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The Effects of a Health Career Ladder Program in a Rural Community: Case Study

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Concordia University-Portland
College of Education
Doctorate of Education Program

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The Effects of a Health Career Ladder Program in a Rural Community: Case Study

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Dissertation submitted to the Faculty of the College of Education
In partial fulfillment of the requirements of the degree of
Doctor of Education in Educational Administration

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Abstract

This paper presents a case study analysing a rural health career ladder program's (HCL) influence on students' career aspirations toward health care fields. Rural students enrolled in a career ladder program were interviewed to assess the effectiveness of early experience on career choice. Although limited to one institution, the findings shed light on the ways that institutional characteristics, policies and practices may effectively influence rural youth career aspirations. The study provides useful information to counselors, parents, school administrators and education policy makers to put in place experiential strategies to guide students into making health career choices achievable. The data was analyzed using an in vivo coding method to study relationships among factors that affect student career decisions. Drawing on the findings, the recommendations of the paper are to keep current hands-on activities and to provide profession-based mentors for rural students to encourage careers in rural health care.

Keywords: youth development, career preparation programs, student academic success, school leadership, pipeline, rural education and health care workforce

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Chapter 1: Introduction

Introduction to the Problem

Shortage of healthcare workers in rural and remote areas remains a growing concern both in developed and developing countries (Chan, Degani, Crichton, Pong, Rourke, Goertzen, & McCready, 2005). Patterson and Carline (2006) found the important factors influencing recruitment in rural areas were background and rural origin, followed by career development. Therefore engaging underrepresented populations in the educational process to increase the number rural born and ethnic minorities pursuing the health care field is essential (Rosenblatt, Chen, Lishner, & Doescher, 2010).

This study represents an exploratory effort in interpreting the effectiveness of a health career ladder (HCL) program developed to influence health care as a career preference for rural youth. Students consider many factors in their lives when choosing a career and college major. Factors in students' lives that influence career decisions include parents, coaches, religious figures and role models. Participation in health career ladder (HCL) programs can also influence students' career choices (Amator, 2007). The goal of this study was to use students' perceptions to determine the effectiveness of a program to influence career choices toward health care professions. Understanding the factors that influence career aspirations provides information for counselors, parents, school administrators and educational policy makers to put in place experiential strategies to guide students into making health career choices achievable.

The participants for this study were rural middle school and high school students enrolled in a HCL program. The various experiences and perspectives of the program participants provided valuable information to determine what effects student career aspirations as a possible

strategy to encourage more rural youth to seek health care careers. Understanding what affects student career aspirations is necessary in the work toward a solution to rural workforce shortages (Burrows, Suh, & Hamann, 2012). Students enrolled in the program came from various rural communities and experiences, thus creating a diverse participant group.

Background

The United States is facing a serious shortage of physicians, largely due to the growth and aging of the population and the impending retirements of older physicians (Mareck, 2011). Government regulations in the wake of the Affordable Care Act, with performance-based reimbursement policies and increasingly stringent requirements to maintain board certification and licensure, overwhelm physicians (Burrows et al., 2012). A 2017 study conducted for the AAMC by IHS Inc., predicted by 2030 the United States will face a shortage of between 40,800-104,900 physicians. The predicted health care provider shortages are particularly acute in the primary care specialties of family medicine, pediatrics and general internal medicine, which excessively affects residents in rural communities (Mareck, 2011). The physician shortage remains especially problematic in rural areas, where more than 20 percent of the U.S. population resides and only 10% of physicians practice, according to a position paper by the American Academy of Family Physicians (AAFP, 2015).

With more and more jobs and increased salary in large urban areas, the economies of rural areas suffer tremendously. Many rural areas are in economic decline and fewer doctors are moving to these areas to set up practice (Burrows et al., 2012). Students that attend medical school and serve residencies in urban locales, become accustomed to city conveniences and various cultural attractions and sporting events, according to an August 2015 article in *The*

Atlantic titled *Why Are There So Few Doctors in Rural America.*” As a result most new medical graduates prefer to live in larger communities.

Over the last 40 years, incentive programs were developed to address the shortage of physicians choosing rural practice (Dolea, Stormont, & Braichet, 2010). Many States offered financial incentives to encourage medical student graduates to pursue a career in primary care and practice in a rural or underserved area. The National Health Service Corps provided cost-sharing grants to support 30 States with loan repayment programs. The loan repayment programs target professions facing medial provider workforce shortages. Financial incentives were offered in the form of scholarships, tuition assistance, loan repayment and tax credit incentives for providers who agree to practice in medically underserved areas. Several rural clinics have come to rely on the cycles of medical students who work there after graduation to repay their loans before relocating to larger cities (Hagopian, Thompson, Johnson, & Lishner, 2003). Loan repayment programs for medical students provide temporary health care providers to rural communities, however there is a need for permanent rural physicians.

According to Rabinowitz, Diamond, Markham, and Paynter (2001) the factors that make a physician choose rural practice are quite different from those that make a physician stay in rural practice setting. Dues and Join (2002) found the ability to adapt to rural life is a key determinant of physicians remaining in rural practice. Doctors who grow up in or train in small country towns are more likely to practice in such communities. Increasing the number of medical students who have a rural background will provide an increased number of graduating health care professionals with a potential desire to remain within a rural practice (Rabinowitz, Diamond, Markham, & Santana, 2011). Student’s interest in medical careers is higher among those already in college (Baxter & Jack, 2008). Several new colleges of medicine, including

osteopathic medical schools prioritize recruiting students from rural community's areas.

However, rural students attending universities and medical schools result in a significant portion of rural physicians with urban backgrounds. The need is to attract students before college entry and support these students to ensure successful candidates for medical school (Baxter & Jack, 2008).

Twenty-one percent of the nation's children attend public schools in rural areas (Kumar, Jones, Naden, & Roberts 2015). Children attending rural schools have the lowest median per-student funding for afterschool programs, as compared to their urban and suburban communities (Bragg, Kim, & Rubin, 2005). Rural schools have fewer financial resources because of fewer property tax bases and inequitable distributions of state funds. The Census Bureau's American Community Survey reported, between 2000 and 2015, the share of urban adults with at least a bachelor's degree jumped from 26% to 33%, while the share in rural areas grew from 15% to 19% (U.S. Census Bureau, 2016). To increase rural youth and minority enrollment in higher education and within health care professions, it is imperative to support and strengthen science education of students at the K-12 levels (Balfanz, 2009; Bragg et al., 2005; Rudenstine, 2001; Simon, 1993).

Youth career programs are often the only source of supplemental enrichment in hands-on health and science education and preparation for college entrance (Kauffman, 2013). Given the aforementioned facts and the persistent shortage of health care providers at all levels in rural communities, it is critical to maximize the number of students' youth in these communities that are informed about, choose to prepare for and are successful in entering medical education programs (Heaverlo, 2011). Stern, Dayton and Raby (2010) found educational pipeline programs as one strategy to connect education to professional programs, which result in students'

interest and longevity in professional careers, such as health care. It is important for rural communities to provide educational pipeline programs for students to engage in and prepare for careers in the health professions and health sciences.

Numerous studies have shown that the educational pipeline programs are critical in nurturing the development of health professionals for students from underserved and disadvantaged backgrounds (Dunbabin & Levitt, 2003; Glasser, Hunsaker, Sweet, MacDowell, & Meurer, 2008; Zayas & McGuigan, 2006). Rural communities that create a HCL program to reach out to students who may not have prior knowledge of pre-professional education will potentially increase rural medical school graduates and alleviate the projected shortages in rural health care (Cohen, Gabriel, & Terrell, 2002). Intervening as early as possible provides exposure, enrichment and support for youth who have the passion and abilities to become medical students (Nivet, 2010). These programs enable rural youth to advance with further education and training with a broad foundation for career-long learning for post-high school education and training (Davis, Fields, & Hartnett, 2016). This strategy aligns well with the considerable evidence showing rural background is a strong predictor of rural practice intentions and preferences (Hay et al., 2017; Laven & Wilkinson, 2003; Walker, DeWitt, Pallant, & Cunningham, 2012).

Little is known about the role that community programs play in influencing students' success in medical fields or the ways that a rural health career ladder program influences the career decisions of rural youth in health care fields. Using case study analysis this study addresses this knowledge gap. It is important to understand not only the motivational factors that inspire students to select a specific career (Esters & Bowen, 2005) and research students' career-decision making processes (Lucas, 1993, cited by Esters & Brown, 2005). Also noted by

Esters and Brown (2005), cited in Super's research, indicated the decision-making process concerning one's career is not so much a function of the information provided to individuals, it is more the process of development and planning.

Health Careers Opportunity Program (HCOP) and Centers of Excellence (COE) are two youth programs receiving funding under Title VII of the Health Professions Educational Assistance Act of 1976 to sponsor educational interventions across the country. The primary goal of HCOP is to identify, recruit and support individuals from disadvantaged backgrounds for education and training in a health profession (Amator, 2007). HCOP includes academic enrichment opportunities for enrolled students who include mentoring, summer bridge courses, training for filing financial aid and curricular counseling. Students are engaged through professional enrichment experiences that involve exposure to primary health care and seminars or presentations from local health professionals (Amator, 2007). In contrast, COE programs support designated health professions schools with significantly higher enrollments of underrepresented racial/ethnic minority students compared to the national average (Burrows et al., 2012).

The HCL educational program included in the study is in a county with a population of 17,000 or less, located in a county outside a metropolitan area and had a high school enrollment of less than 1000 students. This program is a comprehensive educational pipeline that began in 2011. The goal of the program is providing age-appropriate health and science related activities in a spectrum of health professions to rural middle and high school student's. The HCL program was designed to teach rural students about health and science through fun and practical 'hands-on' activities. Students learn to explore career goals and access college program information. Although literature has demonstrated that health career development programs are effective,

what has been lacking is the understanding of the complex and interrelating elements that influence youth career making decisions. Determining the effectiveness of one program will shed light on the ways that institutional characteristics, policies and practices may encourage rural students to attain careers in health care in their communities. Understanding the factors shaping rural youth career decision-making in the context of a health workforce development program is important in the work toward a solution to rural workforce shortages.

Conceptual Framework of the Problem

Career choice is a matter that has attracted academic, professional and public attention (Ozbilgin, Kusku, & Erdogmus, 2004). Studying one HCL program in a rural community provides the factors influencing economically disadvantaged and remote youth health career decision-making within the context of a health careers. The conceptual framework used for this case study research followed the social cognitive career theory to explain the complex phenomenon of factors affecting rural student career aspirations (Bandura, 2001). The case study framework involved the career decision-making model by O'Neil, Meeker and Borger (1978). The career choice factors of high school student's model by Borchert (2002) were used as a guide on what impacts student career aspirations. Studying rural students in a HCL program will supplement existing research that established physicians practice medicine in communities where they grew up and attended school (Chan et al., 2005; Laven & Wilkinson, 2003; Roberge & Lavoie, 2012).

Statement of the Problem

Over the past several years, a growing number of national, state and specialty specific studies have concluded the United States physician workforce are facing current and future shortages (Burrows et al., 2012; Rabinowitz et al., 2001; Scipion, 2016). The need for increased

numbers of physicians and other health professionals in rural communities and the attention to rural disparity reduction are well documented (Burrows et al., 2012; Mareck, 2011). Rural communities experience significant challenges in recruiting and retraining health professions, continuing workforce shortages and lack of longevity in health workforce retention, (Rabinowitz et al., 2001). With 20% of the U.S. population residing in rural areas and only 9% of physicians practicing there. People living in rural areas constitute large underserved populations. Rural health care facilities must “have an adequately-sized health workforce to meet the needs of the population increase” (Burrows et al., 2012, p. 6).

Recruiting and retaining health care providers in underserved areas is difficult and remains challenging. Research shows that financial, professional and cultural factors affect where young doctors choose to practice (Roberge & Lavoie, 2012). Another factor compounding the shortage of rural physicians is that the number of medical graduates who choose to practice rural primary care is insufficient to replace the rural doctors who are retiring. A recent study found nearly 30% of rural primary care physicians are at or nearing retirement age, while younger doctors, under age 40, account for only 20% of the current workforce (Glymour, Saha, Bigby, & Society of General Internal Medicine Career Satisfaction Study Group, 2004). Medical doctors are similar to other professionals in that they desire to live and work close to where they trained, where they were raised, or where they can be near their families (Laven & Wilkinson, 2003).

Engaging underrepresented populations in the educational process to increase the number rural born and ethnic minorities pursuing the health care field is essential (Rosenblatt et al., 2010). Educators and policy makers can have the greatest impact on the supply and retention of rural primary care physicians. College graduates with a strong rural background are not

choosing a career in the rural health care (Henry, Edwards, & Crotty, 2009). Current research supports the need to target students from rural backgrounds in the medical school admissions process (Burrows et al., 2012). Without more graduates from medical schools and innovations to attract health professionals to otherwise unattractive locations, those living in rural communities will continue to struggle with access to health care (Florell, 2009).

In the context of the critical shortage in rural health care providers' career pathways and bridging programs provided one solution to the problem of rural underrepresentation in health careers (Patterson & Carline, 2006). These programs highlight success of nurturing and sustaining interest in rural practice by providing secondary education students with early and frequent exposure to rural practice settings (Laven & Wilkinson, 2003; Rabinowitz et al., 2001). The lack of information on the career development process to encourage careers in health care within rural communities is evident and warrants further research. The current investigation aimed to narrow this gap in research literature. Providing career exploration programs in rural communities could plant the seeds for career aspirations to flourish.

Purpose of the Study

Although many studies have investigated predictors of why physicians practice in rural areas, few have accounted for the factors that affect youth career aspirations toward careers in health care fields. Moreover, little professional literature is available relating to individual subgroups, such as economically disadvantaged children and career development. The current study offered insight based on first-hand student perceptions. The purpose of the research was to explore the effectiveness of a health career ladder program to influence health care as a career preference for rural youth. Research included the career aspirations and perceptions of middle school and high school in a rural community regarding their future roles as rural health care

professionals. In identifying what rural students determined as important in deciding upon a career choices will assist instructors in curriculum design to provide the necessary resources for student to make educated career decisions. This information was necessary in the work toward a solution to the shortage of rural healthcare providers.

Research Questions

The research questions developed to guide this research study were designed to understand what factors influenced career aspirations and the impact a HCL program had on the decision process to entering the medical field. The assumption was HCL programs provide significant opportunities for youth in rural communities to be successful in seeking careers in health care. This case study will test the theory by interviewing rural students attending a HCL program. The questions guided this case study research were the following:

Question #1: How do rural students describe what motivates them to pursue a career in health care?

Question #2: How do rural students describe the factors that influenced career decisions?

Question #3: What aspects of the HCL program influenced student career choice?

Rationale and Relevance

This research provides data from rural students regarding how they benefited from attending a HCL program. Students provided information connecting their enrollment in a program to their overall career aspirations. This case study provides insight into the factors influencing rural youth career decision-making within the context of health careers. The conclusion of this study will enable career ladder programs to effectively appeal to youth and guide career making decisions. This bodes well for rural communities experiencing a critical shortage in health career providers. The shift in community and cultural perceptions regarding

higher education can positively influencing young people's career decision-making in rural and remote settings (Kumar et al., 2015). The major controversy with this approach was whether the strategy of youth educational pipeline programs leads to better recruitment and retention in rural medicine (Hancock, Steinbach, Nesbitt, Adler, & Auerswald, 2009).

Significance of the Study

This research has the potential to expand knowledge in several different areas. First, this study explored three variables rural youth in an economically disadvantaged community, their career aspirations and perceptions of self-efficacy, not found in extant literature by the investigator. Researchers often spotlight the lack of rural health care providers (Burrows et al., 2012), but failed to examine the value of proactive preparation for career development for the youth in those communities to fill workforces needs. This qualitative case study yielded valuable information from one small rural community. Therefore, this research added to the existing body of knowledge of what influences youth career aspirations to fill rural health care workforce needs.

Second, this study gave voice to the rural youth participants. There was a quantitative component to glean students' background knowledge regarding career choices and interests. However, the qualitative interaction provided an opportunity to better understand the students' frame of reference regarding their future aspirations and the life factors that influenced their dreams. Students' first-hand disclosures provided a more comprehensive, authentic account of how they see their future in health care and whether they considered themselves capable of attaining their goals. Thus, the participants revealed responses unique to this subgroup and not found in previous research involving older participants and/or from varying degrees of economic prosperity.

Finally, this research provided valuable information what factors have the greatest influence on the choice of career among rural youth to affect a variety of rural workforce shortages. It will provoke further research on the effectiveness of programs to influence career aspirations among students. The information in this study is important when advising students who are considering a career in rural health care. The case study findings serve as resource materials for others who want to carry out research in emerging areas of career aspirations and recruiting and retaining health care providers in underserved areas. Findings from this study may be applicable to other areas of career and technical education within rural communities and for other organizations with similar programs.

Definition of Terms

This section defines several of the terms used in the study.

Career choice. The broad opportunities that exists for life long vocations. These vocations are set out in a framework of strategies moving toward personal goals. Fields of vocational, academic and sociological endeavors are explored for satisfying personal, economic and intellectual goals.

Centers of Excellence (COE). Programs that provide enrichment opportunities for enrolled students including mentoring, summer bridge courses, training for filing financial aid and curricular counseling (U.S. Department of Health and Human Services 2009).

Educational Pipeline Programs. Any supplemental instructional or educational enrichment program that prepares students for professional careers.

Environment. The complex physical factors that make up our surroundings (Britannica, 2009) and in turn act upon us. For the purposes of this study they would include the forces of family, political, social and economic issues that students may deal with on a day-to-day basis.

Health Career Ladder Program (HCL). A specific program designed to guide rural middle school and high school youth toward college and careers in rural health care.

Health Careers Opportunity Program (HCOP). Program that recruits and supports individuals from disadvantaged backgrounds for education and training in the health professions (U.S. Department of Health and Human Services, 2009).

Opportunity. Those choices in one's life which are exposed either in a subtle or obvious manner. These choices or paths give the individual a selection between two or more outcomes. The outcomes of one's choosing may or may not exceed one's present abilities.

Personality. A characteristic way of thinking, feeling and behaving (Britannica, 2002). The personality is the impressions believed to have been made on others, good or bad. One's personality may embrace attitudes and opinions that affect the way we deal with interactions of people and, particular to this study, the situations of choosing a career.

Rural Community. A rural community is set outside of the city and towns. Rural communities are often farmlands. In these communities, people live far apart from one another. Rural communities are the farthest from urban communities or the city (U.S. Census Bureau, 2016).

Social cognitive career theory (SCCT). SCCT is a theoretical framework developed by Lent (2005) to understand the ways in which career interests are formed, the ways in which academic and career choices are selected, and occupational persistence and performance. Lent produced theoretical models that linked self-efficacy, outcome expectations and goal-setting, all of which are assumed to be influenced by person and contextual factors

Limitations, Assumptions and Delimitations

Limitations. Despite the strength of the research design, the study has several limitations. The study relied on data from a relatively small number of students in one HCL program. The study was limited to students attending the career ladder program and did not reach to students that no longer attend the program. The sample was drawn from rural youth in one economically disadvantaged community and thus may not be generalizable to other areas. This study was descriptive in nature and therefore, causation cannot be assumed.

Participants in the current study self-selected and it unknown whether those who chose to participate were in fact representative of students who aspire to pursue health care careers. The current study design called for descriptions regarding variables of interest, it was not possible to establish causality between any of the variables. Another limitation was as students participated in the interview process, they also passed on their own biases and prejudices. A final limitation was the difficulty of replicating the study since it was a study of a unique group, in a unique situations.

Assumptions. It was assumed, for the purposes of this case study, that participants understood the interview questions and were truthful with their responses to interview questions. The data analysis of the interview responses were accurate and consistent for what each respondent intended. The assumption included students having control over their career decisions and having decided on a career path.

Delimitations. A delimitation of this study is that the unit of analysis will be restricted to rural students with enrolled in a health career ladder program. Thus, the study may not be applicable to urban students or students attending non-health related career ladder programs. Furthermore, the study considers the experiences of middle school and high school students in an

economically disadvantaged rural community and may not be extendable to students in other states or other regions of the state or necessarily rural community programs. The number of students interviewed could also be a delimiting factor, as results could vary with a greater number of participants.

Summary

As the United States struggles with an overall healthcare provider shortage, those shortages are often more profound in rural areas. The shortage of rural health care professionals has been the focus of recent research (Burrows et al., 2012). To increase individuals who choose to pursue a career in rural health care, it is important to understand not only the motivational factors and rewards that guide students into a specific career (Zoldoske, 1996), it may also be critical to research students' career-decision making processes (Lucas, 1993).

The literature includes studies regarding rural upbringing and programs to promote health careers to youth with the goal that they will serve their communities as physicians (Laven & Wilkinson, 2003). This study represents an exploratory effort in interpreting the effectiveness of a health career ladder (HCL) program developed to maximize the number of rural youth who prepare for health care professions. Understanding what affects student career aspirations is necessary in the work toward a solution to rural workforce shortages (Burrows et al., 2012).

The authors assumption is career ladder programs provide significant opportunities for youth in rural communities to be successful in seeking careers in health care. Specifically, this study will address factors such as learning experiences, or career interests, which play roles in the development of career choice goals. This case study will test the theory by interviewing rural students attending a HCL program to improve our understanding of effective educational strategies of one HCL program to promote the attainment of rural youth in health carer fields.

The understanding of the factors that have influenced students will enable programs to increase the opportunities that affect student career aspirations to meet rural workforce shortages. An effective career ladder program will provide a smoother transition for students into more meaningful, productive rural career choices, such as the health care industry.

Chapter 2: Literature Review

Introduction

It is widely acknowledged that rural and remote communities experience significant challenges in recruiting and retaining health professionals, continuing workforce shortages and a lack of longevity in health workforce retention (Kumar et al., 2015). There are federal, state and institutional interventions to address the need for rural health care providers needed to serve rural areas. Based on Heinert and Roberts (2016) and Rabinowitz et al. (2001), students from rural environments are more likely to practice in a rural community. Therefore, the best results for retention likely come from recruiting students who are from those areas.

The literature supports a complex interplay of factors involved in student entry and persistence in science and health related careers. Selecting students with a natural bond for rural practice and shaping their educational experience in one way to attract more doctors into areas with physician workforce shortages (Pathman, Steiner, & Jones, 2016). It is important for to support and strengthen science education of students at the K-12 levels to increase rural youth and minority enrollment in higher education and within health professions (Balfanz, 2009; Bragg et al., 2005).

Using current literature reviewed as a guide, this study will explore the ways that a HCL program promotes careers health care fields to rural youth. The objective was to determine the educational and career aspirations of rural students. Identify what support rural youth receive in achieving their aspirations and the factors that influence their career decision process. The study sets out to examine the factors that reportedly influence career choice for middle school and high school students in a rural community.

Conceptual Framework

The conceptual framework used for this case study research followed Bandura's Social Cognitive Theory and Social Cognitive Career Theory (cited in Bandura, 2001), to explain the complex phenomenon of factors affecting rural student career aspirations. To describe person and environmental factors identified in this case study, the models of career decision-making developed by O'Neil, Meeker and Borger (1978) and career choice factors of high school student's model by Borchert (2002) are used to guide what impacts student career aspirations. This review will highlight relationships among career decision-making self-efficacy, outcome expectations, person and environmental factors and career choice goals. The need for additional research on models of career decision-making process to promote viable career aspirations toward health care for rural youth is discussed.

Review of Research Literature

The literature studied on what affected students' decisions included personal and educational factors, socioeconomic status, parental influence, religious influence and student perceptions (Breen & Quaglia, 1991; McCracken, Barcinas, & Wims, 1991; Schonert-Reichl, Elliott, & Bills, 1993, all cited by Esters & Bowen, 2005). Borchert (2002) identified environment, opportunity and personality as factors directly affecting the career choices they make. Career aspirations are developed a variety of factors in students' lives, such as education, learning, occupation, family, self-concept, personal growth, health and physical well-being, relationships social community involvement, leisure, material-environmental accomplishments and abilities. Each is laden with personal and social meaning and contribute to one's overall development of identity (Borchert, 2002).

High school is a time when adolescents begin to make significant decisions about their future educational and career paths and how to identify their aspirations and how to set their educational and career goals.” Aspirations reflect individuals' ideas of what they would like to become, what they might become and what they do not wish to become" (Haas, 1992, p.1; cited by Burnell, 2003). Therefore, it is imperative that students develop the efficacy, skills and readiness to make adaptive career decisions and set viable career choice goals. Viable career choice goals can be defined as career goals to which one is committed, goals for which one is preparing to achieve and goals that are measurable, specific and can be reached through a series of well-defined steps (Burnell, 2003). Setting viable goals does not mean that in the process of career decision-making, adolescents should be dissuaded from considering any career option that might interest them.

Adolescents' career decision-making self-efficacy beliefs, such as their ability to successfully engage in the tasks involved in making career decisions (Brown & Lent, 2004) are key components in this decision-making process (Betz & Hackett, 1995). However, many rural youth lack the efficacy to make career-related decisions and thus the career decision process is not actively pursued to a satisfying end. Developing career maturity and career decision-making self-efficacy are important concepts for understanding rural youth career behaviors and assessing their progress toward achieving viable career choice goals (Ziebell, 2010).

Review Methodological Literature

Reviewing career choice theories was required for a deeper understanding of influences on career choice. External factors to aspirations have been used as a means of identifying a young person's goals for the future and perception of reality (Burnell, 2003). Rural students in underserved communities have the potential to fill workforce needs and reduce health disparities

of communities they serve. A few studies have examined the vitality of career aspirations or job interests for predicting jobs actually obtained.

Bandura's Social Cognitive Theory. The Social Cognitive Theory (Bandura, 2001) offered a theoretical framework that helps to explain and predict human behavior and decision-making. Self-efficacy, defined as a person's belief in his or her capabilities to perform a particular activity (Bandura, 2001), varies from individual to individual. While self-efficacy is defined as people's beliefs about their capabilities to exercise influence of events that affect their lives (Bandura, 2001), career decision-making self-efficacy refers specifically to beliefs regarding the ability to successfully accomplish tasks related to the career decision-making process (Betz & Hackett, 1983). Career decision-making self-efficacy also differs from career self-efficacy, in that career decision-making self-efficacy is efficacy to accomplish the tasks related to making career decisions, including accurate self-appraisal, goal selections, developing plans for the future, gathering occupational information and problem solving (Betz & Hackett, 1983). Career self-efficacy is defined as a content or task-specific self-efficacy, efficacy for performing the tasks related to a particular career, such as a science or engineering career (Lent, 2005).

According to Social Cognitive Theory, self-efficacy is achieved through personal motivation and through one's beliefs regarding his or her capability or competence in performing domain-specific tasks (Bandura, 1997; Betz & Hackett, 1983; Lent, 2005). Motivation and beliefs together influence one's perceptions of abilities, such that an individual has perceived abilities may vary from his or her actual performance. Thus, when an individual's self-efficacy increases regarding personal abilities to perform well on a particular task, levels of persistence and motivation will also increase, with the result being even greater self-efficacy for completing

a specific activity. Numerous studies have suggested that greater self-efficacy in such domains as academic performance (Lent, 2005). According to Bandura (1997), individuals may have high self-efficacy, but these self-efficacy beliefs relate to outcome expectations, which determines whether one will work toward a given behavior or goal and how long individuals will persist in the face of obstacles.

SCT also considers personal goals in the relationship of self-efficacy beliefs to outcome expectations. Personal goals can be defined as one's intent to take part in a particular activity or to produce a given result (Bandura, 1997). SCT considers two dimensions of goals: choice-content goals, the type of career one is interested in pursuing and performance goals, and the level of performance or attainment one is interested in achieving. Such as, two students may have the same career choice; however, they may differ in their career outcomes.

Throughout the description of SCT, Bandura (1997) highlighted the transactional relationships among (a) internal, personal factors, (b) behaviors and (c) environmental factors through the triadic reciprocal model. According to Bandura (1997), the model suggests that personal characteristics such as cognitive processes and emotions are contextual variables and behaviors interact and influence perceived self-efficacy. Bandura connected self-efficacy with people's motivations and actions, arguing that what people believe influences motivation, actions and ultimately, the decision-making process. This is regardless of whether the beliefs are actually true. Bandura's theory underscores the importance of personal, contextual and environmental factors in understanding students' perceptions regarding their abilities and confidence in making specific career decisions.

Social Cognitive Career Theory. Social Cognitive Career Theory (SCCT) was developed by Lent, Brown and Hackett (2000) as a framework for academic and career

development. Bandura's Social Cognitive Theory (1997) recognized that learning occurs through interactions with others and the environment (Bandura, 2001). The social cognitive theory focuses on several cognitive-person variables such as self-efficacy, outcome expectations and goals and on how these variables interact with other aspects of the person and their environment to help shape the course of career development. The theory incorporates a variety of concepts, interests, abilities, values and environmental factors that appear in earlier career theories and have been found to affect career development. SCCT recognizes an individual's capacity for self-regulation, motivation, self-directed learning and goal setting in affecting behavioral change. According to SCCT, career development is influenced both by objective and perceived environmental factors. Since career selection is a result of the interaction between individuals within organizational and social structures, it is important to analyze the factors that influence student career aspirations (Lent, 2005). SCCT attempts to explain the processes associated with academic and career development by highlighting three interrelated models that address (a) how basic academic and career interests develop, (b) how educational and career choices are made and (c) how academic and career success is obtained. Also, SCCT examines how the cognitive-personal variables, external environmental factors and overt behaviors interact via feedback loops that can either promote or impede career development processes.

According to Lent, Brown & Hackett (2000), efforts to test hypotheses derived from SCCT require sound measures of the theory's constructs. The theory is concerned with domain-specific aspects of human functioning and thus raises unique measurement challenges. SCCT research calls for measures that are tailored to specific domains and dependent variables of interest as opposed to traits, which can be assessed with general measures. Therefore, to

facilitate social cognitive research on career development, Lent and Brown provided a guide for conceptualizing and assessing the core constructs of SCCT: self-efficacy expectations, outcome expectations, interests, goals and contextual supports and barriers. SCCT research often requires a measurement development phase prior to, or in conjunction with, hypothesis testing (Lent, 2005).

The most central concept in SCCT is self-efficacy expectations, which represent a dynamic set of beliefs that will change over time. Self-efficacy refers to an individual's perception of his or her own ability to organize and execute a plan of action. An individual's self-efficacy interacts with performance and person, behavior and contextual factors and will shift along with the successes and failures he or she experiences across time (Lent 2005) Furthermore, an individual's self-efficacy expectations directly influence outcome expectations, choice goals, choice actions and performance attainments, all important factors in career-related behavior (Lapan, 2003). The most common ways to conceptualize and measure self-efficacy in SCCT research include (a) content or task-specific self-efficacy, which refers to beliefs in one's ability to perform the specific tasks required to succeed within a given domain under normative conditions and (b) coping efficacy, which refers to beliefs in one's ability to negotiate particular domain-specific obstacles (Lent, 2005).

Self-efficacy for career decision making has also been investigated and refers to an individual's belief that she or he can complete specific tasks related to making a career decision. Many studies have examined career decision self-efficacy using predominately white students (Ambriz, 2016) and very few researchers have studied this same variable with rural students. Lent (2005) expanded the scope of SCCT, offering a new and related social-cognitive model designed to explain the ways in which previously identified inputs such as self-efficacy and

outcome expectations, along with person and contextual variables, are related career aspirations. Blustein (1999) described SCCT as "one of the most influential theoretical perspectives in career development" (p. 349), noting that the theory's "emphasis on self-efficacy beliefs provides a rich explanatory construct for researchers" (p. 350). Despite this strong influence, there has been almost no empirical research to date that applies SCCT specifically to rural youth who are in the midst of the school-to-work transition.

According to Lent et al. (1994; 2000) contextual affordances can be divided into two categories: distal and proximal factors. Distal factors are background influences, such as culture, gender, opportunities and available learning models, which influence people's self-efficacy, outcome expectations and interests. Proximal influences include social, familial, emotional, or financial support for the chosen occupation, job availability and sociocultural barriers, such as discrimination. Proximal factors are most influential during the critical or active phases of young people's choice process, as certain cultures, family may influence adolescents' career decisions supports (Lent et al., 1994). Beneficial environmental conditions are assumed to strengthen goals and their likelihood of accomplishment. Proximal influences can also be intermediate outcomes in that they reflect the effects of more distal background outcomes that include person inputs and learning experiences. Proximal and distal factors represent active constructions or processes that can, by themselves, affect key career outcomes, choice actions and performance attainments. Thus, the core SCCT variables can be viewed as both dependent and independent variables to the effectiveness of a health career ladder program to influence rural student career decisions.

The elements of social cognitive theory are considered when identifying factors that affect student career aspirations. Social cognitive theory model is a base for combining existing

career theories and for conceptualizing developmental and remedial career intervention (Lent, Brown & Hackett, 1994). Examples of objective factors include the quality of the educational experiences to which one has been exposed and the financial support available to one for pursuing particular training options. Many objective factors can potentially affect one's career development, whether one specifically apprehends their influence. However, the effect of a particular objective factor often depends at least partly on the way the individual appraises and responds to it (Ziebell, 2010). Students' career aspirations can be influenced adversely or beneficially by events that are beyond their control or awareness. How individuals view the environment and themselves also affords the potential in career development (Lent et.al., 1994).

Lent and colleagues' (1994) SCCT model can be used to understand the personal, social and contextual factors involved in career and educational development. The application of the model to adolescent career decision-making self-efficacy fits well as it provides a useful framework for understanding adolescent career development and decision-making from sociocultural and cognitive contexts, where individual and contextual factors such as gender, ethnicity, race, class, self-efficacy, outcome expectations, personal goals, environmental supports and opportunity structure are examined. Understanding the personal factors and contextual variables in the career decision-making process of rural youth is important, as these factors greatly influence their career choice processes. Figure 1 provides a model of Social Cognitive Career Theory.

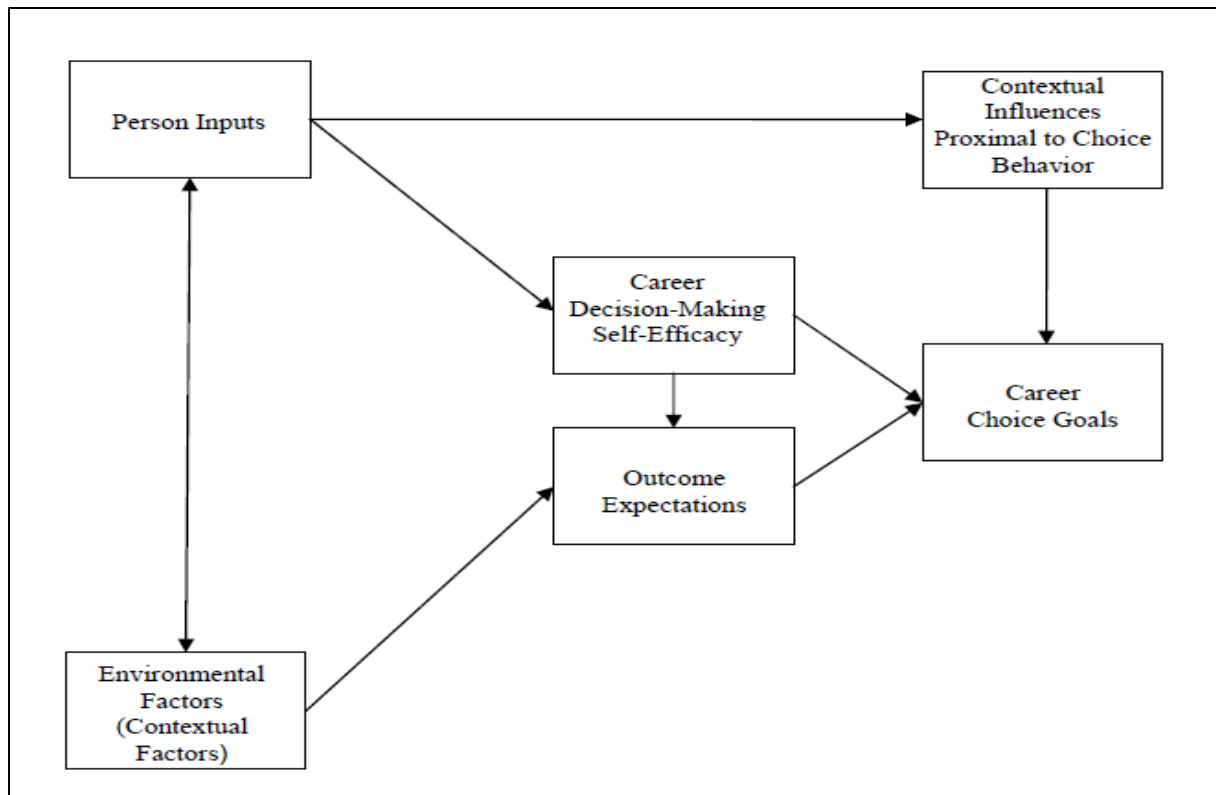


Figure 1. Social Cognitive Career Theory Model. (Copyright 1993 by R.W Lent)

Personal inputs can be defined as individual factors such as gender, ethnicity, interests, values, abilities that people bring to the career development process. Contextual affordances refer to those environmental factors that either support access to resources or are barriers to the career development processes. These constructs highlight the perceived internal or external resources that individuals feel are available to them. This study holds that the facets of the SCCT model to determine whether segments of the SCCT model are relevant in determining the effectiveness a health Career ladder program (HCL) to influence student career aspirations. The HCL program for this case study is in a rural economically disadvantaged community. The students attending the HCL program should already have started to make decisions on career choices.

One aspect of Social Cognitive Career Theory addresses the fact that individuals are likely to consider continuing a particular task if they have had a positive experience doing it. In this way, students focus on areas in which they have had proven success and achieved positive self-esteem (Lent, 2005). Cooperstein and Kocevar-Wiedinger (2004) stated when students are given the opportunity to take learning into their own hands; they become motivated to continue to learn. Other techniques appearing in science career literature include project-based learning and hands-on activities (Kanter & Konstantopoulos, 2010; Kramer, Walker, & Brill, 2007; Randler & Hulde, 2007; Satterthwait, 2010). These techniques are studied across all subject areas and age groups to demonstrate students' experiences are enhanced through a variety of approaches. Some involve participation in community health fairs to promote health careers; others include working directly in middle and high schools' science classes (Schaps, 2003). Such opportunities are critical in promoting science interest among youth in rural communities (Cummings et al., 2012).

Determining future career plans is one of many important choices students will make. This decision will impart them throughout their lives. How the young people of today meet the problems of tomorrow will depend upon the amount of success they make in planning for that tomorrow. Planning for tomorrow itself is primarily the responsibilities of the parents, teachers and school counselor. Students need general orientation into the world of work through the curriculum. The choice of career is a delicate issue that requires caution and serious considerations. The kind of career students pursue can affect their lives in many ways. It can determine where the individual lives and the type of friends kept. It can reflect how much education one will have and determine the amount of money one will earn. What drives career aspirations are different for everyone, some may desire high income; others may seek adventures

while some others strive to serve people to make the world a better place. The HCL program used for this research was developed in response to concerns about the barriers faced by local young people in developing and furthering their career aspirations and health workforce challenges faced by the community. Determining the primary factors influencing career choice of rural students will assist in the realignment of curriculum to meet the needs of students to make an educated career choice.

Model of Career Decision-Making. A model of career decision-making developed by O'Neil, Meeker and Borger (1978) served as the theoretical base of this study. The model presented an overview of how individuals make career decisions. The model indicated that there are 6 major factors and 22 sub-factors that are major determinants in the process. They identified the six major factors in the model which are (a) the familial factor, (b) the individual factor, (c) the societal factor, (d) the socioeconomic factor, (d) the situational factor and (e) the psychosocial-emotional factor. Each of the six factors to be attributable variables in career choice processes (O'Neil, Meeker, & Borger, 1978).

Even though these factors are not all inclusive, they tend to influence career decision-making. In the current study, this model is used as a basis for determining factors that influence the career choice decisions of rural youth toward health careers in health care. The O'Neil model served as the basis for determining interview questions and establishing research categories. This model does not specifically propose to provide a complete framework for understanding the career decision-making process for rural students of the country; however, it serves as a framework for building an understanding of the effectiveness of a health career ladder program to influence career aspirations and will exclude the psychosocial-emotional factor.

The factors determining career choice. Career selection is one of many important choices students will make in determining future plans (Borchert, 2002). The essence of who the student is will revolve around what the student wants to do with their life-long work. The career choice that students make is a decision that is influenced not only by their development it is also by the context in which they live (Chen, Fordyce andes & Hart, 2010). Every student carries the unique history of their past and this determines how they view the world. A student's history, created, in part by their environment, personality and opportunity, will determine how they make career choices. It then follows that how the student perceives their environment, personality and opportunity will determine the career choices students make.

Environment is the first factor that influences career choices for students (Borchert, 2002). A student's environment plays a large part in a student's career choice. Examples would include recreational facilities and articles the student has seen in local papers or on the television. The student's support system made up of parents, relatives, siblings, peers, teachers and counselors may be the environmental factor. For instance, students who lived on an island may choose a career dealing with the water, or they may choose to leave the island behind, never to have anything to do with water again (Borchert, 2002). Maybe someone in the student's life lead them to a definite career choice. Their parents' educational background may influence views on whether to continue their education. How students have seen themselves in a role in which personality is a determining factor may influence a chosen career.

Some careers demand that one's personality match the qualities of the occupation. Studies have shown that students will choose a major that they think will fit their personality type. Therefore, a student's personality holds attitudes and beliefs that affect the way they deal with those day-to-day situations around choosing a specific career (Borchert, 2002). While some

students know exactly what career they want to pursue as adults, for many students the process of figuring out what career would be best for them requires taking the time to consider their interests, strengths and potential. Splaver (1997), cited in Borchert (2002) stated the importance of oneself and one's personality is in making intelligent career plans. According to Porter and Umbach (2006) students who have an investigative personality are more likely to major in science fields. Students who are very social people are more likely to major in the social sciences.

Opportunity is the third factor that has shaped career choices for students (Borchert, 2002). Opportunity may influence how students have perceived their future in terms of the reasonable probability of a future in particular career fields. The issue of poverty has played an important determining role in the opportunities available to all (Borchert, 2002). The income level of secondary school families may determine what career a student chooses during a specific time in the student's life; choices that will determine a large part of that student's future. Some students will have to budget education according to their personal income. Many factors affect the career choices of rural students (Kuechler et al., 2009). It is critical to identify how and why students choose a career and use that information from an academic or policy perspective to work toward a solution to rural workforce shortages (Kuechler et al., 2009).

Additionally, the President of KLH Industries in Germantown believed, "that students are not being told on an equal basis the success stories of those in the trade at present; compared to those that pursued a traditional four-year college profession" (Borchert, 2002, p.15). Health career ladder programs are one way to inform, educate and guide rural youth toward health-related careers. Rural HCL programs support the considerable evidence showing that rural background of medical students is a strong predictor of rural practice intentions and preferences

(Laven & Wilkinson, 2003). The value of health career development programs for youth from economically disadvantaged rural and remote background cannot be underestimated in providing a solution for persistent workforce challenges experienced in these settings.

This study offered insight based on first-hand student perceptions the effectiveness of one HCL program to guide rural students' career aspirations. The study investigated what factors in students' lives were most important when selecting a future career. The understanding of the factors that have influenced students will enable programs to increase the opportunities that affect student career aspirations to meet rural workforce shortages. Career choice is not always a priority for high school students (Borchert, 2002). For more than a decade both new and experienced educators have been aware of students making career choices, postponing and potentially limiting their career successes. There are about 1,200 two-year and 2,200 four-year colleges in the United States and the vast majority admits almost everybody who applies. However, 50% of students at four-year colleges and universities quit without ever graduating (Unger, 1994). Gray (2004) agreed with this research stating, "69% of high school students go directly to college; 72% enroll within 2 years of graduation, two thirds of whom enroll in 4-year colleges, but 30% or more must take remedial education and one in two are underemployed" (p. 14). The need for physicians willing to serve rural communities and incentives for those physicians already caring for patients in these communities is expected to grow tremendously in the future. These statistics are staggering and discouraging for those students who wish to be college bound. If more high school students were made aware of this data and the emphasis on a sensible career choice verse the typical route, there may not be such a dramatic problem.

Given the above facts and the persistent shortage of health care providers at all levels in rural communities, it is critical to maximize the number of youth in these communities that are

informed about, choose to prepare for and are successful in entering health professions. Much of the data researched implies that to effectively address the chronic shortages of health care providers in rural communities, the United States must engage in practices and policy setting that results in more rural born students being trained in health professions. However, even when such students are identified, the social, educational and financial support needed for them to be successful in entering health careers is often weak or missing. The effort required to identify and support rural youth who wish to pursue careers in health care is substantial, but health professions jobs are significant economic drivers in rural communities and recruiting rural youth to health professions careers is a long-term economic investment.

To accomplish this goal, rural communities must create and sustain effective programs to recruit young people to the health careers pipeline. Accomplishing this in rural communities is made particularly difficult by the unique fiscal and program challenges facing rural school districts. Some of the challenges facing the 25% of U.S. schools and 14% of U.S. students located in rural areas include the difficulty offering advanced academic or vocational courses. Either the school does not have enough instructors to teach such courses, or the cost of distance learning is prohibitive to the district. Faced with significant difficulties in meeting the day-to-day educational needs of their students, many rural school districts can find it virtually impossible to provide the extra resources needed to prepare students to pursue and succeed in health professions training programs. Career development theory and research indicate that children often begin as early as ages 6-8 to make choices, including deselecting certain potential careers, which will significantly impact their future decision to pursue a specific career (Wahl & Blackhurst, 2000).

Career choice is not always a priority for rural students. To increase the numbers of rural students entering health professions, there must be program that develop and maintain the interest of rural youth in health careers, present positive images of the health professions and foster belief that such a career is attainable (Durlak & DuPre, 2008). For more than a decade, both new and experienced educators have been conscientious of students making poor personal career choices, postponing and potentially limiting their career successes. Investing in rural health care education can facilitate recruitment and retention efforts in small communities, reducing rural workforce shortages and increase workforce diversity (Burrows et al., 2012).

In sum, a review of SCT (Bandura, 1997) and SCCT (Lent et al., 1994; 2000) highlighted the role self-efficacy plays in young people's beliefs, actions and decision-making processes. Both model the career choice factors of high school student's model by Borchert (2002) and of career decision-making developed by O'Neil, Meeker and Borger (1978) described the person and environmental factors identified in this theory. In addition, a brief review career opportunities and trends will highlight how specific inputs and environmental factors can interact to enhance adolescents' career decision-making and viable career choice goals.

Career opportunities and trends. Several search methods were used to identify different educational pipeline programs and the results on student outcomes. Initially, online searches were conducted on the effectiveness of youth programs to increase health career awareness in rural communities. Much of the literature on the shortages of rural health care revealed an array of programs and services to increase outreach in rural communities (Brooks, Walsh, Mardon, Lewis, & Clawson, 2002). The National Rural Health Association (2017) stated successful programs recognize and respond to the increasing racial and ethnic

diversity in rural communities with initiatives that address the cultural and linguistic barriers to health career choices.

Pipeline programs extend education to support graduation of rural underrepresented students with the goal of increasing their representation in some areas (Bezanson, 2003), such as health care. Several pipeline programs exist designed to increase the number of underrepresented students in medical careers. Supporting pipeline programs targeting rural students interested in pursuing medicine within or near their home communities as a means of addressing rural shortages seems sound. These programs connect students to professional programs that resulted in students' interest and longevity in professional careers (Stern et al., 2010). Pipeline programs sponsored by medical schools are one strategy to attract rural students toward careers in health care and provide guidance into undergraduate school.

The Health Professions Partnership Initiative (HPPI) provides funding for local educational partnerships between medical schools and K–12 schools around the country. Special programs, such as magnet health-science high schools, articulation agreements and science education partnerships have been instituted to enrich the science and related offerings available to students from poorly equipped schools (Dolea et al., 2010). HPPI program models established mentoring relationships and provided counseling to ensure that the many milestones to medical school were understood and achievable. A model based on established research showing that minority students share the same level of aspiration to health careers as majority students yet do not receive the secondary education necessary to ensure their success. Academic enrichment programs alone do not provide enough educational content to make a difference in academic performance; adding social and motivational components has been shown to help these efforts

succeed. There are many programs useful in guiding rural students toward careers in rural health care.

The Bureau of Health Professions administers programs through its various divisions that include expanding opportunities for underrepresented minorities and disadvantaged students in the health professions. The Bureau of Health Professions coordinates the Comprehensive Health Careers Opportunity Program (HCOP) and the Center of Excellence (CoE), two programs that have received funding under Title VII of the Health Professions Educational Assistance Act of 1976 to sponsor educational interventions across the country (U.S. Department of Health and Human Services, 2009).

The primary goal of HCOP is to identify, recruit and support individuals from disadvantaged backgrounds for education and training in a health profession. Program elements include academic enrichment opportunities for enrolled students that include and are not limited to mentoring, summer bridge courses, training for filing financial aid and curricular counseling. In addition, HCOP engages students through professional enrichment experiences that involve exposure to primary health care and inviting local health professionals to address students in seminars or panel discussions. HCOP programs focus on college student enrichment through structured activities for middle and high school students. The COE programs support designated health professions schools under the U.S. Public Service Act that have significantly higher enrollments of underrepresented racial/ethnic minority students compared to the national average.

The federal pipeline programs are designed to increase interest, awareness and understanding of health careers available in rural communities for middle school and high school students. The intent is a vision for collaboration, improving learning, teaching and assessment

for rural students. While the literature does provide evidence of the effects of the career ladder programs on student academic achievement, it is not without limitations. Although it is much harder to quantify data on the constructs of engagement or interest in science and mathematics, large-scale efforts to understand these issues are critical to understanding how students gain or lose interest in the health science (Maltese & Tai, 2011). There is limited research on comprehensive evaluations of particular youth recruiting and retention strategies.

Several pipeline programs exist to increase the number of underrepresented students in medical careers, however there is still much to learn about what factors influence rural students career decision-making process. The literature reviewed included conceptual research on similar programs and case studies involving youth career ladder or bridging programs in youth development. The studies presented explore programs to maximize the number of rural youth choosing to prepare for and are successful in entering health professions (Cohen et al., 2002). The field of study describing how individuals interpret events is called attribution theory (Weiner, 1990). It has been applied in higher education research to understand how motivational factors influence student retention (Demetriou & Schmitz-Sciborski, 2011).

Rural communities need additional support and assistance to move interested and capable young people into and through the health careers pipeline. Success of pipeline efforts depend on: 1) Educational and informational factors, 2) Attitudinal and environmental factors and 3) Programmatic factors. Research regarding the important of early intervention to guide youth career aspirations is abundant, however, there is limited research involving career choices to rural health care, which was the focus of this study. Further research on the perceptions and attitudes of the students attending career ladder programs will open new methods of creating additional career development programs for a varying of rural professions in greatest need.

The rural HCL program for this case study provides additional support for rural students to succeed in higher education and persist on to professional careers in health and research fields. The health career ladder program was selected to evaluate because it is the only program of this kind in the region, working with youth to offer career guidance toward medical careers. This study will determine student experiences, attitudes and beliefs about the effectiveness of a health career ladder program to influenced heath care as a career preference, as a way of finding effective ways to increase rural physician.

Review of Methodological Issues

Qualitative evidence collection is subject to the biases of the people involved, both in collecting the evidence and in providing it. Data collection challenges are in the examination of the perspectives of a single group of people (Creswell, 1998; Yin, 2003). The research participants included rural middle school and high school enrolled in a HCL program. The HCL program was selected because of the location and the educational designed to influence local youth to seek careers within health care fields. Yin (2003) reported “the case study method is best applied when research addresses descriptive or explanatory questions and aims to produce a first-hand understanding of people and events” (p. 2). A single case study methodology allowed the examination of a particular phenomenon of the factors that affect student career choices (Stake, 1995). The methodology was supported by the literature to initiate student interviews and student reflections.

Synthesis of Research Findings

Making a career choice is not a single decision made at one point in time, but a process involving many decisions, great and small, that combine to set one on an individualized trajectory of career development. The process of career decision-making begins from an early

age; it is evident in the young child who has an answer to the question, “What do you want to be when you grow up?” and continues in some developmentally appropriate form throughout the lifespan. The many career decisions that a person makes, beginning with one’s first career fantasy and continuing through the adolescent and adult years, involve a complex synthesis of personal, social and environmental components (Emmerling & Cherniss, 2003). Studying what influences rural students career aspirations, provided additional information regarding the attributions of the rural student participants of HCL program over and above their self-reported objective outcomes data.

The study identified the effectiveness of a HCL program to facilitate or enhanced the students’ career aspirations toward attaining careers in health care. Most evaluations of the effectiveness of pipeline programs rest on their ability to document increased grades over a reference population. Few studies examine student perceptions of success regarding their experience within a career ladder program. The assumption is the HCL program provides significance opportunities to participants to consider health care careers. This study tested this theory by interviewing students attending a career ladder program the effectiveness to guide their career aspirations. The study findings encourage continued investment in youth programs that positively affect healthcare in rural communities.

Critique of Previous Research

The rural students in underserved communities have the potential to fill workforce needs and reduce health disparities of communities they serve. A few studies have examined the vitality of career aspirations or job interests for predicting jobs actually obtained. Pinckney (2014) examined the effectiveness of a postsecondary medical education pipeline program and provided results similar to other successful models of undergraduate pipeline programs.

Pinckney (2014) found minority and disadvantaged students with institutional and programmatic support can successfully transition from undergraduate school to graduate and medical schools. And students who participate in pipeline programs will do so faster and in larger proportions than the general population. The value of this case study is rooted in the need for supplemental education and training programs for rural youth as a strategy toward increasing rural health care providers. This case study will add to the previous research to theoretically illustrate the factors shaping rural and remote youth career decision-making in the context of a health career workforce development program.

O'Brien (1996, cited in Borchert, 2002) examined case studies of six different high school students 'interested' in enrolling into a program titled Workbound. Workbound was a program only available to some students during their high school experience. Based on interviews, the opportunities provided to students motivated them to pursue future career choices (Borchert, 2002). The perceptions and eventual decisions these students made were based on previous opportunities during the first seventeen to eighteen years of their lives. The perceptions of these students upon entering a structured cooperative work program varied from eager to skeptical and suspicious to a resume' builder, (Borchert, 2002)

Summary

Reversing the shortage of rural health care providers is a complex problem with no short-term solution. Previous research provided information on the critical shortage health care providers and the means to recruit and retain rural physicians. Research findings indicate students from rural environments were more likely to practice in a rural community (Burrows et al., 2012). It is becoming increasingly evident that part of the solution may rest with the activation and development of health career aspirations among young people in rural and remote settings.

However, career aspirations are developed for a variety of factors in students' lives (Markus & Uriu, 1986). "Aspirations reflect individuals' ideas of what they would like to become, what they might become and what they do not wish to become" (Haas, 1992, p.1). Little research has been done involving career choices to rural health care, which was the focus of this study. Study participants enrolled in a career ladder program were asked about their experiences in the program and the factors that affect their career aspirators.

The Social Cognitive Theory, Bandura (1997) offered a conceptual framework that helps to explain and predict human behavior and decision-making. Cognitive Career Theory (SCCT) was developed by Lent et al., (1994; 2000) as a framework for academic and career development. Bandura's Social Cognitive Theory (1997) recognized that learning occurs through interactions with others and the environment. Reviewing these career choice theories was required for a deeper understanding of influences on career choice. However, a deeper understanding the factors that students have used in identifying career choices will enable youth programs aid in the decision-making process for different rural career workforce needs.

Previous research findings on programs to improve outcomes for rural students entering the medical profession were used to guide this case study research. However, the effectiveness of programs was not addressed in the research. This case study provided self-reported evidence directly from students regarding their experiences in the program and the effectiveness of the program to influence career decisions.

Investigating the effects of a HCL program in an economically disadvantaged rural community is advantageous as this methodology has the potential to recruit rural youth into the rural health care workforce. Few studies have used this methodology and those that have, yielded medical pipeline programs have helped prepare minority and disadvantaged students for

entry into medical and graduate school (Pinckney, 2014). The effectiveness of a HCL program to influence rural student career aspirations was selected for this case study as a way of looking at the rural population to meet the needs of rural workforce shortages. There is a need to increase outreach to rural populations for improved individual success and representation among healthcare professionals. Continued research on student career choices and health care careers, will open new methods of applying career development programs to varying sizes and types of rural workforce needs.

The literature demonstrated that health career development programs are effective. The research reviewed for this case study explored programs that maximize the number of rural youth choosing to prepare for and are successful in entering health professions (Cohen et al., 2002). The HCL program used for this research was developed to introduce careers in health care to students within the rural community with the hope these students become part of the rural health workforce. This case study will continue that discussion in understanding the complex and interrelating factors that affect youth career decision-making process in one rural community. The effectiveness of the program to influence career aspirations is the basis of this case study to ensure positive outcomes. The next chapter will explain the methodology used in the research method.

Chapter 3: Methodology

Introduction

To meet the research objectives of this study, students attending a rural career ladder program were interviewed to identify the effectiveness of a HCL program to influence career aspiration toward health care fields. The methods and procedures used in this study of career choice and an analysis of the factors affecting rural students' career aspirations are explained in this chapter.

Research Questions

The research questions developed to guide this research study were designed to understand what factors influenced career aspirations and the impact a HCL program had on the decision process to entering the medical field. Three research questions were used to guide this study. (a) How do rural students describe what motivates them to pursue a career in health care? (b) How do rural students describe the factors that influenced career decisions? (c) What aspects of the HCL program influenced student career choice?

Purpose of and Design of Study

The purpose of the research is to understand student experiences, attitudes and beliefs about the effectiveness of a health career ladder program to influenced heath care as a career preference. Research has shown that career ladder program are effective strategies to recruit rural students into health care careers (Katz, Smart and Paul, 2010). The study provides information on students' perspectives the factors that influence career aspirations, as a way of finding effective ways to increase rural physicians.

After years of working within medical education in a rural community, the researcher observed a lack of students who were prepared to make a career choice toward health care. In

turn, the researcher contacted professionals connected to a career ladder program to verify these observations. The information collected on the shortage of rural health care providers encouraged the researcher to investigate the issue further. Publications, including career choice of high school students and the future career opportunities within rural health care, were sources of written documentation showing that this issue was valid. Therefore, the researcher explored the topic by searching through thesis papers by other educators. There were few studies connected to rural students' career aspirations toward rural health care fields, demonstrating a need for further study. This study was initiated to investigate whether rural students' interest in pursuing health science careers is impacted by exposure to information about those careers. After examining these studies, interviewing students enrolled in a HCL program in a rural community was the appropriate mode of instrumentation in this study.

To understand how rural youth could set viable career choice goals, this study employed student perspectives of rural youth regarding the vision they held for a career in health care. Using the method of triangulation, data sources included interviews with individual rural youth, data collected from the pilot test group and the review of outcomes for prior career ladder programs promoting careers in health care for youth and the perceived influence of the career intervention.

Research Population and Sampling Method

The research participants included middle school and high school students in a rural community actively enrolled in a HCL program who have attended the program for more than two years. This program was selected because of the location and the educational design to influence local youth to seek careers within health care fields. There were 55 students enrolled in the career ladder program at the time of this study. Student participants were selected to

participate in a semi-structured interview process based on the length of time they participated in the career ladder program and their individual grade level. Of the 55 students enrolled, 25 had attended the HCL program for two or more years.

Research Design

The design of the study was a qualitative descriptive case study that examined the perspectives of a single group of people (Creswell, 1998; and Yin, 2003). A descriptive case study methodology allowed the examination of a particular phenomenon of the factors that affect student career choices (Stake, 2006). Yin (2003) indicated the findings derived from cases should not be generalized beyond the samples providing the data; however, they may be generalized to theoretical propositions. Similarly, Stake (1995) asserted that the real business of a case study is particularization not generalization. “We take a particular case and come to know it well, not primarily as to how it is different from others but what it is, what it does,” (Stake, 1995, p. 8). Moreover, many scholars recommend using case study method when examining particular situations in which the phenomenon examined is unique. Thus, the qualitative researcher assumes the value of what is said by respondents and how they speak and the words they use, all within the context of the situation. Qualitative research assumes the value of personal voice and informal speech in the data collected and even more informal language and narrative mark the reporting of research results. The design of the research is also subject to the phenomenon of emergence of categories, patterns, meanings and theories. The shape of an interview itself evolves according to the direction taken by the respondent.

Case study research, through reports of past studies, allows the exploration and understanding of complex issues (Zainal, 2007). It can be considered a strong research method when a holistic, in-depth investigation is required. Recognized as a tool in many social science

studies, the role of case study method in research becomes more prominent when issues regarding education, sociology and community-based problems, such as poverty, unemployment, drug addiction, or illiteracy were raised (Stake, 1995). One of the reasons for the recognition of case study as a research method is the limitations of quantitative methods in providing holistic and in-depth explanations of the social and behavioral problems in question (Zainal, 2007). Through case study methods a researcher can go beyond the quantitative statistical results and understand the behavioral conditions through the participants' perspective (Zainal, 2007).

Yin (2003) notes three categories, namely exploratory, descriptive and explanatory case studies. The descriptive case study practice presented the most logical choice for the research on rural youth because it allows the study of a certain event or program which in the case of this research study was a career ladder program. Yin (2003) reported, "The case study method is best applied when research addresses descriptive or explanatory questions and aims to produce a first-hand understanding of people and events" (p. 2).

Descriptive case studies examine the data closely both at a surface and deep level to explain the phenomena in the data. For instance, a researcher may ask the reason as to why a student uses an inferencing strategy in reading. Based on the data, the researcher may then form a theory and set to test this theory (Zainal, 2007). Descriptive cases are deployed for causal studies where pattern-matching can be used to investigate certain phenomena in very complex and multivariate cases.

Yin (2003), indicated three rival theories can explain these complex and multivariate cases: a knowledge-driven theory, a problem-solving theory and a social-interaction theory. The knowledge-driven theory stipulates that eventual commercial products are the results of ideas and discoveries from basic research. Similar notions can be said for the problem-solving theory.

However, in this theory, products are derived from external sources rather than from research. The social-interaction theory, on the other hand, suggests that overlapping professional network causes researchers and users to communicate frequently with each other. In this descriptive case study, the research sought to determine the perceptions of rural students regarding their career interests/aspirations and factors influencing career choices and related preparation experiences, including relevance to careers in health care. The methodology was supported by initiating a pilot test, interviews and student reflections.

Pilot test. The pilot study of the current research was the first step of the practical application of the interview questionnaire for students' feedback on program effectiveness. The pilot study was a trial run of the process in preparation of the complete study. The pilot test was used as a feasibility study and a pre-testing of the interview process intended for this descriptive case study research. Interview questions intended to use for student interviews were sent out to five members of the career ladder executive board and 20 first-year medical students that lead the HCL program. The executive board members consisted of university faculty and staff, school district employees and community members. The members of the executive board have managed the career ladder program for the past seven years. Each member was excited to participate in the research process to evaluate the program outcome. First-year medical students included in the pilot study administer the curriculum for the program. The medical students that are involved in this program potentially had similar experiences that impacted their career decisions.

The pilot study identified whether the youth respondents would understand the questions and instructions and the meaning of questions were the same for all respondents. The purpose of the pilot test was to establish validity and reliability of the instrument, help identify any

ambiguous items in the interview questions and enable the researcher to be familiar with administration of the instrument. To start with, the pilot interview revealed that some of the questions should be modified to prevent a simple yes and no response or even just a one-word answer. Although the researcher tried to maintain an open approach with regard to the questions asked (Appendix A), it did not always ensure that the answers would be similar. One question asked, “Has this program influenced what you think you want to do when you grow up? The response was simply answered, yes. It then became very important to stress how and why, when asking the question to gain a more insightful answer from the interviewees.

The original interview questionnaire consisted of 18 questions prior to the pilot study (Appendix A). Comments were made on individual questions, with suggestions from both respondents and interviewers for ways to improve the questionnaire for the study. The feedback received by the pilot study group involved assessing the questionnaire question-by-question by the comments from each response. After the pilot, the final interview questions were reduced by combining questions #8 and #9 to create to clarify the meaning and provide consistent responses. Questions #5 and #7 were similar and only one was asked during the final interview process.

Instrumentation

The investigator developed an interview process as an instrumentation device for this study. The interview questions were developed to obtain youth career aspirations and the factors influencing those career decisions. The validity of the interview questions was tested on the HCL program advisory group for the intended use. The research objectives and the interview process were introduced to all student and parents attending the HCL program. The introduction of the interview process was explained as elective and voluntary.

The research collected information from students attending a HCL program. Only students' attending a career ladder program would be able to assess the effectiveness of the program to influence their career decisions. Patton (1990) described the use of records and documents in qualitative research as the basic source of information about program decisions and background, or activities and process. Providing the evaluator with ideas about important questions to pursue through more direct observation and interviewing (Patton, 1990). Creswell (1998) stated it is significant the researcher spends enough time in the field and engages several sources of data to support their findings and to show multiple perspectives. The interview data was collected by interviewing rural students over a four-month period.

The consent form described the study and its purpose, the expectations of participant involvement and the details of the instrumentation so students and parents had time to consider if they would like to be part of the research and to what extent. An introduction to the interview guide explained the confidentiality of the data collected and how the information is used to benefit other programs. The introduction section of the interview stated that students avoid any questions that they felt uncomfortable about responding. Participants were instructed the interview was not mandatory and outlined the right for them to withdraw from participating at any time without any consequence. Students were not obliged to participate and were able to drop out at any stage of the data collection. The anonymity of the respondents was guaranteed and upheld throughout the whole research process.

Participating students were asked to determine a time to participate in interviews and volunteer to share their perceptions of the program. The expectation was that a diverse set of students would be established based on the selection criteria. Participants were interviewed individually. The interviews each took approximately 50 minutes to complete. It was expected

that transcribed interviews would be available for students' review 4 weeks after the initial interview was completed. The use of open-ended questions in individual interviews allowed data collection within a selected group of participants. These conversations provided further insight into perceptions of professional learning communities and their relationship to teacher efficacy.

Data Collection

Interviews were semi-structured with pre-set questions to guide the interview. Each participant was individually interviewed. An interview guide Appendix A, ensured the same basic line of inquiry was followed with each interviewee, yet the guide also allows for follow-up questions to further explore a response in greater depth. The guide provided a framework within which the interviewer asked relevant questions and encouraged each interviewee to respond and elaborate. Individual interviews enabled the researcher to gather the perceptions of students attending a HCL program. Questions used in the interview were a product of a survey used by the program leadership to determine the program's effectiveness to influence youth career aspirations.

During an interview the students tone of voice were observed, comments were listened to attentively, and question were framed well to elicit valuable and detailed responses (Marshall & Rossman, 1999; Sunstein & Chiseri-Strater, 2012). "The interviewer needed to communicate the subjective view of the respondent is what matters" (p. 110).

Identification of Attributes

Evidence to support case study research emerges from many sources and is often more complex than data collection processes for other research methods (Yin, 2009). According to Yin (2009), six sources of evidence are used for data collection in case study research: documentation, archival records, interviews, direct observation, participant observation and

artifacts. This descriptive case study incorporated the interview process, documented interview responses and direct observation to collect data. Creswell (1998) explained the criteria for the collection of data includes a natural setting observable data and an analytical role of the researcher. The data for this study was collected in a natural setting. The phenomenon of the study was observable and the researcher played a critical role in the collection of the data.

Creswell (1998) stated it is significant the researcher spends enough time in the field and engages several sources of data to support their findings and to show multiple perspectives. Creswell (1998) also listed eight methods of verifying data to maintain to legitimize the study, which included “persistent observation, peer review, negative case analysis, clarifying researcher bias, member checks, rich, thick descriptions and external audits,” (pp. 202–203). The eighth strategy for verifying data collected from a variety of sources is triangulation, as this provides the researcher an opportunity to present a broad range of evidence – a strategy unique to case study (Creswell, 1998). Using five of the suggested methods including persistent observation, clarifying researcher bias, member checking and descriptive interview responses, provided this researcher an opportunity to present a broad range of evidence on the effectiveness of a health career ladder program to influence student career aspirations in an economical disadvantaged community. Using the method of triangulation, data sources included interviews with individual rural youth, data collected from the pilot test group and the review of outcomes for prior career ladder programs promoting careers in health care for youth and the perceived influence of the intervention.

The methodology for the current study aimed to gather student perspectives of rural youth regarding the vision they held for a career in health care. The researcher obtained a comprehensive student perspective by triangulating data collection and analyses. This strategy

involved having participants reflect on the investigator's data, interpretations and conclusions for the accuracy and comprehensive quality of the account. This process ensured the researcher represented participants' voice with rigor and credibility (Creswell, 1998).

Data Analysis Procedures

Data analysis focused on the perceptions of the students who have attended two or more consecutive years, to warrant consistency of the information collected. All student participants and their parents received information about the research during the HCL program in October and November 2016. Qualitative analysis of the data begins with a large amount of data that is then broken down into smaller segments.

Using open questions, the participants were able to explain the meaning of their perceptions of the effectiveness of the program to influence career choices and provide information of their personal experiences in the program. The researcher facilitated interviews, recorded the oral responses and analyzed data received. Creswell (2003) recommended six steps to organize the data. These steps are preparing and organizing the data, reading the data, beginning detailed analysis with a coding process, using that process to generate categories and themes, advancing how these themes will be represented in the analysis and making an interpretation of the data (Creswell, 2003). The process of analysis began with the interview responses of participants. Interviews were recorded and reviewed four times to ensure all data was collected accurately. The researcher recorded and reread the transcripts three times ensuring the responses were captured accurately from the individual student interviews. Responses were not accessible to anyone other than the researcher. The confidentiality of information provided participants the autonomy to be honest and forthcoming with their answers, which increased the validity of the comments. The interview responses gathered revealed student experiences,

attitudes and beliefs about the career ladder program. From responses received, categories, themes and patterns emerged

Some of the strengths of data collection from the interview process is information can easily be collected, cooperation from the students is facilitated, immediate access to participants to clarify questions or information. Data was collected from the interview process in a safe setting, a college lecture hall, creating the ability to be comfortable to state personal perceptions of the program and future career choices. The researcher removed all names from the accessible interview analysis. The interview responses were used to show a complete analysis of the data collected.

Simultaneous coding of descriptive code and process code was utilized based on Saldaña (2009). A systematic process of data analysis through the generation of similar themes and categories of students' perceptions of what factors of a HCL program influence students' interest in sciences and health care provided categories, themes and patterns. The strategies used in analyzing the interview response data include understanding the meaning of an individual text and identifying themes in the responses received.

Limitation of the Research Design

The limitations of this design are with data collected from a self-report instrument. With a self-reported survey respondents may have difficulty in understanding the questionnaire format. The open-ended questions could affect the findings, as the participant's answers are open to interpretation. The researcher is responsible for verifying all statements as thoroughly as possible (Resnik, 2015).

The study was limited to students attending the career ladder program and did not reach to students that no longer attend the program. The program is limited to whether these results

could be replicated in a different HCL program or in a different geographical area is not known. An additional limitation of the research design is the data collected from a face-to-face interview and the limited number of consent forms returned. Despite there being many limitations of the research design valuable data was collected to encourage continued investment and improvements in educational programs to impact the shortage in rural health care workers.

Credibility

The process used for coding the data comes from Saldaña (2009). There were eight steps in the data analyze process that allows a researcher to find significance in the information provided. These eight steps provided by Saldaña (2009) included reading over the transcripts and writing thoughts about the underlying meaning in the margins. The process enabled the researcher to make a list key topics and cluster them together as codes. The codes were referenced codes next to the data and turning them into categories. Alphabetizing the final abbreviations of categories and assembling the data material for each category and recoding the existing data assisted in the analysis of the data collected. Interview response data for this research was a feasible measure of the impact of the HCL program on student career decisions toward rural health care.

Additionally, the interview transcripts were returned to participants regarding the interpretations of their responses to ensure credibility of the study (Merriam, 1998). Participants should “play a major role directing and acting in case study” research (Stake, 1995, p. 115). Therefore, the process of member checking was used whereby the preliminary descriptions were shared with participants to verify accuracy of the interpretations and add description that may have been missed to enhance credibility of the study.

Transferability

Transferability is the degree to which the results of a qualitative study can be transferred to other settings of similar context (Golafshani, 2003). By studying student perceptions, additional insight into a more effective and beneficial learning experience for students can be gained so that other programs may benefit from the data that emerges. Because of the student input on the effects of the program, this study can be transferred to similar settings and contexts as they pertain to other research sties (Golafshani, 2003). The sincere response from rural students allows readers to determine the transferability of the study (Merriam, 1988).

Expected Findings

This study represented a descriptive effort in interpreting the effectiveness of a health career ladder (HCL) program developed to maximize the number of rural youth who prepare health professions. The expected findings are providing a greater understanding of the factors that affect students' career choices and investigate the effects of career ladder programs to influence student career aspirations toward healthcare. The assumption is the HCL program, has a tremendous impact on student career aspirations toward the health care fields industry. Students consider many factors in their lives when choosing a career. This case study provided insight to broader range of interrelated factors of environment, personality and opportunity, affecting rural youth career decision-making within a health workforce development initiative. It is expected that the factors most influential in students' career choice are their environment. Further early exposure to science and career opportunities are essential in guiding student career aspirations.

Whether this program is useful for all students in their career development was not the goal of the study. What is important is identifying factors influencing rural students in their

health care career development. If future research determines these same factors affect all students pursuing higher education and careers in health care, it does not detract from the purpose and goals of this research.

Ethical Issues

The Concordia Institutional Review Board (IRB) approved the study prior to recruiting participants. This research proposal involves cooperation and coordination among different disciplines and institutions. Ensuring quality and integrity in the subject and data promote the values essential for collaborative work, such as trust, accountability, respect and fairness. Dissertation committee members were consulted throughout the study to ensure safeguards. Parental consent forms were signed for each student participant which described the study, requirements, expectations and protocols. In the consent form, the expectation that participants would answer the interview questions openly and honestly was included to help ensure quality of the data collected. All data, including email correspondence, recordings, transcripts, notes and coding were kept confidential within the researcher's password protected laptop, which was kept in a locked drawer.

The interview process was conducted during the spring of 2016 semester. All students were given a parental permission slip, not only as an issue of the Institutional Review Board for the Protection of Human Subjects, but also from an introduction standpoint to reduce apprehension and to streamline the process on the day of the individual interview. Parental consent forms were issued in tandem with the interview. Only those students that returned a signed parental consent form could participate in the interview process. This research was limited to a particular group of student participants from a rural community who attended two or more years with a HCL program. Removing student names from the transcribed interview data protected participants' identities. Any information that could be used to identify a participant was removed.

Confidentiality was maintained by recording the interviews, along with very little written material. The recordings were done with the researcher's iPhone and transferred to a personal laptop for transcription and coding purposes. At no time was the information accessible to anyone besides the researcher. No electronic records associated with student responses were retained or used to identify the respondents.

Researcher's position. The role of the researcher for this research was to analyze the data and draw conclusions from the student data in a logical and objective manner. The interest was in examining students' perceptions to identify factors influencing students' choices and understand the effectiveness of a current HCL program to influence career aspiration toward health care fields. This study was selected to identify why rural students choose medicine as a career as one possible step toward reversing the shortage of rural health care providers. To this end, my role as researcher was to analyze the experiences and beliefs shared by participants for patterns and themes regarding the effectiveness of a program to inspire careers in health care.

Chapter 3 Summary

This researcher uses a qualitative case study methodology to understand the factors affecting students' career choices. This chapter described a qualitative case study and the mythological approach used to determine the extent of the HCL in facilitating career development toward a solution to the problem of rural underrepresentation in health careers. This chapter detailed the interview process to collect data and conducting interviews with program participants. The details of the interview question guide, as well as how the data addresses the research question were provided. The chapter ended with a discussion on the limitations and ethical issues of the study. The research adds to the literature regarding rural

youth pipeline programs to attract students to seek careers in health career as an effective way to increase rural health care providers.

Chapter 4: Data Analysis and Results

Introduction

This chapter will provide data gathered from student interviews, which were conducted by the investigator. Semi-structured questions guided each individual interview (Appendix A). The purpose of the research was to determine student experiences, attitudes and beliefs about the effectiveness of a health career ladder program to influence health care as a career preference. Two fundamental goals drove the collection of the data and the subsequent data analysis. Those goals were to examine a career ladder program in an economically disadvantaged rural community and to understand the factors that affect youth career choices. To determine the factors in students' lives that positively influence student career aspirations toward rural health care, the following research questions informed this study:

Question #1: How do rural students describe what motivates them to pursue a career in health care?

Question #2: How do rural students describe the factors that influenced career decisions?

Question #3: What aspects of the HCL program influenced student career choice?

The role of the researcher for this case study was to analyze the data and draw conclusions from the student data in a logical and objective manner. This chapter describes the study sample, data analysis, results of data analyses and findings regarding the effectiveness of a program to inspire careers in health care. The findings presented in this chapter demonstrate the potential for merging career development strategies with rural workforce shortages in health care.

Description of the Sample

The research sample included middle school and high school youth, in a rural community, attending the health career ladder program. There were 55 students active in the career ladder program at the time of this study, ranging from 6th through 12-grade. Student participants were selected based on the length of time in the program and grade level. This breakdown can be seen in Table 1 below.

Table 1

Participant demographics

Student	Age	Gender	Length of time in the program
S1	15	Female	3 years
S2	15	Female	4 years
S3	17	Male	6 years
S4	16	Male	4 years
S5	15	Female	2 years
S6	16	Male	6 years
S7	15	Male	4 years
S8	15	Female	4 years
S9	12	Female	2 years
S10	12	Female	3 years
S11	11	Female	3 years
S12	12	Male	3 years
S13	15	Female	2 years
S14	15	Female	4 years
S15	15	Female	3 years
S16	16	Male	5 years
S17	17	Male	6 years
S18	16	Male	6 years
S19	14	Female	6 years
S20	15	Male	4 years

The research sample originally identified high school students as participants, which only generated eight informants. The sample size of eight was too small for a case study and a revised IRB was submitted to include middle school students in the research study. With the revised IRB, both the addition of middle school students and an increase in the number of high school participants, the sample size increased from eight to 22 students who were eligible for the

study. A signed parental form was required for participation in this research study (Appendix F). There were 20 forms returned to participate in the interview process. The 20 participants who returned consent forms were interviewed over 4 months in the spring of 2016. Participants' identities were kept confidential with the omission of names.

The student ranged in age from 11 to 17 years-old, with 11 (55. 2%) females and 9 (45%) males as the study sample. The high school participants accounted for 72% of responses received and middle school participates accounted for 28% of responses. There were slightly more female students, 54% in the research study and their age, at the time of study was less than 16 years old. The study sample increased from eight to 20 participants with the addition of middle school students.

Student participants were required to have participated in the program for at least two-years. The Three were 25 students able to participate in the interview process out of the 55 program participants. There were 20 parental consent forms obtained out of the 25 eligible participants. The sample showed a significate number of students, had remained in the health career ladder program for 4 years (see Figure 2)

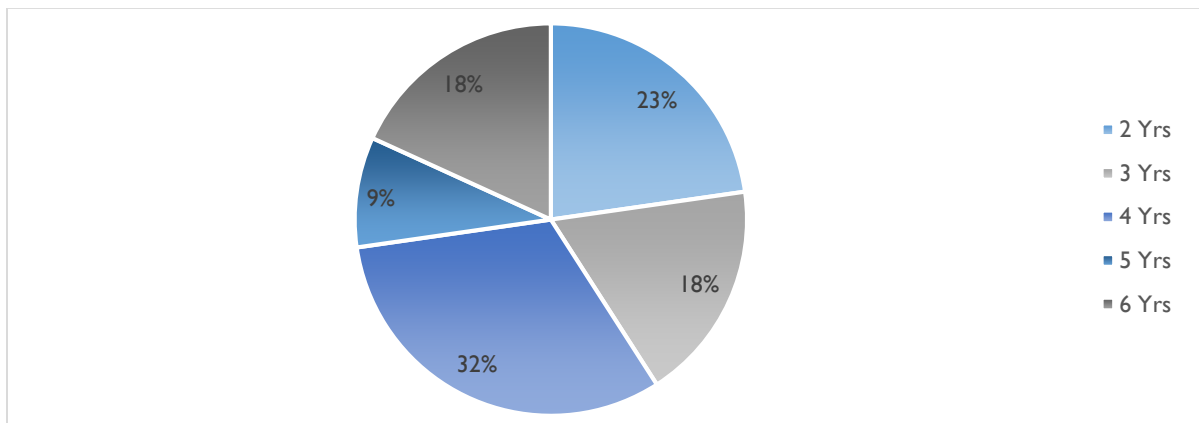


Figure 2. Number of years for student enrollment

Of the student participants interviewed, 23% had attended for 2 years. Only 18% of the student responses indicated attending the HCL program for 3 years. Four students, 18%, continued in the program for six years. The number of years students remained in the program indicated that students who began in middle school were likely to stay through high school; this showed the program provided content that retained students interested in learning science through the high school years of the career ladder program.

Research Methodology and Analysis

The conceptual framework used for this case study research used the social cognitive career theory (SCCT) to explain the complex phenomenon of the factors affecting rural student career aspirations (Lent et al., 1994, 1996). The career choices adolescents make is a decision influenced not only by their development; it is influenced by the context in which they live (Chan, et. al., 2005). Borchert (2002) showed that three areas of a student's life affected the career choices they made, as environment, opportunity and personality. All three played different roles in career outcomes of a student. The theoretical perspectives summarized are student environment, opportunities available and students' personality type toward specific careers. This knowledge will contribute to our understanding of the effectiveness of a health career ladder program to influence career aspirations toward careers in rural health care. The study looks how programs provide community-related outcome expectations and personal outcome expectations to influence career aspirations.

A descriptive case-study research approach was used to explore the phenomenon of student career aspirations, focusing on the experiences and perceptions of students participating in a health career ladder program. A case study allowed for collection of rich, descriptive narratives of participants perceptions and factors affecting career choices. The collection of rich

data is an in-depth and detailed understanding of subjective experiences and perceptions of individuals willing to share their stories with the researcher (Yin, 2013). This case study collected students' experiences and perceptions of what factors impacted their career aspirations and the effectiveness of the HCL program to guide students' toward rural health care career.

Analysis. The process of analysis began with the interview responses of student participants. Interviews were recorded and listened to three times to ensure the responses were comprehensible. Upon completion of the student interviews, the recording were transcribed and reread three times to understand the meaning of an individual text and identifying themes in the responses received. The transcripts were reviewed for descriptive labels that were consistent with the elements of the research questions, the factors affecting student career aspirations and the effectiveness of the program to influence career choice and the frequency of words. The student interview transcripts were reviewed for the frequency of words students used regarding the characteristics of the program that assisted in learning science and health care careers. In Vivo coding was the initial analysis tool used to discover emerging patterns of the responses received. The first coding of the participants' interview transcripts within In Vivo Coding Method (Saldaña, 2009) identified key words and phrases in each participant's words. Next, each transcript was read with the purpose of pulling out and recording noteworthy concepts, words and phrases. For each interview transcript, these key words and phrases were noted in a separate document to look for emerging patterns and themes in the next level of coding to categories.

The research for the current case study determined the factors affecting youth career aspirations by categorizing student statements into the factors of environment, personality and

opportunity as follows: *Environment* included statements of family, school-related and economic issues that students deal with on a day-to-day basis. *Personality* contained statements of personal attitudes and beliefs in choosing a specific career. *Opportunity* included any programs that influenced students; expectations, in terms of a future in a rural health care career fields (Borchert, 2002). Next, the interview transcripts were analyzed using the factors that affect career development, environment, personality, or opportunity as the basis to determine the factors that influence student career decisions. These key phases were connected to the designated factor, per Borchert (2002) that affected students' career aspirations. The table was sorted by the factors and revealed commonalities among participants' key words to the categorized factors that were determined.

Summary of Findings

This study identified the effectiveness of a HCL program to facilitate or enhance students' career aspirations in health care careers. Most evaluations of the effectiveness of pipeline programs rest on their ability to document increased grades over a reference population. Few studies examine student perceptions of success regarding their experience within a career ladder program. The assumption was that the HCL program had an impact on student career aspirations. This study tested this assumption by interviewing students attending a career ladder program the effectiveness to guide their career aspirations This research tested the assumption by interviewing rural students attending a HCL program.

Presentation of Data and Results

This section of Chapter 4 presents the findings from the data analysis that related to student career opportunities and perceptions of health care careers. By gathering the perceptions and experiences from a diverse group of students, the research examined multiple interpretations

of the effectiveness of a HCL program to influence career aspirations of student participants. The sections are grouped by participants' responses to the research questions. The data directly connects to the research questions outlined in Chapter 1:

Research Question 1. How do rural students describe what motivates them to pursue a career in health care?

Interview questions five through nine addressed what factors influenced students' career aspirations and their interest in the career ladder program. These questions explored what influenced students to join the program, its impact on students' future careers and identified the greatest influence in making a career choice. To determine if there was a significant factor affecting career choice, the interview questions asked what influenced students to join the HCL program.

S1 responded by stating her mom influenced her to begin attending the HCL program when she was in 5th grade."The program is very encouraging and provides a focal point on careers and a pathway toward achieving a career goal." She continued to say, "It is nice to have professional and student doctors as mentors."

S2 had a friend attending medical school who encouraged her to attend the career ladder program. S2 stated, "The program helped me with confidence and to be social. There is always something interesting and I always take something away that I have learned from here." S2 is currently interested in a dental career."I've always had a pretty clear idea of what I want to do." She continued to talk about the program stating it was very helpful in providing the building blocks and a direction toward health careers.

S3 had an interest in a career in virology. S3's interest in was one of curiosity to find answers. He is 17-years old and attended the career ladder program for six years. S3 talked

about enjoying the experiential learning and hands-on activities.”When it comes to looking at science,” he said,” it keeps me from getting bored.” His family and a science teacher all greatly influenced him in careers in the science fields. S3 stated, “In 6th grade, I had a math and science conversion class. My teacher introduced the program to her class. That was interesting and I have enjoyed attending. Coming here seems great.”

A science teacher and a parent influenced S4 to join the program. S4 said, “My mom wants the best for my future, so she helps me pursue whatever I wanted to do and get through rough times. She is a stay at home mom and if I need help with anything, she will try her hardest to help develop my interests.”

S5 said, “Initially I was influenced to believe in my academic abilities and myself by my 6th grade teacher. She made me believe that I could accomplish whatever I set my mind to. Subsequently, I really loved the experience and found I could see myself doing a health occupation in the future.” “I had a science teacher in high school who is very influential in my decision to learn science.

S6 is interested in a health career. He stated, “There are a lack of after school programs that incorporate science learning. There is a need for programs that support learning about science, mathematics and engineering.” His father is an optometrist and is his greatest influence toward a career within healthcare. He stated he is motivated to learn about nature and the world.

S7 has plans to go to college and get a degree in computer programming. He has attended the career ladder program for 4 years. S7 said, “Thinking about science can also take time to acquire the thought process. I think there is a stigma that science is extremely difficult and only the brightest can succeed, making it appear more daunting to go into and hard to master.” S7 became interested in science in middle school, prior to attending the program and

would like a career within the science field. He said, “It is a sequence of experiences and regular family support, advisors and teachers that got me here.”

S8 is a high school student, in her fourth year attending the career ladder program. She talked about a personal tragic experience that influenced her career choice and the desire to help people. S8 said both her mom and a grade school science teacher influenced her to attend the career ladder program. S8 talked about how the science teacher made the subject interesting and how her mother provided the support to help develop her interests.

S9 is a middle school student in her second year of the career ladder program. S9 said, “I think more exposure to clinical sciences at a younger age would be a great way to stimulate interest in sciences as a career choice.” S9 was influenced by her mom to join the program. A science teacher was influential in her continued interest in science.

S10 is a middle school student who has attended the program for 3 years. S10 was the only student who stated a desire to be a physician for as long as he can remember. He said, “So I suppose my inner drive to become a physician is what motivated me to learn science.” S10 spoke about joining the program stating, “I was interested in learning more about science, since it had many applications in multiple areas of life.”

S11 is a female student who has attended the program for 3 years. She talked about participating in programs to learn about different types of health jobs. S11 said, “Some students are highly influenced by their parents, while some just recognize it is what we are better at.” When asked what motivated her to learn science, she said, “I just liked it. I am not great at history or writing.” She felt that science academies would prepare her for a future in health care.

S12 is a middle school student attending the career ladder program for 3 years. She said, “Some students are drawn to science since it can peak their curiosity in certain areas of life. The

key factor that appeared to drive students away from it was the “sheer difficulty stigma. Some teachers make it much more difficult to grasp than necessary and some students just don’t appear to have a personal interest in it. “S12 stated, “The greatest influences in my career choice are my parents. They told me about the positive impact doctors can have on entire communities. Helping others became my goal – I wanted to make a positive impact on others through my interest in medical science. ”S12 expressed the need for positive reinforcement in the excitement students experience at science academies.

S13 was very excited with the academy presentation prior to participating in this interview process. She is a high school student who has attended the program for 2 years and has been acknowledged for her perfect attendance in participating in the previous academies. S13 credited her parents, friends and herself for joining the career ladder program. She said, “I was better at math and sciences than I was in other classes. It came easier, so was more enjoyable.” She stated that teachers who made science interesting helped draw kids into science career fields. S13 said, “Parents' encouragement also helps.”

S14 is a high school student who attended the career ladder program for 4 years. She said, “I think how a teacher presents science makes an incredible difference in how it is perceived by the student. Even when the subject is complex I respond well and develop an interest in that specific scientific process.” She was able to shadow a physician at a hospital who inspired her career decision and encouraged her to attend the career ladder program. She is looking forward to opportunities to get college credit in high school and participating in several classes that introduce health care professions.

S15 is a female student in the program for 3 years. She enjoyed learning when information was presented as hands-on activities rather than in a lecture form. S15 said her

reason for joining the program was to gain information about the medical field. She was interested in the opportunities available to experience different careers. She said, “My family and friends are very encouraging for me to follow my dreams.”

S16 attended the career ladder program for 5 years. He began the program in 6th grade and continued each year, He was actively participating in the high school program. He stated, “The program provides access to organs and guest speakers, which provide opportunities to look inside things and engage in experiments.” S16 credits joining the career ladder program to his older sister talking about it. He was encouraged because the program provided information about different types of health jobs.

S17 is a male student and was one of few students in the program who attended all 6 years. He said he continued to attend because, “The curriculum provided in the program is fun and interesting, the medical students that attend make learning fun, we learned about the heart and I thought I wanted to become a surgeon.” S17 joined the program because, as he said, “I thought it would be easy and a lot of fun. The program has provided health occupations course in high school and we are able to tour hospitals and the medical school.” He shared that the professors and students wearing the white coats influenced him to continue in the program.

S18 is a high school-aged male who attended the career ladder program for 5 years. He said, “I’ve always wanted to be an engineer, so this program has helped me choose which type I would like to become.” A science teacher influenced S18 to join the career ladder program. He shared, “This program helps to add on to things I learn in school, which helps me understand the homework we get from school better.”

S19 is currently in the high school curriculum and attended the career ladder program since 3rd grade. Her parents were active in the community, her dad a musician and her mother

cared for developmentally disabled adults. Her favorite subjects in school were science and physical education. Her family and teachers influenced her career decisions, but ultimately, it was her decision to join the program. She stated, “My mom has told me that I should always choose something I love.” She has enjoyed the programs hands-on experiments presented over the years.

S20 aspired to obtain a career as a physical therapist. He is 15 years old and attended the HCL program for 4 years. S20’s favorite subject in school was Spanish and he planned to attend a local community college prior to attending a university to study. A biology and chemistry teacher influenced S20 to join the career ladder program.

Student participants acknowledged having career aspirations. More students in the program were interest in careers in medicine than other careers. Their responses are shown in Table 2.

Table 2

Frequency of Student Career Aspiration

Career	Frequency	Percent
Law	2	10%
Medicine	10	50%
Computer	2	10%
Engineer	2	10%
Unsure	3	15%
Veterinarian	1	5%
	20	100%

The data shows that a majority of the students attending the career ladder program have an interest in continuing to learn after completing high school. The majority of the students, 50% reported they would like to pursue medicine after high school

Research Question 2. How do rural students describe the factors that influenced career decisions?

To establish the factors that influences student career decisions, the respondents were asked what they would like to do after high school and the field of study they wanted to pursue. A majority of student participants acknowledged having an idea about their future career.

S1 is a female student who has attended the career ladder program for 3 years. S1 stated she did not have a final career decision; however, she added, "I know college is the correct path. I like to learn and I understand the importance of doing what you love. S1 was enrolled in College Now classes in high school and selected premed, culinary and anthropology as courses of interest.

S2 was currently interested in a dental career. "I've always had a pretty clear idea of what I want to do." She continued to talk about the program as very helpful in providing the building blocks and a direction toward health careers.

S3 had an interested in virology. He shared about his career decisions, saying, "I am really going to be looking at going into the medical field, many things from this program and my interest are very similar. This is a good opportunity to learn and a good way to get out in the community and see different opportunities."

S4 indicated he intended to pursue a dentistry career. He said, "I thought either dentistry or orthodontics and so taking science courses right now is what I have to do."

S5 was looking toward a career as either a medical examiner or dentist. She said, "I had a science teacher in high school who is very influential in my decision to learn science. I always got good grades throughout school, but I found the science class challenging and I struggled. I really liked that science challenged me."

S6 was looking into a career as an optometrist like his father. He said, “I want to go into a respected field that helps people and that is what optometry does. It helps people understand the world better.”

When asked about future career aspirations, S7 could not select one specific career choice. He had a strong a desire to look toward careers based on science. He said, “I think that the sciences are very competitive and if were more accepting of failure it would be better. If students understood that they do not have to be perfect in their grades...then more students would be encouraged to pursue science and healthcare.”

S8 was interested in a career within the health care field as a nurse. She said, “I think students are drawn to sciences to seek an understanding of the fundamental forces and laws of nature that make up the universe.”

S9 aspired to be a cardiovascular surgeon. She said, “Students are drawn to sciences in an interest to understand the fundamental forces and laws of nature that make up the universe. Yes, it helps to get students interested in science in general, so they will hopefully have a future in healthcare.”

S10’s career aspirations were influenced by his parents who talked about the positive impact doctors could have on entire communities. The parents shared stories of the physicians providing free health care to Vietnamese immigrants. S10 said, “The combination of intellect and compassion that physicians provide to help others became my goal. I want to make a positive impact on others via my interest in medical science.”

S11 was interested in becoming a doctor. It was her 2nd grade teacher who told her women could be doctors. She felt that science academies would prepare her for a future in health care.

S12 was actively seeking a future career in animal healthcare. She said, "I want to join the Marine Corps and then attend college to become a veterinarian."

S13 indicated a desire to attend dental school. She said, "More job fairs are needed so students can learn about the different possibilities out there."

S14 shared that she wanted to go to college to become an emergency room nurse practitioner. She said, "The program's early exposure to health care developed an earlier passion and provided direction toward goals and an idea how to achieve those goals." She spoke often about how early exposure to science career opportunities could help students make better decisions towards science and healthcare careers.

S15 stated her career aspirations as, "Something involving the medical world like a medical examiner or dentist." She noted, "There are many opportunities available to me to experience different careers and the activities provided are fun and engaging. This is good preparation for students going into healthcare."

S16 was unsure about his career aspirations at the time of interview. He talked about looking toward career opportunities in health care. S16 stated, "The academies presented on safety plans, healthy exercise, healthy food, ultrasound imaging." He went on to talk about how the hands-on activities were important to engage students, "They are more fun than textbooks."

S17 liked a career as a Combat medic for the US Army. He had a relative pass away with cancer and said, "I thought becoming a doctor would help me understand what happened and to assist."

S17 added, "Of course, the program has influenced my career decisions. I feel that the program has motivated me and influenced me to become a better person and the people in the program are understanding and provide a pathway to pursue this occupation as a job."

S18 shared he was interested in pursuing a career in neurological engineering. He said, “Some of the classes in the program have helped me to understand my future job more. I’ve learned how to take better care of myself and others in case of emergency.” S18 stated, “The program provided ways to make science fun and entertaining, not just reading from the books.

S19 shared her career aspirations toward a chemical engineer or oral surgeon. S19 stated, “She talked about some financial barriers in achieving your education and career goals.”

S20 was very confident in his career choice, saying, “I want to have a job where I know I am helping people and therapist seems like something I would be good at.” He continued to explain, “My family takes in foster children and it doesn't feel good to watch these little 4-year-olds deal with being depressed all the time, because of what has been going on in their life. I want to be able to help them through that while being someone who has gone to school and knows how to handle everything.”

A list of the common terms used determined the factors effecting youth career aspirations by categorizing student statements into the factors of environment, personality and opportunity as a means to understand the factor of the program to effect career choices.

Environment: Includes of family, school related and economic issues that students deal with on a day-to-day basis.

Personality: personal attitudes and beliefs that affect the way we deal with the situations of choosing a specific career (Borchert, 2002).

Opportunity: programs that may influence how students perceived their expectations in terms of a future in rural health care career fields.

The student response and interpretation on these factors that affected career choice are displayed in Table 3.

Table 3

Factor Related to Student Career Choice

Student Response	Factors
my aunt Cheryl passed away with pancreatic cancer	Environment
My family and friends	Environment
Family Members	Environment
My mom and a friend that is a medical student	Environment
My Mother	Environment
Parents	Environment
Parents	Environment
Parents	Environment
Parents	Environment
Unsure of Career	N/A
Science Teacher	Opportunity
Grade school teacher	Opportunity
Teacher	Opportunity
Teacher- 2 nd Grade	Opportunity
Mentor/Physician	Opportunity
Older teens and young adults that talk to be about science	Opportunity
Medical Students (mentors)	Opportunity
High School science Teacher	Opportunity
Personal tragic experience	Personality
Personal preference	Personality

Table 3 shows student responses and interpretation on factors that affected career choices tallied to determine number of responses of each factor. The number of responses per determined the factors that most influenced students' career choice. The results are displayed in Table 4.

Table 4

Response Frequency of Career Choice Factor

Factor	Response	%
Environment	9	45%
Opportunity	8	40%
Personality	2	10%
N/A	1	5%
Total	20	100%

Table 4 shows the factors that most influenced students' career choice were their environment and opportunity. Nine students indicated their environment, family and friends,

was a significant factor in their career aspirations, second to eight students that indicated opportunities as factors in their career aspirations.

Research Question 3. What aspects of the HCL program influenced student career choice?

The third research question sought to establish the influence of the career ladder program on career aspirations of rural youth. The student participants were asked whether the program helped them in choosing their careers and provided a pathway toward careers.

S1 stated, “The program gives a focal point on careers and a pathway toward achieving a career goal. I learned about financial aid, scholarships, tutoring, colleges and it was definitely beneficial to me.” S1 added, “The program is very encouraging and provides a focal point on careers and a pathway toward achieving a career goal.” She continued to say, “It is nice to have professional and student doctors as mentors.”

S2 indicated the program influenced her career choice and was very helpful in providing the pathway toward careers. She said, “There is always something interesting and I always take something away that I have learned from here. It is interesting to see real life as first-hand experiences such as observing human organs.”

Originally, S3 wanted to go and work for his grandparent’s business. Attending the career ladder program and talking to the medical students and staff about what the expectations were influenced S3 to share, “It gave me a certain interest in toward science careers and the things I was capable and like doing.”

S4 had enrolled in the career ladder program for 5 years, to participate in the hands-on activities and continued to come back and see what was new. He said, “One hands-on activity attended at the career ladder was using dental imprints as identification.” Students were able to

compare models to x-rays. This was hard to understand first because the x-rays were panoramic instead of a fold-around, so it was hard to understand, yet once the dentist explained it, it was really nice because it will really help me with my future if I want to pursue dentistry. ”

S5 stated, “I think to have a future in health care, you have to love learning. The Science academies spark that interest with the hands-on activities. It helped because we could talk about anything in life at the Institute and I felt more aware of my career choices.”

S6 stated the program was good preparation for students going into healthcare fields. S6 stated he was, “Enjoying after school programs that incorporate science learning and the need for programs that supports learning about science, mathematics and engineering.”

S7 was interested in science prior to attending the career ladder program. He did say, “The academy program, with different presentations on different careers is a great way to open the door to science and sparking interest in healthcare.”

S8 mentioned more experience in the clinical sciences for students at a younger age would be a great way to stimulate interest in sciences as a career choice. She said, “Yes, the program influences career aspirations. It helps to get students interested in science in general, so they will hopefully have a future in healthcare.”

The HCL program influenced S9’s desire to become a cardiovascular surgeon. She indicated, “The programs help students understand the fundamental forces and laws of nature that make up the universe, this get students interested in science in general, so they will hopefully have a future in healthcare.”

S10 was positive about the program’s influence on career decisions. He specified “Career ladder programs can influence career decisions, so long as there is repeated exposure. A

decent level of frequency will provide positive reinforcement in the excitement they experience at science academies.”

S11 identified, “Youth programs can influence career decisions. I think that really depends upon the situation.” She talked about participating in programs to learn more about different types of health jobs.

S12 was very encouraged by the medical students and professionals leading the career ladder program. She indicated, “I am surrounded by medical students and mentors that show that learning is fun and everyone can be successful at what they choose to do.”

S13 specified the program influenced her career decision.”I was interested before entering the program.” She said, “There was not enough time in the program to prepare the youth. It hopefully can get them exposed to the field, motivate them and get them interested.”

S14 commented, “The program’s early exposure to health care developed an earlier passion and provided direction toward goals and an idea how to achieve those goals.” She mentioned that exposure to science career opportunities early could help students make better decisions towards science and healthcare as a young adult.

The program influenced S15’s career decision. She stated, “There are many opportunities available to me to experience different careers and the activities provided are fun and engaging. This is good preparation for students going into healthcare.”

S16 replied, “The academies presented on safety plans, healthy exercise, healthy food, ultrasound imaging.” He went on to talk about how the hands-on activities were important to engage students, “They are more fun than class room lectures.”

S17 responded by stating, “I feel that the program has motivated me and influenced me to become a better person and the people in the program are understanding and provide a pathway - or directions to pursue this occupation as a job.”

S18 stated, “The program provided ways to make science fun and entertaining, not just reading from the books.” He continued to talk about the influence on career decisions adding, “Some think that science careers are just boring and not right for them. This program encourages by creating a fun learning environment and providing a pathway to students’ career choice.”

S19 stated, “All the different careers that have been displayed for us to see has made me want a medical career.” She enjoyed the program’s hands-on experiments done over the years.

S20 indicated the HCL program influenced his career aspirations by sharing, “It has shown me all different kinds of careers in the medical field and helped me realize that I wanted to do something that involves helping people.” S20 expressed, “The hands-on activities of the career ladder program make it easier for me to learn, unlike just reading about it.”

Participants described their experience in the career ladder program and what influenced their career aspirations. Participants shared that the hands-on activities and professional mentors within the program encouraged them to continue in the career ladder program. A significant number of students (59%) indicated the hands-on activities within the program influenced their desire to learn. The data showed programs that provided hands-on activities increased students’ motivation to learn science, which in turn influenced students’ career decisions.

Participants were asked the factors of the career ladder program that influenced career choice. The following table shows the influencing factors of the program that encouraged participants’ career aspirations. The data was inserted into a spreadsheet to identify which

factors each respondent believed to be the most important as shown in Table 5. The primary categories that emerged indicated the factors of the career ladder program to have a greater impact on rural youth career aspirations.

Table 5

Influencing factors of program

Method	Frequency	Percent
Active Learning environment	6	30%
Career days	4	20%
Early exposure to science	6	30%
Guest speakers	4	20%
	20	100%

The majority of the responses indicated an active learning environment was necessary to support rural youth in health career selection. Another 30% of participants indicated early exposure to science and career opportunities would guide students on their career choice. The data indicated the learning environment of the career ladder program had an impact on students continuing in the program that influenced career decisions

The final interview question asked students, if a youth summer academy experience were offered, would you participate? Why? The responses provided information that could be used in future program development. Student responses were positive regarding a summer camp experience. “Yes, most definitely I would be totally interested, that would be awesome really.” Students looking toward health careers in health care indicated “The experience would be great for medical school.” While other students were interested, they indicated summer work was their priority.

Slightly more than 90% of the participants replied positively when asked about the influence of discussions and lab activities on their career choices. Two of the respondents indicated classroom discussions and lab activities would not help in making their career decision.

Chapter 4 Summary

The purpose of the research was to determine rural student experiences, attitudes and beliefs about the effectiveness of a health career ladder program to influence health care as a career preference. This section provided the results and an analysis of the research from the individual interviews with the student participants for this study. Evidence from the data indicated that students generally had a positive attitude toward the effectiveness of the program to influence their career aspirations. Based on the analysis of the data, three primary categories emerged that gave insight to the factors that were sufficient, in the career ladder program to have an impact on rural youth career aspirations. The data collected in this study showed that career ladder programs had a positive impact on students' career aspirations.

Chapter 4 focused on presenting the gathered data regarding the effectiveness of a HCL program to influence student career aspirations to facilitate the discussion presented in Chapter 5. Continued discussion of data that was uncovered on the factors that affected student career choices and the effectiveness of the career ladder program is discussed in Chapter 5. The following chapter will provide a summary and detailed discussion of the results, implications for the practice of youth career development and recommendations for further study.

Chapter 5: Conclusion and Recommendations

Introduction

Research often shows the lack of rural health care providers (Burrows et al., 2012) but failed to examine the value of proactive preparation for career development for the youth in those communities to fill rural health care workforces' needs. The literature supports a complex interplay of factors involved in student entry and persistence in science and health related careers. Many studies have addressed determinants of providers' geographic choices and showed growing up in a rural community as the most consistent factor associated with rural practice. This case study was conducted to understand the effectiveness of one program to influence rural students' career aspirations, by identifying factors influencing their interest in pursuing health care careers and the effectiveness of the program to provide those factors.

These factors have been identified in earlier datasets and it continues to play an important role in the current healthcare system. Selecting students with a natural bond for rural practice and shaping their educational experience in one way to attract more doctors into areas with physician workforce shortages (Pathman et al., 2016). It is important for to support and strengthen science education of students at the K-12 levels to increase rural youth and minority enrollment in higher education and within health professions (Balfanz, 2009; Bragg et al., 2005). This qualitative case study yielded valuable information from one small rural communities health career ladder program to influence the career aspirations of the youth to potentially fill health care workforce's needs. The study set out to examine the factors that reportedly influence career choice for middle school and high school students in a rural community.

The purpose of the research was to determine student experiences, attitudes and beliefs about a health career ladder program and explore the factors that influenced health care as a

career preference. The research questions determined the educational and career aspirations of rural youth rural, identify the support rural youth receive in achieving career aspirations and identify what factors influence career decision-making process. The data for the study was acquired by interviewing middle school and high school students enrolled in a health career ladder program.

Summary of Results

Statement of the problem. Over the past several years, a growing number of national, state and specialty specific studies have current and future physician workforce shortages in the United States (Burrows et al.,2012; Rabinowitz et al.,2001; Scipion, 2016). Engaging underrepresented populations in the educational process to increase the number rural born and ethnic minorities pursuing the health care field is essential (Rosenblatt et al., 2010). In the context of the critical shortage in rural health care providers, career pathways and bridging programs provided one possible solution to the problem of rural underrepresentation in health careers (Patterson & Carline, 2006). Current research supports the need to target students from rural backgrounds in the medical school admission process (Burrows et al., 2012). Without more graduates from medical schools and innovations to attract health professionals to otherwise unattractive locations, those living in rural communities will continue to struggle with access to health care.

Career development theory and research indicate that children often begin as early as ages 6-8 to make choices, including “de-selecting” certain potential careers, which will significantly impact their future decision to pursue a specific career. Information and activities must be available in rural communities to raise student, teacher, counselor and parent awareness of the wide variety of health careers, including awareness that health careers are available at

various levels of education/training. To have the greatest impact on the shortage of rural health care providers, a more effective and sustainable health career development practice needs to be made available for rural youth (Laven & Wilkinson, 2003).

Stern et al. (2010) found educational pipeline programs as one strategy to connect education to professional programs, which result in students' interest and longevity in professional careers, such as health care. Literature explains building educational pipeline programs are critical in nurturing the development of health professionals, especially for students from underserved and disadvantaged backgrounds (Dunbabin & Levitt 2003; Glasser et al., 2008; Zayas & McGuigan, 2006). Health career ladder programs highlight interest in health care by providing secondary education students with early and frequent exposure to rural practice settings (Rabinowitz et al., 2001). It was determined by the investigator that interviewing rural students enrolled in the in a HCL program, would be an appropriate mode of instrumentation in this study. This method allowed the researcher to identify which major activities within the program curriculum were influential to students in their process of choosing a career. This input from students on their perceptions of the HCL program will provide information necessary toward addressing various rural workforce shortages, including health care.

Research questions. This research was to examine student perceptions on the factors that affect student career aspirations and the effectiveness of a HCL program to influence careers choices toward health care. The data provided insight into the relationship between students' environmental influences and the programs impact on career aspirations. This project includes three research questions that are addressed in this chapter. The questions were designed to analyze data relating to the effectiveness of a health career ladder program in students choosing a career. These questions are addressed with their related conclusions of the study.

Research question number one sought to gather data about how rural students describe what motivates them to pursue a career in health care. Students believed they are presented with information in the HCL program pertaining to making informed career choices for the health care industry. Positive responses indicated students were adequately presented with career opportunities within health care fields. Student's responses included the hands-on activities that provided an in-depth understanding of science and how it is applied to a career in health care. According to Social Cognitive Theory, self-efficacy is achieved through personal motivation and through one's beliefs regarding his or her capability or competence in performing domain-specific tasks (Bandura, 1997; Betz & Hackett, 1983; Lent, 2005). Motivation and beliefs together influence one's perceptions of abilities, such that an individual has perceived abilities may vary from his or her actual performance. According to Bandura (1997), individuals may have high self-efficacy, but these self-efficacy beliefs relate to outcome expectations, which determines whether one will work toward a given behavior or goal and how long individuals will persist in the face of obstacles.

Research question 2 provided the data relating to Students' perceptions of what factors influenced career decisions. The literature showed current knowledge and information about the expected critical shortages in rural health care providers, the challenges in recruiting and retaining health professionals, continuing workforce shortages and a lack of longevity in health workforce retention (Kumar et al., 2015). According to the World Health Organization (WHO) in 2015, the world will be short 12.9 million health care workers by 2035 (Scipion, 2016). This increase in the amount of career opportunities will create a significant need for additional health professionals.

Research question three of the study provided information on how participating in a health career influenced career decisions. Student participants suggested a positive outlook on a career in health care. Respondents thought employment was obtainable and that working conditions were a way to help people. The majority of respondents indicated positive intentions of working within rural health care. The female responses 75% specified an interest in health-related careers and whereas only 20% of male responses indicated a career in health care. The health career ladder program is effective in providing students with the experience and knowledge to become sought-after employees within rural health care fields. The career choice that students make is a decision that is influenced not only by their development it is also by the context in which they live (Chen, Fordyce andes & Hart, 2010). A student's history, created, in part by their environment, personality and opportunity, will determine how they make career choices. It then follows that how the student perceives their environment, personality and opportunity will determine the career choices students make.

Discussion of the Results

The research involved rural students ranging from 6th grade through high school enrolled in a career ladder program. The student participants ranged in age from 11 to 17-years-old. There were 11 females and 9 male who participated in an informal semi-structured interview process during a 4-month period in 2016. The interview process was intended to illustrate the factors of a career ladder program that influenced their career decisions. Interviews were conducted individually with student participants to allow them to report what they felt were the challenges and successes of the career ladder program. There were many data collection challenges. The initial interviews were conducted in a lecture hall during the monthly scheduled career ladder program. The student responses to interview questions were short and provided

little information on the effectiveness of the HCL program to influence career aspirations. Phone interviews were scheduled after school hours during the week due to the lack of detailed data collected from students. The second interviews allowed time follow up with students on the interview responses and gather more data on the effects of the HCL program. By interviewing students during times that worked best for with their schedules, the researcher was able to spend extra time to ask the follow-up questions and get to know each student. Student responses to interview questions and follow-up questions remained short yet provided sufficient data to conduct this descriptive case study research.

A significant number, 41% of students participating in this study sample had attended the HCL program for 4-5 years. The number of years students remained in the program indicated that students who begin in middle school were likely to stay in the program through high school. The findings show the program was effective in keeping students interested in learning science through middle school (years 1-3 of the program) and into high school year (program year 4-5).

Most students 91% indicated they would pursue further education after completing high school, which is an indication the program, was effective in guiding students toward careers within the health care field. Students in the program were more interested in careers in medicine than other science-based careers. The study findings revealed 45% of the students reported they would pursue medicine after high school while 18% indicated an interest in non-health care science fields. Of the participants, 9% reported an interest in pursuing a career outside of both science and healthcare. The findings on pursuing further education after high school indicate students attend the HCL program for many reasons that are not specific to careers in health care fields.

Student responses specified an active learning environment was necessary to support rural youth in health career selection. Thirteen out of the 20 responses stated the hands-on activities in the program increased their motivation to learn science. Students also stated the HCL influenced their career decisions by fostering an interest in health careers through mentors, hands-on activities and the opportunity to connect science to real world. Cooperstein and Kocevar-Wiedinger (2004) stated, “When students had the opportunity to take learning into their own hands, they become motivated to continue to grow and learn” (p. 145).

The findings pointed out the program had influenced most students’ career aspirations in a direction that required further education. More female students 75%, specified an interested in health-related careers and whereas only 20% of male responses indicated a career in other science careers. The female participants were specifically interested in nursing careers. These findings confirmed those of Osborne, Simon and Collins (2003) in which female students were drawn to science careers as an opportunity to help others.

Through hands-on educational experiences and perceptions of occupational appropriateness, the HCL program was found to have had key roles in shaping career choices. Thirteen out of the 20 responses, 59% stated the hands-on activities influenced their aspiration to learn science. The findings confirm existing research the positive influence family, school and community have on youth career aspirations. The impact family, school and community have on youth career aspirations all come into play in providing input into the students’ environment, educational opportunities and career interests. The study adds to the understanding of the critical role youth career pipeline programs have in shaping career choice toward professions in rural health care fields.

Perceptions of the aspects of the program to influence career choice. Interview questions five through nine explored what influenced students to join this program, its impact on student's future career and the greatest influence in making a career choice. The participants identified several aspects of the program that influenced career choice. Student responses indicated family members were significant factors in their decisions to attend the career ladder program; however, the hands-on curriculum seemed to be a significant factor in encouraging students to learn science and potentially pursue a medical career. Students indicated exposure to career opportunities and frequency of career awareness influenced career aspirations. S15, a middle school student stated, "The activities they provide are fun and the professors and student wearing the white coats are influencing." High school participant S13, indicated: I know more about different types of health jobs. I'm pursuing a career in neurological engineering and some of the classes helped me to understand my future job more." Clearly, the programs engaging learning environment played a significant role in capturing students' interest and influenced career choices. Student responses indicated they learned and were motivated in different ways. Adding curriculum such as hands-on activities to career pipeline programs will help reach many more students (Bezanson, 2003).

Participants stated mentors were an important aspect of the program to influence their career decisions. S12 stated, "I am surrounded by medical students and mentors that are on the path of success and they teach fun facts. It shows that learning is fun and everyone can be successful in what they choose to do." S3 indicated originally, he wanted to go and work for his grandparents' business and the primary influence to attend the HCL was the medical students.

He stated, “Taking with them and learning more about what the expectations were, it just gave a certain interest in science and the things I was capable and like doing.”

The health career ladder program provided experiences that connected mentors and hands-on activities to create an interest in both science and health careers. Learning opportunities connected students with situations that provided a greater understanding of career options and that they will encounter in health. The HCL provided early intervention with middle school students to provide exposure, enrichment and support for rural youth with a passion and the ability to becoming medical students, this program is not without limitations in extending that reach to increase students’ participation to enjoy science and pursue health care careers.

Perception of the greatest influence on career choice. Respondents were asked what they would like to do after high school and the field of study they would want to pursue, to establish the factors that influenced career decisions. A majority of student participants acknowledged having an idea about their future career. More students in the program were interest in careers in medicine than other science careers. The Female students stated an interested in health-related careers, specifically in nursing careers whereas more of the male responses indicated a non-health related career. The majority of student responses indicated their parents were a major factor in influencing their future career decisions. Student responses included S4 stating “My mom” as the greatest influence on his career choice. He went on to say, “The program gave me a focal point on careers and a pathway toward achieving a career goal. It is nice to have professional and student doctors as mentors. S19 also stated, “My mother, wanted the best for my future, so she helped me pursue whatever I wanted to do and get through rough times. If I need help with anything

she will try her hardest to help develop my interests. Student participants S3, S4, S7, S11 and S20 all indicated a teacher as the greatest influence on their career choice.

The findings for this descriptive case study support those found by Dick and Rallis (1991) who conducted a study investigating the direct and indirect effects that parents and teachers can play in determining career choices. Dick and Rallis (1991) found parents and teachers were perceived to be significant influences on student career choice more often for students choosing careers in science and health care than non-science careers. When answering the question what the greatest influence on career choice is, S2 specifically responded, “It would be my science teachers and my mother.” This result is supported by Ososki et al. (2006), who conducted a survey to investigate mentors affecting students’ career choice. Ososki concluded experiences with teachers had a significant influence on students choosing health care as a career. It is imperative health career ladder programs connect parents, the community and health care professionals effectively to influence a students' career aspirations.

Perception on what aspects of the HCL program influenced student career choice. The third research question sought to find out the influence of the career ladder program on career aspirations of rural youth. The majority of the responses indicated an active learning environment was necessary to support rural youth in health career selection. Evidence from the data indicated that students had a positive attitude toward the effectiveness of the program to influence their career aspirations. Participants indicated that early exposure to science and career opportunities was a significant factor to guide career aspirations.

The data indicates learning environment of the career ladder program had an impact on students continuing in the program that influenced career decisions. The data collected in this

study showed that, when implemented effectively, student career ladder programs had a positive impact on students' career aspirations. Overall, the opportunity to understand the natural world through scientific presentations was the aspect of the program motivated them to learn science. The perceptions on what influenced student to join the health career ladder program, supported Kumar et al. 's (2015) finding that a broader range of interrelating and complex personal, contextual and experiential factors are necessary to guide youth career decision-making within a health workforce development initiative.

The participant responses received expressed that the aspects of the mentors, hands-on activities and experiences were valuable and helpful in creating interest in science careers. Response from S1 stated, "My mom influenced me to begin attending when I was in 5th grade." A high school student S3 indicated, "Originally, in 6th grade I had a math and science conversion class that introduced the program to me and couple of my friends." We had come down, we enjoyed it and coming here seems great. A female middle school participant S17 indicated, "A family friend that attended this medical school encouraged me to attend the LHCL program." S2 expressed, "I have had pretty much equal influence by quite a few people, student here, my family at home and then my science teacher have all been greatly influential in my overall wants toward the science fields.

According to participants, the influence to join the career ladder program is the result of multiple factors, such the influence of teachers, mentors, parents and the experiences to learn about science careers. Evidence from the data indicated that students generally had a positive attitude toward the effectiveness of the program to influence their career aspirations. The data collected in this study showed that when implemented effectively, student career ladder programs had a positive impact on students' career aspirations.

Major Findings

This study finds that, when implemented effectively, student career ladder programs had a positive impact on students' career aspirations. The majority of students indicated an active learning environment was necessary to support rural youth in health career selection. Students stated early exposure to science and career opportunities would influence career choice. Evidence from the data indicated that students generally have a positive attitude toward the effectiveness of the program to influence their career aspirations. The majority of the responses indicated an active learning environment was necessary to support rural youth in health career selection. The majority of the students indicated they would pursue further education after high school while only few were unsure what they would like to do after high school. The data shows that a majority of the students attending the career ladder program have an interest in continuing to learn after completing high school. The students suggested ways in which the program could encourage career aspirations of rural youth. Their responses included outreaching out to low income children and encouragement for academically struggling students by providing assistance and transportation for youth to attend career ladder programs and find ways to make science fun and entertaining.

The results suggest an active learning environment was necessary to support rural youth in health career selection. Students also indicated they were aware of potential career opportunities and felt there were jobs available to them. Unlike the general population, the perception of lack of students interested in science or health care fields was not indicated through the research. When asked about their experience while in the HCL program, students gave a very positive feedback on all three of the major activities of the program.

According to the information gathered in the literature review, influence from parents and teachers play a large part as they decide on a post-secondary school path. The interviews conducted for this study provided data which showed evidence that those students believe parents and teachers are a significant influence on their career choice with several of the students indicating the opportunity to experience professions as influential. Contrary to the initial beliefs of the investigator, nearly three-quarters of the respondents indicated the program was effective and they intend to find employment within the health care field. Only one student specifically stated she would move away from the rural area for her career.

Data shows students in the health career ladder program are making career choices while in high school. Students also indicated they were aware of potential career opportunities and felt there were jobs available to them. Unlike the general population, the perception of a dull and dirty environment was not indicated through the survey. When asked about their experience while in the HCL program, respondents gave a very positive feedback on all three of the major activities of the program. According to the information gathered in the literature review, influence from parents and teachers play a large part as they decide on a post-secondary school path. The transcribed interviews of this study provided data which showed evidence that students believe parents and teachers do not heavily influence their career choice with several of the students indicating little influence from parents and teachers. Contrary to the initial beliefs of the investigator the respondents suggested they intend to seek employment within a health career at some level.

Limitations

This study was limited in its ability to fully validate the success of the HCL program due to the limited student population in the study. To begin with, the participant contact rate was low

in there were 25 out of the 55 program participants that attended the career ladder program for more than two years. There were 20 parental consent forms obtained out of the 25 eligible participants.

Although the number of participants was small, the individual interviews probed deeply into participants' perceptions of program culture, interactions and support and triangulated conclusions about these perceptions with data from documents and observations. Through this sampling strategy, the study provided insights into how students perceive the program culture, interactions and support in exploring career program to influence career choices. The data analyzed examined the program characteristics, policies and practices that appeared to promote the attainment of careers in health care for rural students at one point in time, without following the actual attainment of these students. The researcher recognized there are certain limitations inherent in conducting this research study.

The interview responses reflected the majority of student participants in that they all had positive experience and found effectiveness of the program to promote health care careers. Responses reflect the majority of student participants in that they all had positive experience and the effectiveness of the program to promote health care careers. Further efforts at evaluating the program's effectiveness is to request participants in advance the ability to obtain follow-up information once they have enrolled in college.

The career ladder program took place over six Saturdays during the academic year and the program leaders changed each year the program was administered. Some program components were modified as well. Some students participated in other science curriculum programs in addition to the career ladder program that could affect their career decisions. These findings were limited in the ability to determine the effectiveness of the HCL program to a

diverse population of rural student participants, however there were still implications for students interested in science.

This examination of the influence of the career ladder program on rural youth career aspirations will support rural students at critical points in their education and can assist students toward becoming the medical professionals needed now in rural communities. The results added an additional source of data; further informing administrators and policymakers about the specific benefits of youth career ladder programs. The finding serves as a model for the development of expanded pipeline programs to address rural workforce shortages, including health care providers. Additional research is needed to determine whether these results could be replicated in a different HCL program in various communities.

Discussion of the Results Related to the Literature

The literature shows that only three percent of recent medical students planned to practice in rural communities (Rabinowitz, Diamond, Markham and Paynter, 2011). Based on Heinert and Roberts (2016) and Rabinowitz et al. (2011), students raised in rural environments were more likely to practice in rural communities than urban students. Bragg et al. (2005) found career ladder programs provided youth the opportunity to learn about health care careers. Katz, Smart and Paul (2010) stated pipeline strategies often addressed awareness and knowledge of professions and science by connecting students to professional mentors. Pipeline programs provide educational opportunity to experience various careers and the pathway to achieve them. This case study explored how and when input into student career decision process could make a positive impact on rural health care by determining the effectiveness of a health career ladder program.

Haycock (2001), Ntiri (2001), Rudenstine (2001) and Simon (1993) determined a complex interplay of factors that involved student entry and persistence in science. The career ladder program provided an opportunity to learn science in action through hands-on science academies. These experiences solidified and complemented what students learned in school. The heath career ladder program provided the complex interplay of factors involved in student career decisions, entry and persistence in science career exploration for the student participants.

Haycock (2001), Ntiri (2001) and Rudenstine (2001) indicated the need to support and strengthen the education of rural students at the K-12 levels to increase student enrollment in higher education and within professions. The HCL program in this case study enrolled students ranging from sixth through 11th grade. The majority of students indicated they would pursue further education after high school while only nine percent of them were unsure what they would like to do after high school. Early career ladder intervention programs beginning with middle school students have the potential to inspire student to continue education after completing high school.

While the literature does provide evidence of the effects of the career ladder program on student academic achievement, it is not without limitations. This study does not attempt to connect student achievement directly to implementation of the Career Ladder program in a district. Therefore, while the research suggests that career ladder programs have positive impacts on students' career aspirations, it does not provide specific evidence of how and why these positive results were achieved. One of the strengths of this study is that it continues to support the findings of previous career ladder evaluations that have been conducted over many years to determine the outcome of the program and future improvements.

The career ladder program studied has proven to be a resource and an effective strategy for influencing the shortage of rural health care providers. The program supports rural youth with hands-on learning activities and career pathway to achieve a career within health care field. If students do decide to practice health care in rural community and voluntarily choose to serve their communities, then the benefit of additional rural health care will be realized. Other incentives to attract physicians to rural underserved communities are needed to ensure a significant supply of health care providers in these communities. Community-based programs, such as the career ladder program that guides students to pursue medical careers and ultimately increases the physician workforce, should obtain public support.

Overall, the opportunity to learn outside of the classroom was a significant factor in attending the career ladder program. This information reinforced Kumar et al. 's (2015) finding that a broader range of interrelating and complex personal, contextual and experiential factors were necessary to guide youth career decision-making. The HCL program provided personal, contextual and experiential factors in a health workforce development initiative to guide rural students. The results of the participants interviewed demonstrated that student's career aspirations were influenced by attending the HCL program.

Implication of the Results for Practice, Policy and Theory

The United States is facing a serious shortage of physicians, particularly critical in rural communities (Mareck, 2011). Dues and Join (2002) found the ability to adapt to rural life, is a key determinant of physicians remaining in rural practice. In the context of the critical shortage in rural health care providers, career pathways and bridging programs provided one solution to the problem of rural underrepresentation in health careers (Patterson & Carline, 2006).

Providing career exploration programs in rural communities could plant the seeds for career aspirations to flourish. Career ladder programs help combat this issue by investing in

rural youth. Creating and providing more educational support for all students can help meet each student where they are at in their journey. However, communities also need to support the job market if they desire students with advanced training to return to the community. These initiatives can help positively influence the aspirations of rural students.

Communities and educators need to call on the community to be role models and examples of successful educational advancement. These individuals need to help support families who may not have advanced education to provide students with the opportunity to learn about higher education or vocations they may not have considered. Students in rural locations might know very little about medical school. Little or no exposure to college could make it appear it is out of reach, especially first-generation students who may have very little parental guidance. Regarding rural education, the results of this study support that all individuals, even peers, can influence the aspirations of education past high school. Bringing everyone into the conversation around advanced education attainment could have many positive effects on rural communities. If more students are academically prepared, aspire higher education, are confident in their abilities and feel connected to their community, rural communities may have a means to fill rural health workforce shortages.

The results of this study found that families, parents or guardians and siblings, have the greatest influence on the aspirations and confidence of rural elementary students. These results indicate that educators need to make sure they are including family members in the conversation around college and career preparation. Educators also need to encourage these types of conversations and provide support to families that do not have experience with or the knowledge of higher education. Schools, districts and communities need to find ways to creatively expose students to the opportunities available to them and make it a main point of discussion as rural

communities will rely on youth to sustain their future. This study also opens the doors for future research.

Recommendations for Further Research

After analyzing the data, this researcher determined the HCL program is effective in helping students make informed career decisions related to rural health care. The data proved the program was effective in influencing students' career aspirations toward a career in a health care field. Recommendations to keep current hands-on activities and to provide professional mentors for students were supported from data collected. Recommendations of further study included continued studies with HCL students that did not remain in the program to determine student perception of career opportunities without the HCL.

A more in-depth look needs to be conducted on each group of individuals, parents or guardians, teachers, school counselors and peer, to see how they exactly influence a student's aspirations or confidence. Taking a more in-depth look can provide more suggestions and recommendations for these individuals and could look at the dynamics of the relationship that positively and negatively influence students. Another area for future research is looking at socioeconomic status and the implications it has on student interest or disinterest in higher education. Finally, vocational education needs to be evaluated in rural communities to see the effects it could have and how to best implement the process into health care careers.

Data can also be collected from other school districts to determine the usefulness of health occupation courses in relation to students' ability to make a career choice into health care careers. A follow-up survey of HCL graduates is another possibility. A survey could be conducted to gather data as to what type of career paths these students are taking. A study which

focuses on past HCL students may provide data proving a correlation between the HCL program and students who make career path decisions prior to high school graduation.

The researcher also recommends HCL program curriculum to keep current career opportunities available to students interested in a career path which involving rural workforce shortages. Over 90% of the respondents replied positively to the activities within the program and their ability to choose a career path prior to high school graduation. Nearly three-quarters of respondents also indicated they intended to work within a health care field. The design of career ladder programs must begin early in youth education, provide structure and support enabling them to grow academically through community engagement and hands-on activities.

Developing collaborative programs with innovative strategies that assist both parents and youth in exploring a wide range of occupations can open the door to emerging and non-traditional career choices. Engaging parents and community in support of career exploration helps rural youth in making successful transitions into workplace roles. Additional research should continue to focus on strategies assisting both parents and youth in exploring emerging and non-traditional career choices. The researcher recommends further research by school leadership, identifying factors that influence students' interest in sciences prior to middle school.

Further studies should continue to investigate the longevity of the effects of the program as these students enter college and work toward future careers. One area of future investigation on early intervention programs is to reach out to students prior to middle school. Career development programs assisting rural students should continue to have public support. Providing students with community-based workplace learning connects them to various rural workforce needs.

A follow-up survey for rural high school student graduates have attended the career ladder program is another possibility. A survey could be conducted to gather data as to whether students pursue college and what type of career paths these students are working towards. A study, which focuses on past HCL students, may provide data proving a correlation between the rural career ladder program and students who make career path decisions prior to high school graduation.

Conclusion

This research study was completed to provide the factors that affect students' career aspirations to enable youth programs to become useful in increasing the number of health care providers in rural communities. The findings of this study indicate a rural HCL program designed to influence career aspirations provided an exploration program with pathways for career development within health care.

. This qualitative case study provided an understanding of the factors that affect students' career choices and investigate the effects of career ladder programs to influence student career aspirations toward healthcare. The rural students interviewed linked their educational experience with learning how the world works through science. After further review of the collected data, the researcher confirms the current curriculum presented to students in the HCL program does encourage career choice of participating high school students prior to graduation. Also, students were interested in the available careers in the health care fields industry.

The first research question sought to find out the aspects of the HCL influence students' decision to move forward into higher education and pursue a career in health care. The responses received expressed the aspects of the mentors, hands-on activities and experiences as being valuable and helpful towards creating interest in science careers.

The second research question sought to find out the factors influencing career aspirations of rural students. The factor that most influenced students' career choice was environment. Student responses indicated teachers and personal experiences were a significant factor in their career aspirations. The study findings indicated that an active learning environment was necessary to support rural youth in health career selection. Further responses expressed early exposure to science and career opportunities to guide career choice, such as outreach and a summer camp experiences.

Research shows reversing the shortage of rural health care providers is a complex problem with no short-term solution (Roberge & Lavoie, 2012). This study represented an exploratory effort in interpreting the effectiveness of a health career ladder (HCL) program developed to maximize the number of rural youth who prepare health professions. Students consider many factors in their lives when choosing a career. Factors in students' lives that influence career decision, including parents, coaches, religious figures, or any role models in a student's life. Participation in health career ladder (HCL) programs can also influence students' career choices (Amator, 2007). The goal of this study was to use students' perceptions to determine the effectiveness of a program to influence career choices toward health care professions. This case study provided theoretical insight to broader range of interrelated factors of environment, personality and opportunity, affecting rural youth career decision-making within a health workforce development initiative. Understanding the factors that influence career aspirations provides information for counselors, parents, school administrators and educational policy makers to put in place experiential strategies to guide students into making health career choices achievable.

Multiple factors influence career choice and early professional socialization. The students participants being rurally located wasn't a factor in the study, as the study took place in a rural community based program. The majority of student's participants are in the program because they want a career in health care, however directly with the school science teachers will ensure that students have an opportunity for early health career exploration. Effective career ladder programs must be flexible and be able to adapt these factors to the young people they serve and the communities in which they operate. For youth career development programs to be flexible and adapt environment, family and opportunity's factors requires programs to collaborative with schools, community businesses and stakeholders to connect their role in career selection. Program leaders need to incorporate community involvement to provide a greater understanding of health career options.

Student responses indicated that attending the program encouraged and developed career aspirations toward health care. The value of heath career development initiatives aimed at rural youth cannot be underestimated in providing a solution for persistent workforce challenges experienced in rural communities. In future youth programs, it is important to consider the role of parents, mentors and peers in the formulation of career expectations and career choice decisions. Developing collaborative programs engaging youth, parents and the community in the formulation of career expectations and career choice decisions are essential.

A majority of the students in the study sample were interested in future careers in medicine then other science careers and indicated the health career ladder program helped them to make career choices. The factor of family was a strong influence by a connection to health care or science professional. Responses indicated the importance for programs to connect what

they learn in school lectures to real world experiences. Students who attended the program were influenced by their parents and had an interest in science, inspired by science teachers.

The findings concluded the career ladder program used in this study successfully provided career exploration with hands-on science activities and student mentors that influenced the career choices of the participants. The research finding found teachers and personal experiences were significant factors in their career aspirations. The understanding of parents in career development points to the importance of extending career educational efforts beyond adolescents to families and community. Study findings led to student insights into program features to influence future strategies to recruit rural students into medical professions.

After analyzing the data, this researcher has determined the current curriculum is beneficial in helping students make informed career decisions related health care fields. The data proves the curriculum is also providing necessary instruction of health care career opportunities. Recommendations to keep current hands-on activities and to continue opportunities for students are suggested from data collected. The researcher also recommends a strong effort to continue the updating of curriculum to keep current technology available to students interested in a career path, which involves health care. Over 90% of the respondents replied positively to the activities within the program and their ability to choose a career path prior to high school graduation. Nearly three quarters of respondents also indicated they intended to pursue a career in health care.

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Appendix A: Interview Guide

My name is Jeannie Davis; I am conducting research regarding ways to attract additional youth participation in a HCL program as effective way to increase rural youth into health care professions. I am interested in your experiences as a participant in the HCL program and its impact on your decision toward college and/or careers. The purpose of the research is to determine student experiences, attitudes and beliefs with the program and explore what factors influenced health care as a career preference, as a way of finding effective ways to increase rural physicians. Your participation will only be needed once for a few questions that should last 45-50 minutes. This research study has no known risks. The research findings will benefit the academic community because it helps us to understand the factors that influence youth toward careers in science and health care as a career preference.

Your participation is voluntary. I can supply you with contact information regarding this study upon request. The information provided will remain strictly confidential and you will not be identified by your answers. Your identity or personal information will not be disclosed in any publication that may result from the study. Notes that are taken during the interview will be stored in a secure location. Would it be all right if I audiotaped our interview? Saying no to audio recording will have no effect on the interview. Would it be okay to begin with my questions?

1. What are your thoughts right now about what you want to do when you are an adult?
2. How long have you participated in the health career ladder program?
3. Has this program influenced what you think you want to do when you grow up?
4. Can you talk about what interests you about this program?
5. What influenced you to join this program?

6. What have you learned from attending this program?
7. Do you think the science academies prepare students for a future in health care? Why or why not?
8. Who has been the greatest influence in your career choice? (Prompt) what about that was influential??
9. Were there things about the program that made you think you didn't want to attend?
10. What aspects of science courses motivate you to learn? Are you learning something from the HCL sessions that the regular school science class doesn't teach or is the program additional learning your schools science sessions?
11. Why do you think students are drawn to science in school/? What about that makes it exciting?
12. What could be done to increase students' motivation to learn science?
13. If a youth summer Academy experience like summer camp were offered, how interested would you have been in participating?
14. What didn't I ask that you want to tell me about this program?

Appendix B: Consent Form

CONSENT FORM

Research Study Title: THE EFFECT OF A CAREER LADDER PROGRAM
IN AN ECONOMICALLY DISADVANTAGED RURAL COMMUNITY

Principal Investigator: Jeannie Davis, MPA
Research Institution: Concordia University Portland
Faculty Advisor: Julie M. McCann, PhD

Purpose and what you will be doing:

The purpose of this interview process is to investigate factors that affect rural students' interest in health careers, as part of a continuous discussion in the literature regarding the challenges of finding effective ways to increase rural physicians. We expect approximately 25 volunteers. No one will be paid to be in the study. We will begin enrollment on October 2016 and end enrollment on December 2016. To be in the study, you will have to have attended a health career ladder program for more than two years and agree to be interviewed by the researcher. Your participation will only be needed once for a few questions that should last 15 to 20 minutes.

The principal investigator (the researcher) works as an administrator for the career ladder program. However, there is no relationship between you participating or not participating in this study and any program benefit. There will be no incentive or penalty for participating or not participating in the survey.

Risks:

There are no risks to participating in this study other than providing your information. However, we will protect your information. Any personal information you provide will be coded so it cannot be linked to you. Any name or identifying information you give will be locked inside the office at the university. When we or any of our investigators look at the data, none of the data will have your name or identifying information. We will only use a secret code to analyze the data. We will not identify you in any publication or report. Your information will be kept private at all times and then all study documents will be destroyed 3 years after we conclude this study.

Benefits:

Information you provide will help the academic community understand the factors that influence youth toward careers in science and health care as a career preference. You could benefit this by helping the health career ladder understand what motivates students to seek science as a career.

Confidentiality:

This information will not be distributed to any other agency and will be kept private and confidential. The only exception to this is if you tell us abuse or neglect that makes us seriously concerned for your immediate health and safety.

Right to Withdraw:

Your participation is greatly appreciated, but we acknowledge that the questions we are asking are personal in nature. You are free at any point to choose not to engage with or stop the study. You may skip any questions you do not wish to answer. This study is not required and there is no penalty for not participating. If at any time you experience a negative emotion from answering the questions, we will stop asking you questions.

Contact Information:

You will receive a copy of this consent form. If you have questions you can talk to or write the principal investigator, Jeannie Davis. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch.

Your Statement of Consent:

I have read the above information. I asked questions if I had them and my questions were answered. I volunteer my consent for this study.

Participant Name _____ Date

Participant Signature _____ Date

Investigator Name _____ Date

Investigator Signature _____ Date



Investigator: Jeannie Davis
c/o: Professor Julie M. McCann, PhD

Concordia University – Portland
2811 NE Holman Street
Portland, Oregon 97221

Appendix C: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously-researched, inquiry-based projects that benefit professional, institutional and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of academic integrity.

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does “fraudulent” mean?

“Fraudulent” work is any material submitted for evaluation that is falsely or improperly presented as one’s own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate’s final work without full and complete documentation.

What is “unauthorized” assistance?

“Unauthorized assistance” refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another’s work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

Statement of Original Work

I attest that:

1. I have read, understood and complied with all aspects of the Concordia University-Portland Academic Integrity Policy during the development and writing of this dissertation.
2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

Jeannie L. Davis

Digital Signature

Jeannie L. Davis

Name (Typed)

August 16, 2017

Date