Recent literature has supported that interactive laboratory classrooms support student engagement (Donavan & Lee, 2015; Huff & Bybee, 2013; Marchut & Gormally, 2019; Premo, Carvagnetto, & Davis, 2018; Premo, Lamb, & Carvagnetto, 2018). In particular, Marchut and Gormally (2019) found that inquiry-based laboratory classes seem to positively influence students' attitudes toward science due to repeated engagement with hands-on activities. Laboratory classes redesigned to be more interactive showed increased collaborative engagement between individual students and classroom-wide (Premo, Carvagnetto, & Davis, 2018). Premo, Lamb, and Carvagnetto (2018) studied undergraduate, life science, laboratory classrooms. They said that classroom social environment supported a phenomenon similar to the expectations and obligations form of social capital. They found that, in the interactive classroom environment, students were willing to expend energy and resources on their classmates when the students perceived that they would receive help from their classmates in return. Finally, Huff and Bybee (2013) studied critical discourse in science laboratories. They found that critical discourse between students improves the quality of learning, promotes critical thinking, and helps students to develop their scientific language skills. Thus, these authors support my finding that interactive laboratories support engagement. However, these studies have not fully investigated the connection between engagement and the acquisition of social capital in these laboratory settings.

The findings from this study regarding engagement promoted by the interactive lab setting, based on both observations in the labs and the participants descriptions of the interactions in the lab, are consistent with the findings of others (Donavan & Lee, 2015;

Huff & Bybee, 2013; Marchut & Gormally, 2019; Premo, Carvagnetto, & Davis, 2018; Premo, Lamb, & Carvagnetto, 2018).

Alternate explanation: the students in the PRN major were not engaged. The study findings do not support the alternate explanation that the students were not engaged.

Engagement in the laboratories was observed using the LIPI (Sadler, et. al., 2011). Each student was observed in a required lab science course in the PRN major. For all of the students, the average level of involvement was 2.73 out of a possible 3.00. The average discourse as a 2.81 out of a possible 4.00. Engagement is involvement plus integration (reflected by their discourse). The average level of engagement for all of the students in the study was 5.54 out of a possible 7.00, nearly 80% engagement. Thus, in the laboratory setting specifically, I found that the students were engaged.

The following are descriptions of behaviors of an engaged student according to past research. Generally, engaged students have studied with peers, joined a subject matter or special interest club, joined a social club, call faculty by first name, and/or have been invited to a faculty member's home (Pascarella, 1985). They interact with peers and faculty, and have used institutional resources (Hu & Kuht, 2002). They have friends who attend class regularly and who get good grades (Ream & Rumberger, 2008), have joined a learning community, have a positive perception of faculty, and are involved with other students (Tinto, 1997).

Based on the findings of this study, I suggest the following characteristics of an engaged laboratory student. The student is actively involved in the laboratory activities, including focusing on both the tasks in the lab, and the cognitively demanding aspects of

scientific practice and inquiry related to those tasks. The student is academically and socially integrated in the lab environment. Evidence of academic integration can be observed in their commitment to completing the lab work, and to their committed attempt at understanding the underlying scientific theory related to the lab work. Social integration is witnessed in the interactions the student has with both their peers in the lab and with their laboratory instructor. This description of an engaged student extends the work of Kuh, et. al., (2008) who include both involvement and integration supported by effective educational practices of an institution as components of student engagement.

Alternate explanation: the students were engaged due to some other factor besides the design of the program. The study findings do not support this alternate explanation.

The study findings indicate that these community college student participants had limited opportunities for engagement outside of the classroom. Study participants expressed concerns over their tight schedules, which were limited by their family responsibilities, work demands, and the distances they traveled to get to campus. They shared that time constraints often informed their class schedules, kept them from spending more time on campus, interacting with people from the college outside of class, and limited their ability to study.

This is in agreement with Silverman, Aliabadi, and Stiles (2009) who described community college students as Commuter, Part-time, Transfer, and Returning (CPTR). They said that CPTR students tend to have less time, as compared to their traditional counterparts, to become involved in educationally purposeful activities, and few

115

opportunities to interact with other students, faculty, or staff. Thus, engagement is typically limited.

I found that for these program participants, engagement happened in the laboratories. This extends the work of Silverman, et.al., (2009) by including a particular place on a community college campus where educationally purposeful interaction took place. This suggests that although CPTR students have limited time, and therefore may not be engaged in co-curricular activities, colleges can promote engagement through active coursework such as lab settings that require collaboration.

Alternate explanation: the design of the program, as a whole, directly promotes success. This program was characterized by a highly structured design that included a planned sequence of courses, required advising, laboratory courses, and a clear career path including the subsequent degree credential. The study findings indicate that students chose a major but that major is not necessarily indicative of their career goals, and they followed a personal path, not the path provided in the academic program guide. They also found other advising resources that were not part of the program design. It is unlikely that an academic path that students did not follow, and student support services that students did not use, would have led to their success. Therefore, my findings do not support the alternate explanation that the design of the program, as a whole, promoted success.

Engagement and the acquisition of social capital. For the successful PRN community college students in this study, engagement in the small and interactive laboratories at this community college provided opportunities for the acquisition of social capital.

116

Proposition: engagement provided opportunities for the acquisition of social

capital. I found that the students acquired social capital as defined by Coleman (1987; 1988), including obligations and expectations, information sharing, and norms, through their engagement with faculty and their peers in the small groups formed in the interactive laboratories.

The laboratory groups provided space for the development of the obligations and expectations component of social capital. Students received support in the lab from both peers and the instructor, and shared information, without the expectation of information in return, on topics beyond just the lab work. The lab instructor and lab group members reinforced a set of norms that supported student success including: having a goal and a plan; focusing and working hard; and finding people, who help each other, support each other, and share accurate information. The small and interactive laboratory provided a physical space and an appointed time for both involvement and integration with peers and with instructors. This promoted the acquisition of social capital (Coleman, 1987, 1988). Thus, students who had limited time to spend on campus, and limited opportunity to interact with students and faculty outside of class, were able to acquire social capital, due to engagement, inside the laboratory classroom, during their regularly scheduled class.

The importance of peers and faculty are not acknowledged in Coleman's (1987, 1988) work because he stressed the importance of family social networks in the success of the students he studied. My findings indicate that the social capital acquired from fellow students and institutional agents like faculty may play a larger role in the success of the study participants at this community college. These findings are supported by the work of other researchers. For example, Gonzales, Stoner, and Jovel (2003) found that

Latino/a students who were tracked in GATE and Honors/AP classes were exposed to agents of social capital in the high school who provided emotional support, access to information, and access to opportunities, positively affecting their college enrollment behavior. Hill, Bregman, and Andrade (2014) collected and analyzed survey data from sophomores and seniors at two urban magnet schools. The social network analysis revealed that those students whose SNFC (social network for college) was dominated by parents and school personnel were more likely to attend college right after high school and more likely to choose a selective college. Stanton-Salazar and Dornbusch (1995) found that Mexican American high school students who had higher grades and status expectations, also had greater social capital and more supportive relationships with non-familial institutional agents, as compared to their peers who had lower grades and status expectations. These three studies support that social capital can be acquired through engagement with institutional agents. However, these studies focused on high school students. My findings agree that interactions with faculty, who are non-familial institutional agents, is a means of acquiring social capital. However, the participants in my study were community college students.

There has been some recent research on social capital obtained from institutional agents in community college settings. Most of the work is quantitative and based on survey data. For example, Chen and Starobin (2019) did a quantitative study and found that social capital obtained from institutional agents had a stronger direct influence on degree aspiration for their STEM student participants as compared to social capital obtained from parents. Another quantitative study focused on Latino/a community college students, and found that interactions with institutional agents had a small but

118

significant effect on their intent to persist (Tovar, 2015). Wang, Wickersham, Lee, and

Chan (2018) performed a quantitative study which drew on Coleman's framework of

social capital in a community college setting. Their findings indicate that students under

the age of 24 rely more heavily on social capital obtained from institutional agents as

compared to students over the age of 24. All of these studies are quantitative, mine is

qualitative. These study participants are members of particular sub-groups of community

college students: STEM, Latino/a, and two groups segregated by age. Lastly, Moschetti

and Hudley (2015) interviewed White, working-class, first generation community college

students. They found that these students faced many obstacles to attaining a degree, and

that they did not take advantage of the opportunities to obtain social capital from peers

and institutional agents, and struggled because of that choice. This study, like mine, is

qualitative. However, the students in my study took advantage of the opportunities to

gain social capital from peer and faculty, due to engagement in the labs. Thus, my study

is on a different population of community college students. My study was not from a

deficit perspective.

Alternate explanation: the students acquired social capital from other sources,
and not from engagement in the classroom, labs, and advising sessions. My findings

do not support this alternate explanation.

In order to address this possibility, I tried to elucidate information regarding

possible sources of social capital, outside of the laboratory classrooms, the participants

might have had. I considered social capital from the advisors, family and/or friends, from

other sources on campus, or from previous college enrollment. By seeking to collect data

on these elements, I can confirm that they did not serve as sources of social capital for the participants.

Most of the students did not attend the nursing information session, and they rarely went to the advising center. Instead, I found that 12 of the students performed a combination of tasks collectively resulting in "informed self-advising." These participants read the college program guide, but treated most of its contents as more of a set of suggestions than requirements. They sought out advice from faculty and peers, and found requirements on transfer institutions web sites. Thus, it is unlikely that the student in this particular study acquired social capital from the college advisors, because they self-advised as opposed to going to see advisors.

Although two of the students indicated that they received emotional support from a family member, none of the participants reported acquiring the components of social capital –expectations and obligations, accurate information sharing, or norms—from family members. Atherton (2014) stated that non-traditional students were more likely than their traditional counterparts to be first generation college students, and were less prepared upon entrance into college. Atherton (2014) found, in part, that non-traditional students are less likely than their traditional counterparts to have a family member who could offer social capital in the form of informed advice regarding college. In other words, they are less likely to acquire the information sharing component of social capital from their family members.

All of the participants reported constraints like working many hours, caring for family members, and living far from campus. These constraints limited their time on campus, and reduced the chances for the acquisition of social capital on the college

campus through participation in clubs, sports, or other activities. This finding agrees with the findings of Silverman, et. al., (2009) who reported that CPTR students tend to have less time, as compared to their traditional counterparts, to become involved in educationally purposeful activities, and few opportunities to interact with other students, faculty, or staff.

Although a few participants attended another college in the U.S. prior to CC, each one attended the college/university for a semester or less. This reduced the chance that students acquired social capital at these other institutions.

Alternate explanation: Engagement directly promoted success. My findings did not support the alternate explanation that engagement directly promoted success. As previously stated, they indicate that engagement in the labs provided opportunities for the acquisition of social capital, and social capital supported the success of these student participants. However, for some of the students, my findings seemed to indicate that involvement, one component of engagement, may have directly contributed to their success, as well.

According to my transcript analysis many of the students performed well academically from the very beginning at CC. They were successful in courses taken prior to the time when they would have had the opportunity to be engaged, and acquire social capital during their lab science classes. During the interviews, some of these same students described themselves as focused and hardworking. As previously stated, these descriptors are similar to Astin's (1999) explanation of involvement. The students who described themselves in this manner attributed their success, at least in part, to their focus

and work ethic. This suggests that in addition to social capital, their involvement may

have directly contributed to their success.

Social capital and success. Three forms of social capital –obligations and

expectations, information, and norms –contributed to the success of these study

participants.

Proposition: social capital contributed to success. My findings support that the

components of social capital, including expectations and obligations, information sharing,

and norms supported the students' success.

I found that the laboratory provided space for the development of the obligations

and expectations component of social capital, which contributed to student success. The

students shared that the help and support they received from the students in their lab

groups was invaluable.

I found that in the labs, instructors and peers shared valuable information,

including study techniques, assignment/test dates and times, employment opportunities,

transfer requirements, and more. This information supported success in both the area of

course and degree completion, and successful transfer. According to the study

participants the instructor was present and active in the "hands on" and interactive lab,

and was more approachable in that setting, as compared to large, lecture only settings.

The students received guidance and support from the instructors that promoted their

success.

I found that the lab instructor and lab groups reinforced a set of norms that

supported student success including: having a goal and a plan; focusing and working

hard; and finding people who helped each other, supported each other, and shared

accurate information. These norms and their role in student success emerged during the interviews with the participants.

Based on these findings, I conclude that for these study participants, social capital supported success, a finding corroborated by the following studies. Coleman (1988) was the first to study social capital in an educational setting. His description of social capital included the components that I observed in the labs, and that the study participants described during the interviews, including: obligations and expectations, information sharing, and norms. Coleman (1987, 1988) focused on social capital acquired from family members. He did not acknowledge the importance of peers and/or institutional agents. My study participants acquired social capital in the required program laboratory courses from peers: mostly students in their lab group, and institutional agents: the instructors. As stated previously, recent studies have expanded the social network to include the school environment in addition to family. These studies support my findings. They indicate that the social capital acquired from peers and institutional agents (Gonzales, Stoner, & Jovel, 2003; Hill, Bregman, & Andrade, 2014; Stanton-Salazar & Dornbusch, 1995) may play a larger role in the success of the students as compared to social capital acquired from family members.

Alternate explanation: students were successful due to a characteristic or influence such as a common history, their own internal motivation, external support from family, friends, and colleagues, or some other factor, but not due to design, engagement, or social capital. My findings indicate the interactive laboratory design supported engagement. Engagement provided opportunities for the acquisition of social capital, and social capital promoted success. However, in an attempt to explore other

possible influences on student success, I asked the participants to explain what made them successful. The students shared the following norms regarding success: find people who help each other, support each other, and share accurate information; have a goal and a plan; and focus and work hard.

People who provide help, support, and information. The students shared that finding people who help each other, support each other, and share accurate information promoted success. They shared that they often found this group in the lab classes. Having a group of people from whom you can expect help and support, and to whom you would feel obliged to give help and support in return, is the epitome of the expectations and obligations form of social capital (Coleman, 1987; 1988). Being part of a group of people with whom you share accurate information is the form of social capital called information sharing (Coleman, 1987; 1988). Some authors include support, as a form of social capital that promotes success (Kezar, 2104; Stanton-Salalzar, 2001). Essentially the students were describing the benefits of being a part of a social network. In their own way, they proposed that social capital acquired from the interactive lab classes promoted success. Thus, they supported the study findings in this regard.

A goal, a plan, focus, and hard work. Having a goal and a college-provided plan are components of the guided pathways model (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014; Jenkins & Cho, 2014; Jenkins & Rodriguez, 2013). The student participants had a goal, to become health professionals, and they chose their major accordingly. The PRN major offered the appropriate courses for that goal. In order to complete that major and successfully transfer, the participants practiced informed self-

advising and designed their own personal plan. Each participant's plan deviated from the one provided in the college program guide, but it suited their own circumstance.

In this study I defined engagement as having two components: involvement and institution supported integration. Some study participants described themselves as being focused and hardworking. As previously stated, these descriptors are similar to the explanation of involvement proposed by Astin (1999). Thus, these students were saying that they had fulfilled one component of engagement: they were involved. With labs designed to be small and interactive, the institution supported integration, and engagement (Kuh, et. al., 2008) was achieved.

In addition, having a goal, making a plan, focusing, and working hard also indicate internal motivation. Therefore, the students seem to be suggesting that in addition to the social capital they acquired in the labs, their own internal motivation contributed to their personal success.

Thus my findings do not indicate that a common history or external support contribute to success. My findings support the role of the interactive laboratory design, engagement, and social capital in student success. They also suggest that for these student participants, internal motivation promoted success as well.

Research Questions and Related Findings Summarized

I found that the interactive and small group design of the laboratory science classes in this PRN program promoted student success as measured by attaining the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. The laboratory design promoted engagement in the labs, and encouraged engagement with the lab group and other students from the lab class, outside of the lab.

125

Engagement defined by Kuh, et. al., (2008), as: student involvement and integration supported by institutional design or educational practices, provided opportunities for the acquisition of social capital. I found that like the high-achieving, African American, male, baccalaureate students in Harper's (2008) study, the successful, community college, PRN students in this study acquired social capital, as defined by Coleman (1987; 1988) through engagement. Thus, engagement was critical for the success of these particular students because it provided opportunities for the acquisition of social capital. Social capital promoted success. The findings also seem to indicate that, for some of the participants, internal motivation leading to focus and hard work, may have contributed to their success. Also, support from peers and faculty was a factor in the success of some students as well.

The findings from this research project have implications for policy, research, and leadership. These implications are included in the following sections.

Implications Regarding Policy

This study has implications for public policy surrounding success and affordability for the large number of students attending community colleges. In the fall of 2017 there were 5.9 million students enrolled (NCES, 2019) in 1,108 community colleges in the U.S. (Juszkiewicz, 2017). Community colleges are partially funded by tax dollars and many students receive financial support through federal financial aid programs. There is a national conversation concerning performance based funding for colleges, and there are regulations regarding Satisfactory Academic Progress (SAP) for college students. At the core of these issues and regulations is an appropriate definition of student success.

Student success, ratings, and performance based funding. Efforts to expand equity and acquire college attainment depend on community colleges (Jenkins & Rodriguez, 2013). In 2018 only 24% of the first-time, full-time, degree and certificate seeking students at public two-year colleges, graduated within three years, the 150% graduation rate at a two-year college (IPEDS, 2018). As the price of a college education continues to rise, the public: students, parents, and politicians, are increasingly expecting higher education institutions to improve, and to verify their productivity and efficiency (Gansemer-Topf & Schuh, 2006).

In response to these expectations the Department of Education proposed the Post-Secondary Institution Rating System (PIRS) in 2013. This system was supposed to provide comprehensive and reliable information for rating institutions of higher education regarding access, progress, completion, and post-graduation outcomes to the public. An important component of this system was the intention to tie public funding to the institution's rating. Although the Department of Education has backed off of this particular rating system, the discussion continues.

One of the difficulties has been developing a rating system that holds institutions accountable while accommodating the characteristics and needs of community colleges versus baccalaureate institutions (Harmon & Cielinski, 2013; Joch, 2014). For example, one of the PIRS metrics is graduation rate using the Integrated Postsecondary Education Data System (IPEDS). In the past nearly all IPEDS data regarding retention, completion, etc. was based on first-time, full-time students. Therefore, these data left out part-time, transfer and returning students (Lederman, 2018) like 11 of the 14 community college students in this study.

In 2017, 63% of community college students attended part-time (NCES, 2019). At the site of this study, 50% of the student population attended part-time. Eight of the 14 participants in my study were part-time students. There were two students with transfer credits on their transcript and four more who shared that they had attended a college or university prior to CC in the interviews. Two of the participants were returning students. The part-time students, transfer students, and returning students would not be included as first-time, full-time students, in the calculations in the IPEDS system.

Nearly all of the participants, including the first-time, full-time students reported many constraints on their time, and eight of the 14 participants had to complete basic skills classes as well. Constraints and basic skills classes might slow student progress.

Discussion regarding the accountability of institutions of higher education should continue. However, the metrics used to assess community colleges should reflect the student population at community colleges. For the students in this study, success was not defined as graduating in three years or less. Success was attaining the requirements for transfer into a nursing program while handling the constraints of their daily lives. Also, if only the first-time, full-time students are counted, and the part-time, transfer, and returning students are not, the results are misleading and unfair.

Student success and federal financial aid guidelines. Students, who receive federal financial aid, must maintain Satisfactory Academic Progress (SAP) in order to keep, and to continue receiving, aid. There are G.P.A. and percent completion requirements, for example.

During this research study, I contemplated the implications of the federal financial aid 150% guideline for SAP (U.S. Department of Education, 2016). This rule requires

completion of a two-year degree within three years, and completion of a 60-credit degree

with no more than 90 credits. Three of the eight graduates in my study, who have been

accepted into a BSN or ASN transfer program, would not have been "in compliance"

with these guidelines. In other words, these students considered themselves to be

successful in that they had achieved their goal. However, they were not successful

according to the rating system of the federal government in regard to timely progress.

Three of the six continuing students are "out of compliance" as well. In this study the

definition of success was attaining the requirements for transfer. This definition was not

credit number or time dependent. It is imperative that the expectations for time to

completion and total number of credits reflect the student population that, at community

colleges, includes many CPTR (Silverman, Aliabadi, & Stiles, 2009) students. This is

particularly true if these metrics are the measure of satisfactory progress, and decisions

regarding federal financial aid to students.

Future Research

Based on the findings of this study, there are several topics that merit further

research.

Guided pathways. As of 2018 more than 250 colleges were redesigning their

curricula and student support services in accordance with the guided pathways model.

Most of these colleges were community colleges (Jenkins, Lahr, Fink, & Ganga, 2018).

Some community colleges re-designed in the guided pathways model (Jenkins,

2014), have reported increased retention rates and three-year graduation rates. Jenkins

(2014) specifically mentions two community colleges: City Colleges of Chicago and

Guttman Community College (GCC) in Midtown Manhattan. The one-year retention rate

at GCC is 69% and the three-year graduation rate is 46% (Jenkins, 2014), as compared to a 62% retention rate and a 25% three-year graduation rate among all public two-year colleges in the U.S. (NCES, 2109). At GCC all students are required to attend full-time (Guttman, 2018).

Nationally, in 2017, 63% of community college students attended part-time (NCES, 2019). About half of the students attending CC, where this study was conducted, were part-time students (CC, 2017). Their lives and college experiences tend to be constrained by jobs, family responsibilities, and living and working great distances for the college. These constraints made it difficult, if not impossible for many of the study participants to attend college, and be successful, as full-time students. Recently the NCES has begun to collect retention and completion data on part-time students. For example in 2017, the NCES reported the six year completion rate for full-time students who enrolled in 2003 was 44.9%. For part-time students the completion rate was 13.9%.

The retention and completion ratios at GCC (69% and 46%, respectively) are higher than the national average (62% and 25%, respectively). However, students at GCC are all required to attend full-time. Considering the difference in six-year completion rates between full-time students versus part-time students (44.9% and 13.9% respectively) the possible connection between the full-time status of all of the students at GCC and the higher than average graduation and retention rates should be fully investigated.

Also, the total enrollment at the community college where this study was conducted, was nearly 12,000, and the number of full-time faculty was 100 (CC, 2019). The total number of students at GCC was 955, and the number of full-time faculty was 53

(Guttman, 2018). These two colleges have very different student to full-time faculty ratios. Porter (2006) found that institutional structure can influence student engagement. His results showed, in part, that students at small institutions with low student to faculty ratios have higher levels of integration. With Porter's (2006) study in mind I began to consider the low student to full-time faculty ratio at GCC and its possible contribution to the higher than average retention and completion rates.

Among the existing studies of guided pathways (Bailey, Jaggars, & Jenkins, 2015; Jenkins, 2014; Jenkins & Rodriguez 2013; Van Noy, Trimble, Jenkins, Barnett, & Wachen, 2016) there has been little research involving longitudinal data, full-time versus part-time student status, and student to full-time faculty ratios on outcomes. These are areas for future research.

Involvement. There has been extensive research on involvement and integration, regarding traditional four-year college students (Astin, 1999; Hu & Kuht, 2002; Ream & Rumberger, 2008; Tinto, 1975; Tinto, 1997) and including community college students (Chang, 2005; Greene, Marti, & McCleney, 2008; Tinto & Russo, 1994). Yet, there are still varying definitions of these terms. During the interviews, the student participants referenced what I think is a new, working definition of involvement. They described involvement as "hard work and focus".

Involvement is the amount of "physical and psychological energy that the student devotes to the academic experience" (Astin, 1999, p. 518). Hard work and focus require both physical and psychological energy. Thus, they are similar to involvement. However, hard work and focus are concrete and tangible actions, and they require a choice. I think

131

exploring the effect that choosing to work hard and to focus has on student success, warrants further investigation.

Social capital. According to Coleman (1988) the forms of social capital are obligations and expectations, informational channels, and social norms. My findings indicated that the students had acquired each of these in the labs.

The participants also described the supportive relationships they formed in the labs. They shared that bonding with your lab partner and finding peers who understood your struggle was important for success. The participants noted that fellow students provided motivation in some situations, and a calming influence in others. Thus, one of the study findings indicated that support promoted success.

This finding is supported by the work of Stanton-Salazar (2001) and Stanton-Salazar and Dornbusch (1995) who stated that the relationships formed in social networks can provide assistance, support, and information in a given social situation. It is also similar to the findings of Kezar (2014) who examined how social networks connect students to important information and needed support and thus foster the development of social and/or cultural capital (Kezar, 2014). Forms of support that contribute to success should be more fully investigated. Potentially, support should be included as another form of social capital in addition to obligations and expectations, information sharing, and norms.

Engagement, social capital, and success. Social capital has been investigated using both qualitative methods (Gonzales, 2013; Gonzalez, Stoner, & Jovel, 2003; Jensen & Jetten, 2015; Moschetti & Hudley, 2015; Stanton-Salazar & Dornbusch, 1995) and case studies (Conchas, 2001). It was first explored in a high school setting by Coleman

132

(1988), but recent work has included social capital in college settings (Esau, 2015; Gonzales, 2013; Jensen & Jetten, 2015; Moschetti & Hudley, 2015). Research on the connection between engagement and the acquisition of social capital in community colleges is needed. Specifically, this research should focus on classroom design in community colleges, the place where the students in this study tended to be engaged and acquired social capital. A comparison of the experience of successful and non-successful students at a community college, or between one community college and another might elucidate information that would lead to a classroom and/or an institution wide design that supports success.

Implications Regarding Leadership

  Implications for implementation of the guided pathways model. Although it predates guided pathways (Jenkins, 2014), the PRN program design in this study was very similar to that model. However, I found that the successful students did not actually follow the program design. The college that was the setting for this study, and half of the other community colleges in the state where the study was conducted (college websites), are in the process of implementing the guided pathways model. In each of the college catalogues, the recommended course sequence is laid out to be completed in four semesters. In other words, the only published academic path is for full-time students, in community colleges that have, on average, 51.3% part-time students (college websites).

  I am concerned that colleges, especially community colleges, are implementing guided pathways without considering the possibility that some of the gains attributed to its implementation may actually be related to other factors. It is also important, due to the large number of part-time students at community colleges, that if a college is redesigned

according to the guided pathway model, published pathways are provided for all of the students, not only the full-time ones.

Implications regarding the design of the classroom. My study has implications for the design of community college classrooms, as well. The CPTR (Silverman, Aliabadi, & Stiles, 2009) students in this study expressed concerns over their tight schedules which were limited by their family responsibilities, work demands, and the distances they traveled to get to campus. These time constraints often informed their class schedules, kept them from spending more time on campus, interacting with people from the college outside of class, and limited their ability to study. Like so many other non-traditional college students, I found that time constraints made engagement in college, outside of the classroom, difficult. In order to foster success, community colleges must provide opportunities for engagement and the acquisition of social capital right in the classrooms and laboratories. Group work in small and interactive classrooms and laboratories would be a good way to start.

Recommendations

The following are recommendations that emerged from the findings of this study regarding educational leadership.

Guided pathways. As of 2018 more than 250 colleges were redesigning their curricula and student support services in accordance with the guided pathways model. Most of these colleges were community colleges (Jenkins, Lahr, Fink, & Ganga, 2018). In 2017, 63% of community college students attended part-time (NCES, 2019), and at the site of this study, 50% of the student population attended part-time. Considering the large number of part-time students at community colleges, and the large number of community

colleges redesigning according to the Guided Pathways Model, college redesign must be inclusive of the part-time students. If a college is redesigned according to the Guided Pathway Model, published pathways should be provided for all of the students, not only the students who attend full-time.

Classroom design. Time constraints made engagement in college, outside of the classroom, difficult for these CPTR community college students. In order to foster success, opportunities for engagement and the acquisition of social capital should happen right in the classrooms and laboratories. A design that includes group work in small and interactive classrooms and laboratories would be a good way to start.

Final Thoughts

The findings of this study indicated that the structural design of the laboratory classrooms of the Pre-nursing (PRN) major in the Health Professional (HP) program promoted student success as measured by achieving the minimum requirements for acceptance for transfer from this college into a BSN or ASN program. Specifically, design promoted engagement; engagement provided opportunities for the acquisition of social capital; and social capital supported success for these community college students. The design component that supported success was neither guidance, the advising piece, nor a pathway, the program guide's course sequence. It was instead, the design of the small and interactive laboratories.

Based on these findings, classrooms and laboratories in community colleges should be designed to promote engagement: including both involvement and integration. Engagement in the classroom would provide opportunities for the acquisition of social capital for commuter, part-time, returning, and transfer students (Silverman, et. al., 2009)

135

who spend limited time on campus and therefore would not have the opportunity to be

engaged on campus out-side of the classroom. For the 5.9 million students enrolled in

community colleges in the U. S. (NCES, 2019) success would be better supported by the

appropriate design.

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Appendix A

Informed Consent

The Role of the College in Preparing Health Professional Students for Transfer:

A Qualitative Case Study

Please read this consent document carefully before you decide to participate in this study.

You are invited to participate in a research study about understanding the role of the design of your college program in your success. This study is being conducted by researchers in the Department of Educational Leadership at Rowan University. The Principal Investigator of the study is *Dr. Monica Reid Kerrigan*.

Participation in this study is voluntary. If you agree to participate in this study, you would be observed in the laboratory classroom and interviewed for about 1-2 hours. The number of participants in the study is *24*.

.

The study will include the collection of data from your academic record, laboratory observations, and an interview.

Participating in this study may not benefit you directly, but it will help us learn whether the design of your college program supports academic success. *Your participation in this study is completely voluntary. If you choose not to participate in this study, this will have no effect on the services or benefits you are currently receiving.* You may skip any questions you don't want to answer and withdraw from the study at any time without consequences.

If you have any questions about this study, please contact Dr. Monica Reid Kerrigan at KerriganM@Rowan.edu or Nancy Gartland at Gartla37@students.Rowan.edu. If you have questions about your rights as a research participant, please contact the **Rowan University SOM IRB Office** at (856) 566-2712 or Rowan University Glassboro/CMSRU IRB at 856-256-4078.

YOU WILL BE GIVEN A COPY OF THIS FORM WHETHER OR NOT YOU AGREE TO PARTICIPATE.

Social and Behavioral IRB Research Agreement

I have read the procedure described above. I voluntarily agree to participate in the procedure and **I have received a copy of this description.**

Name (Printed) _____

Signature: _____

Date: _____

Principal Investigator: _____ Date: _____

PRN Program Guide

Retrieved from https://cc.edu/wp-content/uploads/2017/11/APG-2018.pdf

ASSOCIATE IN SCIENCE *CIP Code 24.0101*
Liberal Arts and Sciences:
Nursing: Pre-Nursing Option PRN.AS
Code Course Credit
First Year/First Semester
BIO-111 Biology I - Science or
………. Free Elective 3/4
CHM-101 General, Organic & Biological Chemistry I 4
ENG-101 English Composition I 3
PSY-101 Basic Psychology 3
HPE-181 Basic Life Support "C" 1
14/15
Second Semester
CHM-102 General, Organic & Biological Chemistry II 4
ENG-102 English Composition II 3
MTH-111 Elements of Statistics 3
HIS-101 World Civilization I or
ENG-271 World Literature I 3
BIO-211 Anatomy & Physiology I or
BIO-117 Basic Anatomy & Physiology I 4
17
Second Year/First Semester
BIO-212 Anatomy & Physiology II or
BIO-118 Basic Anatomy & Physiology II 4
PSY-109 Developmental Psychology 3
PHL-232 Biomedical Ethics 3
………. Free Elective 3
13
Second Semester
BIO-221 Microbiology I1 or
BIO-121 Basic Microbiology1 4
FNS-105 Introduction to Nutrition 3
CSC-101 Computer Literacy 3
SOC-101 Introduction to Sociology 3
………. Free Elective2 3
16
Total Minimum Credits 60
1 It is highly recommended that students complete BIO-211, BIO-212, and BIO-221.
Prerequisite BIO-111.
2 Elective should be selected based on transfer institution's requirements.

PROGRAM DESCRIPTION
This program is designed for students who are seeking to transfer to a nursing or health science-related baccalaureate program. The successful student is academically prepared for transfer into the junior of a four-year college or university.

PROGRAM GOALS
• To provide students with a foundation in general education.
• To provide a concentration of course work appropriate for the first two years of a baccalaureate program in nursing.
• To ensure transferability of course work to a baccalaureate program in nursing and related science-based health careers.

PROGRAM STUDENT LEARNING OUTCOMES
At the end of the program, the graduate will be able to:
1. Communicate in both written and oral formats.
2. Apply the scientific method of inquiry to analyze problems and draw conclusions from evidence and data.
3. Identify resources, obtain and critically evaluate information.
4. Model ethical professional behaviors in the role of a health care professional.

SPECIAL PROGRAM REQUIREMENTS
• Graduation from an approved secondary school or a GED is required.
• Nursing majors must attend a Nursing information session. The schedule of dates/times/locations can be found on the College webpage.

CONTACT PERSONS
Director of Nursing Programs

Highlights
Students graduating in this option are prepared for transfer in various nursing and allied health disciplines (such as physical therapy, physician's assistant, or occupational therapy.) CC has transfer programs with LaSalle University, Widener University, The College of New Jersey, Thomas Jefferson University, Drexel University, Rutgers University, Thomas Edison State University, and Temple University to name a few

Appendix C

Laboratory Observation Protocol

Modified Laboratory Instructional Practices Inventory (Sadler, Puig, & Trutschel, 2011)

Table C1

MLIPI: Categories for Student Involvement

Category	Description
Dis-involvement (DI)	Student is not focused on the laboratory activity.
Passive Involvement (PI)	Student is receiving information regarding the laboratory activity.
Task-oriented Involvement (TI)	Student is actively involved in laboratory activities that focus on specific tasks or procedures.
Epistemic Involvement (EI)	Student is actively involved in the cognitively demanding aspects of scientific practice.

Table C2

MLIPI: Categories for Student Discourse

Category	Description
No Discourse (ND)	Student is not talking.
Off-Task Discourse (OD)	Student is talking about topics unrelated to the laboratory.
Procedural Discourse (PD)	Student is talking about the procedures, protocols, and/or equipment involved in the laboratory.
Conceptual Discourse (CD)	Student is talking about basic science concepts related to the laboratory.
Integrative Discourse (ID)	Student is talking about the integration of science concepts, theories, and clinical correlations.

LIPI Observation Data Sheet

DI = dis-involvement, PI = passive involvement, TI = task-oriented involvement, EI = epistemic involvement, ND = no discourse, OD = off-task discourse, PD = procedural discourse, CD = conceptual discourse, ID = integrative discourse.

Date:
Laboratory Class:
Topic:
Class Period:
Number of students (Groups):

Time	DI	PI	TI	EI	ND	OD	PD	CD	ID	Notes

Laboratory Instructional Practices Inventory Summary Data Sheet (14 Students)
DI = dis-involvement, PI = passive involvement, TI = task-oriented involvement, EI = epistemic involvement, ND = no discourse, OD = off-task discourse, PD = procedural discourse, CD = conceptual discourse, ID = integrative discourse.

Student	DI	PI	TI	EI	ND	OD	PD	CD	ID
1st Student Participant									
2nd Student Participant									
3rd Student Participant									
4th Student Participant									
5th Student Participant									
6th Student Participant									
7th Student Participant									
8th Student Participant									
9th Student Participant									
10th Student Participant									
11th Student Participant									
12th Student Participant									
13th Student Participant									
14th Student Participant									
Average									

Appendix D

Interview Protocol

Study Title: The Path to Successful Transfer: A Qualitative Case Study

Study Topic and Purpose: The purpose of this qualitative holistic single-case study (Yin 2014) is to explain the path to successful transfer for a cohort of students who are enrolled in the Pre-Nursing major in a suburban community college. In this study achieving the minimum requirements for acceptance for transfer from this college into a BSN or ASN program will be the definition of success I will examine the design of this particular program, which is similar to Guided Pathways (Jenkins, 2014). I will investigate whether this design supports engagement as defined by Kuh, et al. (2008). Then I will consider whether engagement provides opportunities for the acquisition of social capital as defined by Coleman (1987 and 1988), and ultimately whether as Harper (2008) found, the activation of social capital obtained through engagement promotes student success.

Goal: The goal of these interviews is to gather qualitative data to document the path the students followed through the PRN program, their level engagement during the program, and whether they acquired social capital because of their engagement. Interviews will provide a rich and detailed understanding of their experience and their success in the PRN program.

Interview Questions:

1. **Please list/describe classes you have taken, if any, since you left high**

    school.

2. **Please describe jobs you have had, if any, in the health professional field.**

3. **How did you decided to become a nurse?**

4. **Please describe how you felt on your fist day at this college?**

5. **How prepared were you when you first arrived at this college?**

6. **Please tell me about your interactions with the faculty member(s) you**

    have interacted with the most?

    a. What do you talk about?

    b. Where and when do these interactions take place?

c. How often do you interact with faculty?

7. **Please tell me about your interactions with the college staff member(s) you have interacted with the most?**

   a. What do you talk about?

   b. Where and when do these interactions take place?

   c. How often do you interact with college staff?

8. **Did you attend the common advising sessions?**

9. **From whom have you gotten any one-on-one advising?**

   a. When (during which semester) did you get advised?

   b. How often did you get advised?

   c. What do you discuss in these advising sessions?

10. **In your Anatomy and Physiology and Microbiology lab courses did you tend to work alone or with the members of a group?**

    a. How was the group formed?

11. **If the participant worked in a group: how would you describe the in class interactions with members of your lab groups?**

    a. What did you expect working in the group would be like?

    b. Did the group members help each other at all? What kinds of things did you do for each other?

    c. Did the group members encourage each other? Can you give me an example?

    d. How did the group handle it when help and/or encouragement didn't go both ways?

12. Do you currently, or did you when enrolled in class together, interact with any students outside of class (email, text, or in person)?

    a. Who do you interact with?

    b. Was/Is the content of these interactions school related?

    c. Can you give me some examples?

13. Who or what informs your class schedule? How do you decide which courses to take and when to schedule them?

14. In your advanced science classes did you know any of the other students in your classes on the first day of class?

    a. Approximately how many did you know?

    b. How well did you know them?

15. Where or to whom do you go for information or advice regarding this program, transfer, coursework, etc?

    a. Can you give me any specific examples?

16. What do you think are the major contributors to your success here at the college? Why have you been successful?

17. What advice would you give a new student regarding successfully making his or her way through this program?