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General Education in Health Science-focused Institutions:

An Explanatory Mixed Methods Study

by

Peggy Rosario

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

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(Educational Leadership and Higher Education)

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General Education in Health Science-focused Institutions:
An Explanatory Mixed Methods Study

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University of Nebraska, 2012

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The purpose of this study was to describe the structure of general education curricula at baccalaureate colleges of health science in relationship to Bergquist's Career-Based Model of curriculum. Using an explanatory sequential mixed methods approach, the model was tested by examining whether the curricula were both prescriptive and specific. First, the researcher analyzed how prescriptive the general education curricula at 38 colleges of health science were by evaluating the institutions' catalogs and websites. In the second, qualitative phase, the researcher interviewed general education leaders at six of the colleges to confirm the quantitative data and obtain information about how specific the general education curricula were to healthcare.

The quantitative findings supported Bergquist's model that colleges of health science have a prescriptive curriculum with 71% of the colleges having a core, major-dominated or mixed model with a primary component of core or major-dominated. In addition, the number of required general education credits and the proportion of required math and science credits were higher than data from most national studies for other types of colleges. The interviews confirmed that general education is strongly prescriptive at colleges of health science rather than elective. The interviews also demonstrated that

some colleges have a distribution model where students take a limited number of offerings in selected categories, but that the major program requirements dictate the courses students in each major must take within the distribution categories. Implemented this way, even the distribution model was prescriptive. These findings also supported Bergquist's model by illustrating how specific the general education course content was to healthcare. These research findings contribute to the body of knowledge about general education and colleges of health science, mixed methods research, and Bergquist's model. The study is also helpful to faculty and administrators at colleges of health science and other specialized colleges and accreditation personnel interested in understanding general education curricula.

DEDICATION

I dedicate this work to my friends and family for their support throughout my studies. I hope my husband, Rafael, and my sons, Alejandro and José, can look back on the eight years I spent studying higher education and realize how much their support meant to me and internalize the importance of higher education. My parents served as my inspiration to complete my doctorate. My mother got her master's degree in mathematics at a time when it was rare for women. My father was a farm boy who was able to attend college thanks to the G.I. Bill. He went on to receive his doctorate and spent his career as a professor. Thanks, mom and dad, for giving me the upbringing that enabled me to achieve this dream!

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TABLE OF CONTENTS

Chapter 1- Introduction	1
Statement of the Problem	1
Purpose of the Study	4
Theoretical Foundation	5
Research Questions	6
Definition of Terms	8
Assumptions	11
Delimitations	11
Limitations	12
Significance of Study	12
Chapter 2- Review of Literature	14
Introduction	14
History of General Education Structure	14
General Education Structure in Higher Education Since 1990	19
General Education and Health Sciences Education	26
History of Health Sciences Education	28
Nursing	29
Radiologic technology	30
Respiratory care	31
Cytotechnology	32
Health science credentials	32

Theoretical Foundation	33
Dissertation Research	36
Summary	38
Chapter 3- Methodology and Procedures	40
Research Design	40
Phase I- Quantitative	43
Population and sample	44
Data collection and categorization	45
Data analysis	46
Reliability and validity	47
Phase II- Qualitative	48
Target population and sample	49
Data collection	50
Data analysis	51
Verification	52
Phase III- Mixed Methods	52
Data interpretation	53
Validation	53
Potential Ethical Issues	54
Researcher's Resources and Skills	54
Chapter 4- Quantitative Results	56
Introduction	56

The Quantitative Sample	56
Phase 1 Sub-question 1- At Baccalaureate Colleges of Health Science, What Proportion of the Total Degree Credit Hours Are Required in General Education?.....	59
Phase 1 Sub-question 2- At Baccalaureate Colleges of Health Science, What Proportion of General Education Requirements Are in The Sciences, Social Sciences, Humanities, Mathematics and Other Disciplines?	61
Phase 1 Sub-question 3- What Models of General Education (Core, Major-Dominated, Distribution, Or Mixed) Are Used in Baccalaureate Colleges of Health Science?	64
Phase 1 Sub-question 4- What Types of Mixed Models of General Education Are Used in Baccalaureate Colleges of Health?.....	67
Do Colleges of Health Science Employ Bergquist's (1977) Career-Based Model by Having A Prescriptive Curriculum?	69
Conclusion.....	71
Chapter 5- Qualitative Results	73
Introduction	73
Qualitative Sample	74
Modification of Interview Protocol	74
Qualitative Cases	74
Smith College of Health Sciences: core primary and distribution	

secondary.....	76
Newman College of Health Sciences: core primary and distribution secondary.....	79
Davis College of Health Sciences: major-dominated primary and distribution secondary.....	83
Christian College of Health Sciences: A major-dominated curriculum model.....	88
Johnson College of Health Sciences: distribution primary and core secondary.....	91
Catholic Health Sciences College: distribution primary and major- dominated/core secondary.....	94
Research Questions.....	97
Phase 2 sub-question 1- How would you describe the purpose of your general education curriculum structure?.....	97
Phase 2 sub-question 2- How is the required general education curriculum structure decided upon?	101
Phase 2 sub-question 3- How specific is the content in your general education courses to the healthcare majors?	103
Integration of Quantitative and Qualitative Data.....	108
Do colleges of health science employ Bergquist's (1977) Career- based Model by having a prescriptive curriculum?	109
How do the occupational major requirements influence how specific	

the general education curriculum is in colleges of health sciences that offer general education courses?	112
Conclusion.....	114
Chapter 6- Discussion	117
Introduction.....	117
Do colleges of health science employ Bergquist's (1977) Career-based Model by having a prescriptive curriculum?	117
Phase 1 sub-question 1- At baccalaureate colleges of health science, what proportion of the total degree credit hours are required in general education?	118
Phase 1 sub-question 2- At baccalaureate colleges of health science, what proportion of general education requirements are in the sciences, social sciences, humanities, mathematics and other disciplines?	119
Phase 1 sub-question 3- What models of general education (core, major-dominated, distribution, or mixed) are used in baccalaureate colleges of health science?.....	121
Phase 1 sub-question 4- What types of mixed models of general education are used in baccalaureate colleges of health science?.....	123
How Do the Qualitative Data Help to Explain the Results of the Quantitative Data?.....	124

How Do the Occupational Majors Influence How Specific the General Education Curriculum Is in Colleges of Health Sciences? 125

Phase 2 sub-question 1- How would you describe the purpose of your general education curriculum structure..... 125

Phase 2 sub-question 2- How is the required general education curriculum structure decided upon? 127

Phase 2 sub-question 3- How specific is the content in your general education courses to the healthcare majors? 128

How Do the Qualitative and Quantitative Data Provide Insight about the Application of Bergquist’s (1977) Career-Based Model to the Structure of General Education at Baccalaureate Colleges of Health Science?..... 130

Significance of the Study 130

Limitations..... 133

Recommendations..... 134

Conclusion..... 136

References 138

LIST OF FIGURES

Figure 2.1 The curriculum wheel	34
Figure 3.1 Explanatory sequential design process	43
Figure 4.1 Colleges by degree type offered	58
Figure 4.2 Most common programs at colleges of health science.....	59
Figure 4.3 General education curriculum by discipline	62
Figure 4.4 General education model by type- all colleges.....	64
Figure 4.5 Curriculum models by multiple majors versus one major.....	65
Figure 4.6 Curriculum models by whether college offers general education.....	66
Figure 4.7 Primary curriculum type of colleges with mixed model.....	68
Figure 4.8 Secondary/tertiary curriculum type of colleges with mixed model.....	68
Figure 4.9 Curriculum models by prescriptive versus non-prescriptive types.....	69
Figure 4.10 Prescriptive versus non-prescriptive mixed models by college characteristics.....	71
Figure 5.1 Word count by interview and theme.....	98

LIST OF TABLES

Table 2.1 CAAHEP-Accredited Programs by Credential Awarded	33
Table 3.1 Data Types and Analyses	47
Table 4.1 General Education Credits in All Programs Versus Only Four-year Programs.....	60
Table 4.2 Colleges of Health Science’s General Education Credits by Discipline Category.....	63
Table 4.3 Colleges of Health Science’s General Education Credits for Four Year Programs by Discipline Category	63
Table 5.1 Quantitative and Qualitative Evidence in Support of Prescriptive and Specific Curriculum	109

LIST OF APPENDICES

Appendix A	Interview Protocol	151
Appendix B	Informed Consent Form	153
Appendix C	Visual Model for Explanatory Sequential Design	155
Appendix D	Preliminary Institutional Review Board Application	156
Appendix E	Solicitation Email to Participate in Study	163
Appendix F	Qualitative Interview Code Report from HyperRESEARCH	165
Appendix G	Qualitative Themes Based on Codes: Specific and General	166
Appendix H	Qualitative Themes Based on Codes: Prescriptive and Non-prescriptive... ..	167

CHAPTER 1

INTRODUCTION

Statement of the Problem

Higher education is increasingly emphasizing graduates' preparation for the workplace and for this reason, it is important to investigate programs designed for occupational preparation. There is an ongoing debate about the role and importance of general education versus occupational education within the higher education curriculum. Historically, the higher education curriculum in the United States changed from being completely general to expanding to include professional preparation, and with the Industrial Revolution and the Morrill Act, expanding to include occupational preparation (Brubacher & Rudy, 2008). As higher education has changed, so has occupational education and the changes in occupational education have been significant in the health sciences. Education for the health science professions began as hospital-based diploma programs but state and program accreditation requirements have increased the standard for entry to practice in many health professions from a license or certificate to the associate's or baccalaureate degree (Smith, 2010).

This study investigated general education in baccalaureate colleges that exclusively offer health science degrees, as identified by the Carnegie Classification "Spec/Health: Special Focus Institutions—Other health professions schools" (Carnegie Foundation for the Advancement of Teaching, 2009). One of the most significant differences between diploma and degree programs in higher education is the inclusion of general education requirements. For example, the curriculum for a diploma program in nursing is centered on preparing a competent nurse. In a nursing associate's degree, there

are dual purposes of preparing a competent nurse and preparing a well-rounded student through learning in general education. A baccalaureate degree in nursing provides greater breadth and depth of learning than the associate's degree due to the additional hours of learning in both the major and general education. In nursing, there is also a degree completion program, the Registered Nurse to Bachelor of Science in Nursing (RN to BSN). This degree enables students with either a diploma or an associate's degree in nursing to take additional general education and major courses to earn a baccalaureate degree in about two years (National League for Nursing Accrediting Commission, 2002).

General education is an essential component of a college education, but how it is balanced with the major requirements in colleges of health science is challenging. General education involves "a combination of training in basic proficiency in writing, mathematics, and foreign language and a sampling of humanities, social sciences, and natural sciences" (Stevens, 2001, p. 166-167). Virtually any major that has accreditation must meet the prescriptive standards for credits in the major and in general education. In colleges of health science, state regulations and program accreditation requirements have a significant impact on general education requirements (Commission on Accreditation of Allied Health Education Programs, 2003, 2004, 2007; Joint Review Committee on Education in Radiologic Technology, 2001; Joint Review Committee on Educational Programs in Nuclear Medicine Technology, 2003; National League for Nursing Accrediting Commission, 2008; Stark & Lattuca, 1997, p. 165).

The structure of general education in colleges has been studied extensively from a historical perspective (Boning, 2007; Labaree, 2006; National Association of Scholars, 1996; Stevens, 2001). Studies have been conducted regarding contemporary general

education structure in colleges nationally (American Council of Trustees and Alumni, 2009; Gaff, 1983; Gaff & Wasescha, 2001; Hart Research Associates, 2009; Jones & Ratcliff, 1991; Ratcliff, Johnson, LaNasa, & Gaff, 2001), regionally (Kanter, London & Gamson, 1991), and within states (Council of Higher Education of Virginia, 1999). General education has been studied in different kinds of colleges, such as community colleges (Zeszotarski, 1999), liberal arts colleges (Cejda & Duemer, 2001) and research universities (Bourke, Bray & Horton, 2009; Warner & Koeppel, 2009). The structure of general education has also been studied in relationship to specific healthcare majors, such as allied health (Håård, Öhlén, and Gustavsson, 2008; Harris, Heard & Everingham, 2005; Harris & Viney, 2003; Snyder, Folkins, Yoder, Scalia, Douglas, & King et al., 1997) and nursing (Mengel, 1988; Xu, Xu, & Zhang, 2002). From the available literature, there is only one study that examined general education structure at a health sciences college (McCain, Hine & Wolfertz, 1998). However, the study's focus was on assessment related to that structure rather than the structure itself. Researchers have not examined health science-focused colleges' overall general education structure.

The structure of general education in baccalaureate colleges of health science was the subject of investigation in this study. Although a quantitative study to examine the structure of general education at colleges of health sciences could yield basic data about the curriculum composition, this picture would be incomplete without the richness of descriptive information that could be obtained from a qualitative approach. Combining quantitative and qualitative data collection into a mixed methods study provided a more complete picture of the general education structure at colleges of health science.

According to Ratcliff, Johnson, LaNasa and Gaff (2001), “students perceive that general education does not contribute to career success, whereas majors do” (p. 15). At colleges of health science where students’ purpose for attending is to attain a specific career, this perception is particularly problematic. Understanding the structure of general education is critical to its acceptance by faculty and students and its integration with health sciences education.

Purpose of the Study

The purpose of this study was to describe the structure of general education at baccalaureate colleges of health science in relationship to Bergquist’s Career-Based Model of curriculum using an explanatory sequential mixed methods approach. First, the structure was investigated quantitatively and then further insight was obtained qualitatively. In the first quantitative phase of the study, college catalogs and websites were evaluated to identify how prescriptive the general education requirements were at colleges of health sciences. The second, qualitative phase was conducted as a follow up to the quantitative analysis to more fully explain the specific structure of general education at colleges of health science. In this exploratory follow-up, the researcher examined general education structure through interviews with leaders of general education at six colleges of health sciences that offer general education courses.

Creswell and Plano Clark (2011) identified two typologies for mixing methods that help explain the purpose for mixing methods in this study, Green, Caracelli and Graham’s typology and Bryman’s typology. Greene, Caracelli, and Graham’s typology includes the concept of “complementarity (which) seeks elaboration, enhancement, illustration and clarification of the results from one method with the results from the other

method” (p. 62). In this study, complementarity was obtained from the qualitative interviews elaborating and clarifying the results of the quantitative curriculum analysis. Bryman’s typology includes completeness and illustration as reasons for mixing methods that are relevant to this study. According to Creswell and Plano Clark (2011):

Completeness refers to the notion that the researcher can bring together a more comprehensive account of the area of inquiry in which he or she is interested if both quantitative and qualitative research (methods) are employed.... Illustration refers to the use of qualitative data to illustrate quantitative findings, often referred to as putting “meat on the bones” of “dry” quantitative findings. (pp. 62-63)

In this study, the interviews provided completeness and illustration to the quantitative curriculum analysis by creating a more comprehensive explanation for the structure of general education curriculum in colleges of health sciences.

Theoretical Foundation

This study explored the application of Bergquist’s (1977) curriculum theory to general education curriculum in colleges of health sciences. The Literature Review chapter contains an explanation and graphic depiction of the theory, along with a description of how it has been applied in research. Bergquist’s theory is based upon a typology of eight curricular models. Of these models, the Career-based Model is most relevant to colleges of health science because of its emphasis on the occupational major and its characteristics of being a specific, prescriptive curriculum. In the quantitative portion of this study, the researcher examined whether colleges of health science tend to employ the Career-based Model by having a prescriptive general education component.

The researcher explored how specific the general education requirements were in the qualitative portion of this study.

Research Questions

The research problem investigated in this study was whether general education curricula in baccalaureate colleges of health science were consistent with Bergquist's Career-based Model by being prescriptive and specific. To examine this research problem, the researcher developed the following central research question: How does Bergquist's curriculum theory help explain the structure of general education at baccalaureate colleges of health science?

To obtain information to help answer the central research question, the researcher developed an overarching quantitative question: Do colleges of health science employ Bergquist's (1977) Career-based Model by having a prescriptive curriculum?

In order to answer that question, the researcher developed four quantitative sub-questions for phase one of the study as follow:

Phase 1 sub-question 1- At baccalaureate colleges of health science, what proportion of the total degree credit hours are required in general education?

Phase 1 sub-question 2- At baccalaureate colleges of health science, what proportion of general education requirements are in the sciences, social sciences, humanities, mathematics and other disciplines?

Phase 1 sub-question 3- What models of general education (core, major-dominated, distribution, or mixed) are used in baccalaureate colleges of health science?

Phase 1 sub-question 4- What types of mixed models of general education (core/major-dominated; core/distribution; major-dominated/distribution; or core/major-dominated/distribution) are used in baccalaureate colleges of health sciences?

Because Bergquist's (1977) Career-based Model is based upon the assumption that the curriculum would be specific to the occupational major (as opposed to general), the researcher sought to answer the following overarching qualitative question: How do the occupational majors influence how specific the general education curriculum is in colleges of health sciences?

The researcher used the three following qualitative sub-questions to obtain more descriptive information about the structure of general education at colleges of health sciences in phase 2 of the study:

Phase 2 sub-question 1- How would you describe the purpose of your general education curriculum structure?

Phase 2 sub-question 2- How is the required general education curriculum structure decided upon?

Phase 2 sub-question 3- How specific is the content in your general education courses to the healthcare majors?

The interview protocol in Appendix A includes the probing questions that were used to elicit responses from the six interviewees in relationship to these sub-questions. The following mixed methods question was used to integrate the data: How does the qualitative general education leadership interview data help to explain the results of the quantitative content analysis data by providing insight about the application of Bergquist's (1977) Career-based Model to the structure of general education at baccalaureate colleges of health science?

Definition of Terms

Career-based Model is one of Bergquist's eight curriculum models which is "designed to prepare students for a certain vocation" (Bergquist, Gould & Greenberg, 1981, p. 3).

Carnegie Classification refers to a system for classifying institutions of higher education developed by the Carnegie Foundation for the Advancement of Teaching (2009).

Colleges of health science refer to those colleges that fall into the Carnegie Classification of "Spec/Health: Special Focus Institutions--Other health professions schools" (Carnegie Foundation for the Advancement of Teaching, 2009). This classification is for institutions "awarding baccalaureate or higher-level degrees where a high concentration of degrees (above 75%) is in the" (Carnegie Foundation for the Advancement of Teaching, 2009, para. 7) healthcare fields other than medicine.

Core curriculum model is defined as a general education curriculum structure in which all students take the same group of general education courses, otherwise known as

a “required course of studies” (Cheney, 2011, p. 11). For example, Cox College has a core curriculum of eighteen general education courses that all students are required to take (Cox College, 2012).

Distribution model is defined as a general education curriculum structure in which students “complete a prescribed number of course(s) from a number of broad disciplines” (Cejda & Duemer, 2001, p. 13) or competency areas (University of Nebraska-Lincoln, 2009; Texas A&M University- Kingsville, 2006). For example, Massachusetts College of Pharmacy and Health Sciences has a distribution model that incorporates thirteen math and science semester hours and 27 semester hours of liberal arts credits (Massachusetts College of Pharmacy and Health Sciences, 2012, p. 114).

Explanatory sequential mixed methods design is a research design that involves conducting a quantitative analysis followed by a qualitative analysis and mixing the data when interpreting the findings (Teddlie & Tashakkori, 2009, p. 162).

General education structure is defined as the curriculum requirements that all students must complete in order to attain a baccalaureate degree that are taken in addition to the course requirements in their area of specialization (The Harvard Committee, 1950, p. 51).

Humanities include coursework in art, history, English, journalism, language and literature, music, philosophy, ethics, speech, theatre and religion (Higher Education Research Institute, 2011).

Major-dominated curriculum model is one “where each academic department determines general education requirements (i.e., general education does not exist as a requirement on the institutional... level)” (Hurtado, Astin, & Dey, 1991, p. 141). In

colleges with only one major, this model was not considered because it is by nature major-dominated and so the structure was examined in terms of the other models. Bellin College is an example of a college where the program faculty determine the general education requirements and there is no coherence to general education requirements at the college level (Bellin College, 2011).

Mixed model is the general education curriculum structure of colleges that mix elements of at least two of the following models: core (Cheney, 2011), major-dominated (Hurtado, Astin, & Dey, 1991) and distribution (University of Nebraska-Lincoln, 2009; Texas A&M University- Kingsville, 2006; Cejda & Duemer, 2001) models. There are six major types within the mixed model: core/major-dominated; major-dominated/core; core/distribution; distribution/core; major-dominated/distribution; and distribution/major-dominated in which the first component comprises the majority of the curriculum and the second component a minority. It is also possible for a college to have a mixed model that encompasses all three types in varying proportions. A number of colleges with a variety of mixed models are described in chapter five.

Sciences are defined as the biological and physical sciences as identified by the Higher Education Research Institute (2011) in the Cooperative Institutional Research Program, with the exception of mathematics which was considered separately in this study.

Social Sciences are defined as including anthropology, economics, ethnic studies, geography, political science, public policy, psychology, social work, sociology, and women's studies (Higher Education Research Institute, 2011).

Assumptions

This study contained three underlying assumptions. The first assumption was that college catalogs and websites provided sufficient information about the structure of general education to answer the quantitative research questions. This assumption was based upon past research into the structure of general education that utilized catalogs and websites as sources of data (Zeszotarski, 1999; National Association of Scholars, 1993; Warner & Koepfel, 2009; Toombs, Amey & Chen, 1991; Cejda & Duemer, 2001; Bourke, Bray & Horton, 2009) and Hurtado, Astin and Dey's (1991) assertion that "the catalog is an excellent source of data about a college's formalized curriculum" (p. 135).

The second assumption was that those who oversee the general education curriculum at colleges of health science have sufficient experience and insight to answer the qualitative questions. The researcher aimed to reinforce this assumption by including a statement in the informed consent form that if the participant does not have sufficient knowledge to answer the questions, that individual would be excluded from the study (Appendix B).

The final assumption was that the qualitative data provided complementarity, completeness and illustration for the quantitative data during the mixing phase. To ensure the appropriateness of the qualitative questions, experts in general education reviewed the questions.

Delimitations

A delimitation of this study was that the analysis of general education structure only applied to colleges that exclusively offer baccalaureate degrees in the health sciences. A further delimitation was that the qualitative analysis provided descriptive

information about the structure of general education at six colleges of health science, which may not be applicable to any other health sciences colleges, other types of specialized colleges or other institutions of higher education in general.

Limitations

A limitation of this study's explanatory sequential mixed methods design was that it relied on the successful completion of the quantitative phase before the qualitative phase could be initiated. The qualitative phase was initially planned hypothetically until the results of the quantitative phase could be used to effectively finalize the qualitative phase design.

Significance of the Study

This study's findings are significant for three important reasons. First, this study contributes to the body of knowledge about general education, colleges of health science, and mixed methods research by investigating a subject that has not been previously studied using mixed methods research.

Second, this study contributes to the understanding of Bergquist's (1977) Career-based Model of curriculum as it applies to colleges of health science. In addition, an increased understanding of career-based curriculum could be beneficial to faculty and administrators at any career-based institution of higher education. This study could provide faculty and administrators at other types of specialized colleges with a good stepping stone to understand or investigate their own general education structure.

Third, this study's findings benefit a number of different practitioners, including faculty and administrators at colleges of health science and other specialized colleges, leaders of diploma schools of health science, and individuals involved in program and

regional accreditation reviews of health science colleges. The quantitative and qualitative data may help faculty and administrators in colleges of health science gain a better understanding of general education's composition and characteristics to overcome the perception that general education is something that students need to "get over with" (Harvard Committee, 1950, p. 56). Those who oversee general education in colleges of health science and leaders of health science diploma schools who aspire to transition their institutions to become health science colleges could find this research helpful in planning their general education curriculum. Individuals involved in program and regional accreditation visits could use this study's findings to help them understand more about general education at colleges of health science. Program accreditors tend to be experts in the health professions, not general education, so this study can help them better understand general education structure. Regional accreditation visitors are likely to be from non-health science colleges and therefore have a very different frame of reference for understanding general education structure. This study could help them understand how general education is typically structured in health science colleges to gain an appropriate frame of reference.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

This review of literature begins with a scholarly investigation into general education at institutions of higher education. The researcher presents background into general education in American higher education through a historical overview. Next, research conducted since 1990 into the structure of general education is examined to provide insight into the more recent state of affairs in general education. Then, the researcher describes several studies that investigated general education in relationship to healthcare majors, followed by a history of health science education to provide a context for the investigation of today's colleges of health science. The researcher elaborates on the curriculum theory that relates to general education in colleges of health science and explores dissertation research studies that are relevant to this study. The chapter concludes with a summary of the available research, including themes from the literature and a justification for the need to investigate general education in baccalaureate colleges of health science.

History of General Education Structure

With Harvard's founding in 1636, the structure of American institutions of higher education was focused on a "classical and religious curriculum" (Stephens, 2001, p. 167). Rudolph noted that at that time "there was no division between general and specialized education" (as cited in Boning, 2007, p. 2). So in effect, at this time higher education was general education. Cohen and Brawer (2003) noted that the classical curriculum was often "taught by the college president and presented to all students" (p. 331).

Boning (2007) observed that after 1820, several universities attempted to “diversify the curriculum” (p. 2) by offering more practical alternatives to the traditional curricula but these were unpopular and eventually discontinued. The Yale Report of 1828 addressed the enduring question, “why... should a student waste his time upon studies which have no immediate connection with his future profession?” (Yale University, 2005, p. 100). The answer was that undergraduate education lays the foundation for the specialty (p. 101). In 1828, Yale had a prescribed undergraduate curriculum based on the idea that all undergraduates should take the same course of study and that graduate school was the place where students should develop a specialty in their studies (p. 100).

In 1850, “Frances Wayland at Brown University had instituted an elective curriculum” (Altbach, Berdahl, and Gumpert, 2005, p. 466) which began the trend to move away from the classical curriculum. At Harvard in the late 1870s to mid-1880s, President Charles Eliot oversaw a curriculum change to a free elective system where students could take whatever courses they wanted (Rudolph, 1977, pp. 194-195). By the late 1800s, many universities “adopted an elective system where students were free to choose their course of study from a wide range of disciplines” (Stephens, 2001, p. 167).

At about the same time as the elective system was being adopted in higher education, occupational training became a focus due to the Industrial Revolution (Boning, 2007). The wide range of electives and the focus on the major eroded the coherence and strength of general education within institutions.

In 1936, Dewey and Hutchins debated the purpose of education. Dewey argued that “democracy should be the goal of education” (p. 125) and that the same skills and knowledge are needed for both “personal goals and...career objectives” (p. 125).

Hutchins lamented the vocational focus of higher education and proposed a core curriculum based upon “the greatest books of the western world” (Ehrlich, 2005, p. 123). The “Great Books” model of general education that emerged in the 1920s and 1930s was based on Hutchins’ beliefs. In this model, students read and discuss canonical books as the focus of instruction rather than the disciplines (Rudolph, 1977, p. 280). Faculty members who were instrumental in the “Great Books” movement were Mortimer Adler, Mark Van Doren, Stringfellow Barr, and Scott Buchanan (Brubacher & Rudy, 2008, p. 275). The latter two took the “Great Books” concept to St. John’s College where it is now institutionalized. St. John’s College (2008) describes its “Great Books” curriculum as follows:

The all-required course of study is based on the reading, study, and discussion of the most important books of the Western tradition. There are no majors and no departments; all students follow the same program. Students study from the classics of literature, philosophy, theology, psychology, political science, economics, history, mathematics, laboratory sciences, and music. No textbooks are used. The books are read in roughly chronological order, beginning with ancient Greece and continuing to modern times. (para. 3-4)

Labaree (2006) examined historical documents in American higher education to better understand the relationship between liberal and professional education. He identified three forms of higher education that were invented in the United States: the land-grant college (focused on practical and industrial arts), the normal school (focused on teaching), and the community college (focused on career education). Although these forms of higher education significantly expanded the opportunities for professional

education, Labaree's analysis revealed that despite the prevalence of professional education, liberal education was still integrated into the professional majors. The conclusion that Labaree came to follows: "The professional has come to dominate the goals of higher education while the liberal has come to dominate its content" (p. 1).

Boning (2007) analyzed general education qualitatively, focusing on identifying coherence in the general education curriculum during the 1900s. He found that in the 1910s, higher education reform movements increased the standing of general education to reign in the out-of-control elective system. Reform movements in the mid-1940s promoted the knowledge necessary for a free society, and in the late 1970s, they focused on counteracting the emphasis on research rather than teaching. Because this study helped describe specific periods of reform and stagnation in general education, Boning concluded that the history of general education "can best be described as a swinging pendulum between periods of integration and periods of fragmentation" (p. 1).

In the mid-1900s, Harvard grappled with what general education should be and its interplay with the specialty. According to the Harvard Committee (1950), "General education is the appreciation of the organic complex of relationships which gives meaning and point to the specialty" (p. 195). The Harvard Committee proposed that out of sixteen courses needed for a baccalaureate degree, six should be required in general education. Three of the required courses, in humanities, science and social science, should be taken during the first two years of study (p. 198). The humanities course should focus on literature (p. 205) and the social science course on Western heritage (p. 214). The science courses were proposed to be developed for non-majors in both biology and physics (p. 224). The additional three courses that each student was required to take could

not be in the student's department, although one course could be from the student's broader area of concentration (p. 197). This Harvard model is an example of a mixed model because it included both required courses and choices from a range of committee-approved courses.

According to Levine (1978), 85% of a representative sample of the nation's colleges in the late 1970's had a distribution requirement and 10% had a core curriculum model (pp. 9-15). In 1980, Boyer argued that higher education should embrace a core curriculum because the trend in emphasizing independence in choice has led to neglecting the recognition of interdependence (p. 277). He believed that our shared experiences of the past, present and future "give shape and significance to the core curriculum" (p. 284). In 1983, Gaff reported that the free electives model was only used by a "handful of schools" (p. 11).

Gaff (1981) examined general education structure in relationship to general education reform efforts at twelve institutions of higher education. He found that "ten of the schools opted for both a core and a distribution pattern" (p. 53) that included a few courses common to all students and then the option for students to choose other courses within certain "disciplinary alternatives" (p. 53). English and math courses were the most common core requirements of the mixed models.

Cheyney (2011) studied general education in the late 1980s and noted that a National Endowment of the Humanities survey of 1988-89 general education requirements pointed to a dire state of affairs in general education. The survey indicated that more than three-quarters of college students could graduate without taking a course in Western civilization or a foreign language; a third or more students could graduate

without taking any history course, a literature course, a math course or a science course (pp. 7-8). To remedy this problem, Cheyney advocated for a core curriculum of 50 hours that included 18 hours in cultures and civilizations, 12 hours in foreign language, six hours in mathematics, eight hours in the natural sciences and six hours in the social sciences (p. 17). In addition to recommending the coursework, Cheyney also recommended that three-fifths of the freshman and sophomore year and two-fifths of the junior year should be spent on the core coursework; the entire senior year and remaining time in the other years should be spent on electives and major requirements (p. 18). While acknowledging that no colleges had a 50-hour core, Cheyney identified model institutions in carrying out each of the requirement areas (pp. 26-57).

General Education Structure in Higher Education Since 1990

General education structure has been examined quantitatively in a number of national studies which involved tabulating the number of required general education credits. Mauldin and Gress (2010) collated information from all six regional accrediting bodies and found that the Middle States and Southern associations require 30 semester hours of general education for the baccalaureate; the New England association requires 40 semester hours; the Western association requires 45 semester hours; and the North Central and Northwest associations do not specify the number of hours, just that general education be included in the curriculum.

Toombs, Amey, and Chen (1991) studied a sample of 652 institutions offering baccalaureate degrees in the following Carnegie Classifications: Research I and II, Doctoral I and II, Comprehensive II, Liberal arts I and II (p. 103). They found the average number of general education credits was 47, with humanities averaging 12

credits, social science nine credits, about eight credits in both natural sciences and speech writing, and about seven credits each in foreign language and values (p. 109). In analyzing the credits required by a number of different traditional disciplines and applied fields, the researchers concluded, “General education may be better defined by beginning with the configuration of the major field and fitting what is ‘general’ into it, rather than forcing accommodation to an institution-wide requirement” (p. 110). This statement is reflective of the major-dominated model of general education, as well as the Career-based Model (Bergquist, 1977).

Gaff and Wasescha (2001) attempted to identify the consequences of general education curricular changes through a quantitative survey of chief academic officers at 226 colleges and universities that had modified their general education program in the decade prior to the study. Modifications included changing the distribution system (68%), adding new types of courses, like freshman seminars (64%), and increasing interdisciplinary core courses (52%) (p. 236). According to Gaff and Wasescha:

The profile of a “typical general education curriculum” at four-year colleges... includes two courses in writing, one course in mathematics, four courses in the humanities, one course in the fine arts, two courses in the natural sciences..., and three courses in the social sciences. (p. 237)

In studying fifty elite colleges and universities’ general education requirements through a quantitative assessment of college catalogues, the National Association of Scholars (1996) found “until 1964, highly structured course requirements emphasizing broad surveys of major subjects remained the norm” (p. 51). In 1914, these elite colleges

required an average of 9.9 mandatory courses while in 1993, they required only 2.5 (p. 51).

In 2000, Ratcliff, Johnson, LaNasa, and Gaff (2001) conducted a national general education survey, called GE2000, at 200 four-year American Association of Colleges & Universities member institutions. In this quantitative study, they found “the average general education requirement is 37.6% of the baccalaureate degree, or 45.1 credit units” (pp. 12-13). Johnson, Ratcliff, and Gaff (2004) conducted further analysis of the GE2000 study and found that the mean number of hours for a BA degree was 125.46 and general education comprised 37.59% of that degree; the mean hours required of a BS degree was 125.83 and general education comprised 37.48% of the total credits (p. 15). More than eighty percent of institutions reported on the GE2000 study that they required the following courses: social science (93.9%), math-quantitative (92.1%), humanities (91.7%), natural science (89.8%), history (88.2%), fine arts (86.8%), and literature (83.3%) (p. 20).

In 2009, Warner and Koeppel examined the general education structure at 72 randomly-selected national research universities, master’s comprehensive schools, and liberal arts schools from the *U.S. News and World Report* college rankings. The researchers wanted to determine if there were any relationships among the institution type, assigned ranking and the structure of the general education requirements. Warner and Koeppel found that “students in schools that are ranked higher in the *U.S. News and World Report* evaluations have more choices within their general educational program than do students from lower-ranked schools” (p. 254).

Bourke, Bray, and Horton (2009) also used the *U.S. News and World Report* college rankings, but their focus was on general education structure in the top twenty-five institutions in the liberal arts and research institution categories. They found that a majority of the institutions used a distribution requirement, with 65% of the research institutions and 80% of the liberal arts using that form (p. 227). They calculated the average number of hours in the general education curriculum was 35 for liberal arts institutions and 34 for research institutions (p. 227). Three of the liberal arts institutions had a free elective system where there were no standard course requirements (p. 227). The average course requirements for liberal arts institutions were two courses each in language, literature, and social science and one course in math, science, writing, and physical education (p. 227). The average course requirements for research institutions were two courses each in language and math, and one course in each of the following: quantitative research, multicultural, history, literature, science, social science, and writing (p. 227).

The American Council of Trustees and Alumni (2009) investigated general education at one hundred of the nation's leading colleges and universities. In this quantitative study, they examined seven subjects as being essential components of a general education core: composition, literature, foreign language, U.S. government or history, economics, mathematics, and natural or physical sciences (pp. 10-11). They graded the institutions based on the number of these core subjects that were part of their general education requirements (pp. 16-19). Based on this analysis, the state flagships had the best overall grades; liberal arts colleges had the worst grades (p. 14).

Hart Research Associates (2009) conducted an Association of American Colleges and Universities member survey in which 906 institutions across all major Carnegie Classifications provided information about their general education practices. About 15% of the members responded that they used only a distribution model; 64% used other models in combination with the distribution model; and 30% reported using a core curriculum along with the distribution model (pp. 2-3). In examining course requirement types, members reported the following areas of knowledge: humanities (72%), science (71%), social sciences (70%), global/world cultures (68%), mathematics (68%), and diversity in United States (57%) (p. 5).

The structure of general education has been studied in relationship to specific types of institutions, such as comprehensive and doctoral universities, state systems of higher education, community colleges and liberal arts colleges. Jones and Ratcliff (1991) studied whether the core curriculum, in which all students take the same courses, or the distribution requirement, in which all students take a minimum number of credits in specified academic areas, is the better form of general education curriculum. In this study conducted at a private comprehensive college, the researchers matched general studies courses with two measures of general learning: the Scholastic Aptitude Test as the pre-measure and the Graduate Record Exam as the post-measure. The researchers' "findings argue against the establishment of a core curriculum" (p. 98) because the cluster analysis did not produce "a core among all coursework taken" (p. 98). The authors also cautioned against a completely open distribution requirement, instead favoring "discrete arrays of coursework that are more appropriate and more productive for different ability levels of students" (p. 98). They drew this conclusion because "the cluster analytic model can be

used to identify coursework that has been beneficial to students of specific ability levels, interests, and aptitudes” (p. 99).

Kanter, London, and Gamson (1991) conducted mixed methods research using telephone surveys followed by case studies to “assess changes in general education in comprehensive and doctorate-granting institutions in New England” (p. 121). Telephone interviews indicated that 73% of the institutions “had changed their general education curricula since 1980” (p. 123). Forty percent of the universities reported having a distribution system before the change. After the change, “33% stayed with the same system, 42% moved to a modified distribution core and 25% adopted a modified core” (pp. 123-124), which has mostly prescribed courses with some choices. Forty-seven percent of the institutions “had a distribution system with some required courses (a ‘modified distribution system’)” (pp. 123-124) and all of the 20% that changed that structure chose the modified core. The case studies examined four institutions in-depth that substantially changed their general education structure within the past five years and represented a mix of institutional types and sizes.

Zeszotarski (1999) studied the structure of general education in thirty-two community colleges. She found that for transfer degree programs, 69% of the schools had distribution requirements and 21% had a core with electives. Only 10% had a core curriculum by program or major (p. 45), which is categorized in this study as a major-dominated curriculum model. In terms of required coursework, all of the community colleges studied required English composition, life and physical sciences, and mathematics (p. 46). Other common requirements included social science (97%), U.S.

history (93%), U.S. government (90%), humanities (86%), and foreign languages (83%) (p. 46).

The Council of Higher Education of Virginia (1999) conducted a statewide study into general education at 64 of Virginia's higher education institutions. The average number of required general education credits was 46.5 for "the public four-year institutions and 50 among the private not-for-profit institutions" (p. 9). The greatest proportion of institutions had a distribution model (64%) with either required content or required skills; the next most common model was a core curriculum with 20% of the institutions having that form (p. 33).

Cejda and Duemer (2001) examined the catalogs of 82 liberal arts colleges, with Carnegie classifications Liberal Arts I and Liberal Arts II, to evaluate the curricula in relationship to six identified attributes. In this study, the definition of what constituted general education varied from "everything except the major" (p. 12) to a prescribed set of courses that excluded minors or electives. National institutions with prescribed general education had "requirements ranging from 20 to 49% of the degree program... and from 24 to 51% of the degree program at Regional institutions" (p. 12). Although Cejda and Duemer contended that regional institutions were able to successfully blend professional and general education, they also noted, "With more hours typically required for professional majors, fewer hours are given to general education and room for a minor or electives disappears" (p. 19). In addition, they found national colleges have "the attributes of breadth and liberal education" (p. 20). However, a lack of coherence in the curriculum "and the extent of freedom in student choice raises the question of the extent of breadth" (p. 20).

General Education and Health Sciences Education

Research into general education and health sciences education has not focused broadly on structure; instead, the research has focused on particular curricular issues. Snyder, Folkins, Yoder, Scalia, Douglas, and King et al. (1997) compiled data from an Allied Health Program Review conducted for the State University System of Florida. Although diversity was examined, the report focused almost exclusively on the diversity of students and faculty and not whether diversity issues are addressed within the core curriculum. At the University of Sydney in Australia, Harris and Viney (2003) described the successful implementation of 29 cross-disciplinary units of biomedical and behavioral sciences developed to replace 100 original units of study that were taught exclusively in the major. Harris, Heard, and Everingham (2005) extended the University of Sydney's study of health sciences curricular reform by evaluating the creation of one unit of study that replaced five units of study, which enabled a course in research design to become a well-received multi-professional learning experience.

Mengel (1988) conducted a qualitative survey of 488 nursing leaders to identify values, opinions and ideas about what should be taught in a baccalaureate nursing curriculum. The Delphi Technique was used to obtain controlled group feedback from the large group being studied. Although the bulk of the findings related to the nursing content, the following findings related to general education:

The curriculum perspective of academic rationalism occurred least frequently and items representing this perspective were not rated highly, indicating a lack of emphasis on a liberal or general education.... However, some liberal or general

education goals are addressed by items representing a self actualization perspective, which was highly rated. (pp. 40 – 41)

In China, Xu, Xu, and Zhang (2002) conducted a mixed methods study in which content analysis of China's nursing curriculum was followed by qualitative interviews with Chinese nursing faculty. The data was compared with a generic nursing curriculum at a southwestern American college. The researchers calculated that the Chinese curriculum contained about 5% more time in general education compared with the American curriculum (p. 312). The authors explained this difference was expected since the entrance requirement for admission to the Chinese curriculum was only the completion of junior high school. In addition, the Chinese curriculum had a "minimal presence of the humanities and social sciences" (p. 313).

Håård, Öhlén, and Gustavsson (2008) conducted a quantitative study of 1,100 nursing students at 24 Swedish universities using the National Study of Student Engagement. Although 83% of students "rated professional knowledge and skills as acquired to a great extent" (p. 5), only 63 percent of students agreed that they acquired a broad general education and only 41 percent of students indicated that they acquired an understanding of diversity (p. 8). The area that was rated lowest was also in a general education area, "engage in the development of society," (p. 8) which was only rated as being acquired by 27% of students. The researchers surmised that the micro focus of nursing made it difficult for students to focus on societal issues and that the curricula lacked specific emphasis on culture.

McCain, Hine, and Wolfertz (1998) documented the process that St. Vincent's College, a small two-year health sciences college, undertook to evaluate its general

education curriculum. St. Vincent's had a 25-credit core curriculum and formed a task force to create general education outcomes related to that curriculum. Once the outcomes were identified, the task force worked on identifying quantitative and qualitative measures to ensure that those outcomes were met. According to McCain et al.,

Multiple measures consisting of externally and internally developed instruments ensure the accuracy and efficacy of data. St. Vincent's College gathers data by means of student, graduate and employer surveys, standardized tests such as the Academic Profile and Assess Tests, and various faculty projects designed to determine achievement and competencies in the classroom. (p. 5)

This study took an interesting approach because rather than questioning what the general education curriculum should be, the institution accepted the existing general education curriculum and planned the outcomes and assessment around those courses.

History of Health Sciences Education

The history of health sciences education in this country is much shorter than the history of higher education. Each type of health science degree program has its own unique history that evolved out of meeting a healthcare need, such as nursing to care for the sick or wounded, or due to the creation of technology, such as x-rays and ultrasound. Physicians were the first to use the new diagnostic technologies but they began to teach others to use them when they didn't have sufficient time to dedicate to other aspects of patient care. Healthcare education began as on-the-job training provided by physicians and experienced practitioners in the field. In time, hospital-based educational programs were developed to formalize the educational experience. The licensing of practitioners and accreditation of healthcare programs led to increasing educational standards. A

number of states and professions moved to require the associate or baccalaureate degree as the entry to practice (American Society of Radiologic Technologists, 2011b; Association of State and Territorial Directors of Nursing, 2009; Bureau of Labor Statistics, 2010; Bureau of Labor Statistics, 2009; Chitty, 2001). According to the National Center for Education Statistics (2008), the health sciences category was the most common career field of study in the following areas: sub-baccalaureate (34%), certificate (45%), and associate's in science (32%). The baccalaureate in health sciences (14%) was second only to business and marketing (34%) in number of career-focused degrees awarded (National Center for Education Statistics, 2008). The professions that require a master's or doctorate to practice were not included in this review because this study focuses on baccalaureate colleges.

Nursing. The Civil War created the need for trained nurses and Dorthea Dix “enlisted 100 women to train for a month under physicians at Bellevue Hospital and New York Hospital” (Chitty, 2001, p. 5). In the late 1860s, a number of influential individuals and groups came together to advocate for the creation of nursing schools in hospitals (p. 8). The model of education in nursing schools was a “modified apprenticeship” (p. 37) with physicians giving the lectures and nurses supervising the clinical experience. Around the turn of the twentieth century, “advances in medical sciences, the public health movement and the... wars” (Hanson, 1989, p. 84) led to a need for a broader knowledge-base in nursing. By the 1920s and 1930s, 2,000 nursing diploma programs existed (Chitty, 2001, p. 37).

In 1907, the first collegiate program in nursing was established at Teachers College (p. 36) and the first baccalaureate degree in nursing was established at the

University of Minnesota in 1909 (p. 38), followed by Case Western Reserve University in 1923 (Hanson, 1989, p. 89). The National League for Nursing Education Committee on Education published a report in 1921 that described a “five-year combined liberal arts and professional program” (p. 90). This program consisted of “two years of college education with three years of university-controlled nursing courses... (with) the university to confer, upon the completion of five years, a baccalaureate degree” (p. 89). In 1948, the Carnegie Foundation’s Brown Report “recommended that basic schools of nursing be placed in universities and colleges” (Chitty, 2001, p. 39). The post World War II baby boom created a nursing shortage that was addressed in part by the creation of associate’s degrees in nursing in 1952 (p. 23).

Since the mid-1960s, there has been a push within the nursing professional associations to make the baccalaureate degree the entry to practice credential. A survey conducted by the Association of State and Territorial Directors of Nursing (2008) revealed the following states require a baccalaureate degree to practice nursing: Delaware, Minnesota, North Carolina, South Carolina, Vermont and Wisconsin.

Radiologic technology. Radiologic technology is another health science program with a relatively recent history given that the discovery of x-rays was in 1895 (Adler & Carlton, 2003, p. 8). Initially, training in using x-ray equipment was provided to medical residents, with the first professorship being established at the University of Pennsylvania’s medical school in 1911 (Penn Medicine, 2011). As physicians found their time consumed with using and maintaining the x-ray equipment, they began to train office assistants to perform radiography (American Society of Radiologic Technologists, 2011a, para. 9). Eddy Jerman is credited with founding the American Association of

Radiological Technicians in 1920. This small group of technicians came together to lay the foundation for their profession and is known today as the American Society of Radiologic Technologists (ASRT) (para. 13).

By the 1950s, the group's membership had grown to 4,000 and a standard educational curriculum was developed (para. 16-17). By the late 1960s, medical advances created new specialties, such as nuclear medicine, sonography and radiation therapy and the ASRT membership grew to 14,000 (para. 18-19). The huge growth in the profession led the ASRT to promote federal legislation for licensure to ensure quality within the profession. According to the ASRT (2011b), "By 1995, 33 states had enacted licensure laws for radiographers, 28 licensed radiation therapists and 21 licensed nuclear medicine technologists" (para. 24). Currently, there are ten core curricula offered by the ASRT. Five of these are specialty certifications completed after initial licensure. Three require general education at the diploma, associate's or baccalaureate degree level and the Radiologist Assistant curriculum involves a baccalaureate or post-baccalaureate degree (American Society of Radiologic Technologists, 2011b). In Diagnostic Medical Sonography, the associate's degree is the most prevalent credential, with fewer offerings in hospital-based certificate programs and collegiate baccalaureate programs (Bureau of Labor Statistics, 2010).

Respiratory care. The first professional association of inhalation therapists, the Inhalation Therapy Association, was formed in 1946 by hospital schools in the Chicago area (Hess, MacIntyre, Michoe, Calvin, Adams, & Saposnick, 2002, p. 6). From the 1950s to the 1970s, the professional association established its education standards and is

known today as the American Association for Respiratory Care (p. 7). A registry examination was developed in the 1960s and national credentialing exams have been incorporated into state licensure for the profession (p. 11). Today, an associate's degree is required to become an entry-level respiratory therapist and a baccalaureate degree has become the standard for the Registered Respiratory Therapist credential (Bureau of Labor Statistics, 2009).

Cytotechnology. Cytotechnology has its origins with Dr. George Nicholas Papanicolaou's discovery of the Pap smear for diagnosing early stages of cervical cancer in the 1920s (American Cancer Society, 1973). Physicians were the first trained to use the technology, but when reading the Pap smear slides took away too much time from patient care, the cytotechnologist role was created. Because of the extensive background in biology and chemistry required for this role, the baccalaureate is the minimum credential to practice as a cytotechnologist (Commission on Accreditation of Allied Health Education Programs, 2011).

Health science credentials. This history of health sciences education has illustrated the progression that educational programs have gone through, from apprenticeships to diplomas, and finally to degrees in a variety of healthcare disciplines. Table 2.1 illustrates the Commission on Accreditation of Allied Health Education Program (CAAHEP)-accredited programs in a number of health science professions by credentials awarded. Six of the programs require at least a baccalaureate and three of the programs that offer an associate's also offer a baccalaureate. Although nursing is not included in this table due to a different accreditor, it would have programs in the certificate/diploma, associate's and bachelor's categories (NLNAC, 2008).

Table 2.1

CAAHEP-Accredited Programs by Credential Awarded

Program	Certificate/ Diploma	Associate's	Bachelor's
Cardiovascular Technology	11	26	5
Cytotechnology	14 (post-baccalaureate)	0	20
Diagnostic Medical Sonography	97	103	24
Emergency Medical Technician/ Paramedic	174	176	11
Exercise Science	1 (post-baccalaureate)	0	26
Kinesiotherapy	0	0	6
Othotist/ Prosthetist	5 (post-baccalaureate)	0	4
Perfusion	6 (post-baccalaureate)	0	4
Recreational Therapy	0	0	1
Total number of programs	308	305	101

Source: Commission on Accreditation of Allied Health Education Programs, 2011

Theoretical Foundation

In attempting to answer the question “What purpose should inform a ... curriculum and the learning experiences within it,” Bergquist (1977) identified eight curricular models in his theory of curriculum (Forest, 2002). The eight models relate to four dimensions as graphically depicted in Figure 2.1. These dimensions are prescriptive on the top and elective on the bottom; general on one side and specific on the other (Bergquist, 1977, p. 4). Prescriptive curricular models have very few choices in coursework, while elective curricular models have very many choices of courses. A core curriculum would be more closely aligned with a prescriptive model, whereas a distributive model would be a more elective-type curriculum. General curricular models have a more broad-spectrum of subjects where specific models are focused on a particular area.

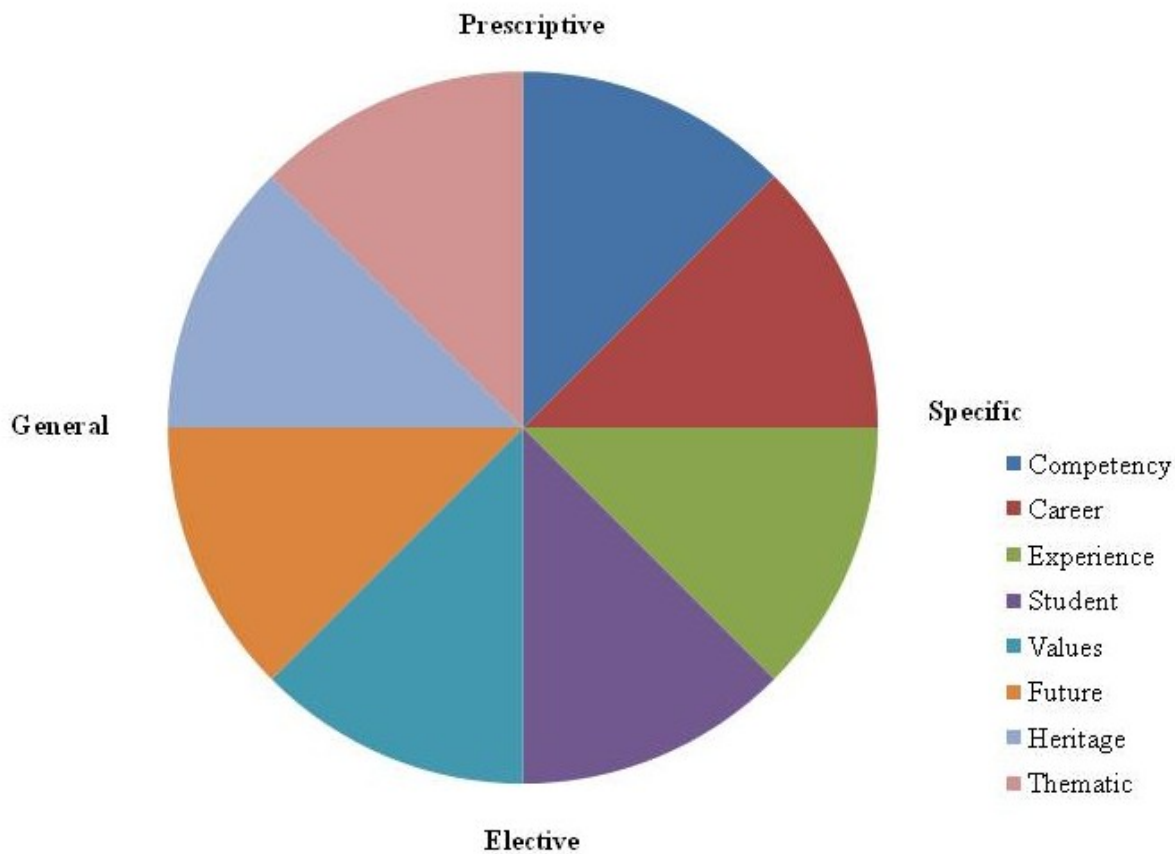


Figure 2.1 The curriculum wheel, showing relations among eight curricular models with respect to the general/specific and prescriptive/elective dimensions. Source: Bergquist, 1977, p. 84.

The Career-based Model, which is most relevant to colleges of health science due to the emphasis on career preparation, resides in the quadrant of being specific and prescriptive. If this theoretical Career-based Model can be applied to colleges of health science, they will be more likely to have core curriculum and major-dominated structures and unlikely to have free elective systems or distribution systems with many choices. The quantitative portion of this study investigated the relevance of this model related to how prescriptive the curriculum is in colleges of health science. The qualitative portion of this

study described how specific the general education requirements are in colleges of health science.

There exists little research into the application of Bergquist's models. Although Bergquist, Gould and Greenberg (1981) state that "Bergquist's 'curricular wheel' has proved to be of value to many colleges in curriculum planning" (p. 4), few studies have been published about its application. Chase (1980) mentioned Bergquist's (1977) models in his description of curricular approaches in an Association of American Colleges (AAC) publication on general education issues, but did not identify an application of the Career-based Model. Klein and Gaff (1982) integrated Bergquist's models into a questionnaire about general education reform that was administered through the AAC to 139 participants at colleges undergoing curriculum change. Five of the models in the questionnaire were identical to Bergquist's but Career-based, Experience-based and Future-based models were not used outright. Instead, discipline-based, methods-based and skills-based models were used and they had different emphases than Career-based, Experience-based and Future-based models (p. 21). Respondents were asked to identify "up to three models that best described their program" (p. 9). Although discipline-based (80%) and skills-based (58%) were the predominant responses, it is difficult to draw parallels to them and the Career-based model because their descriptions were so different (p. 9).

In Toombs and Tierney's (1993) study of curriculum definitions, they noted that Bergquist models are challenging to study because "the technical precision needed for wide-spread application is limited" (p. 9). Stark and Lattuca (1997) studied "educational belief systems" (p. 172) with faculty and found that Bergquist's models aligned with the

five areas they identified as being important for achieving curricular balance. Bergquist further developed his ideas about curriculum with Gould and Greenberg in 1981 by creating a curricular taxonomy. The six dimensions they identified in that taxonomy extend beyond the structural emphasis of curriculum in this research study, focusing more comprehensively on all of the elements that are required to actualize curriculum, such as time, place and resources (Bergquist, Gould and Greenberg, 1981, p. 6).

Dissertation Research

Numerous dissertations have been written about general education. Although none of them has an identical focus to this study, a number of them relate in some way to this investigation. In 1980, LeBlanc conducted dissertation research into general education from 1945 to 1979, identifying themes that tied general education curriculum to historical events of the time. This research is relevant to the literature review of this study. Rempel (1992) also examined general education historically, but with a specific focus on Bible colleges between 1967 and 1991. He found that general education in Bible colleges also has a single purpose, but that purpose, Christian theism (p. 198), is different than the healthcare purpose of colleges of health sciences. Rempel also found that “most Bible college general education programs are highly prescriptive” (p. 193) which relates to Bergquist’s (1977) Career-based model that is being investigated in this study.

Johnson (n.d.) conducted research related to a national general education survey, documenting changes in general education between 1989 and 2000 for his master’s thesis. He went on to co-publish research related to this survey with Ratcliff and Gaff, among others. Virkler (2007) explored the status of statewide core curricula in eleven institutions in the southern United States. He discovered that articulation and quality of

general education were the main reasons for the implementation of statewide core curricula.

A number of dissertations were written about general education and vocational and technical education. Two of these studies focused on general education in other countries. Nwokocha (1984) assembled research studies into vocational and technical education in Nigeria and discovered that four of those studies dealt with general education (p. 85). Schanker (2011) examined how Chief Academic Officers view the role of general education objectives in technical colleges. This study offered a comparison of colleges in the Midwestern United States with institutions similar to them in the European Union. Johnson (2010) also examined beliefs about general education at career-focused colleges but only studied those in the United States. Walden (2009) studied the impact of core curriculum course performance on vocational learning in a community college setting, rather than at colleges of health science.

Several dissertations were written about specific health science major curricula. Piercey (2002) conducted a historical examination of nursing education in Western Australia between 1962 and 1975. Although general education was not a main theme in this study, Piercey addressed it somewhat in the context of nursing education. Likewise, Nichter (2009) investigated athletic training curricula in-depth which touched on general education requirements as part of professional standards. Shanta (2007) examined the continuation of general education learning in the major. This was accomplished using a quasi-experimental study to describe how nursing education developed emotional intelligence beyond what was acquired in general education courses.

Summary

This literature review included an overview of the available research concerning the structure of general education in United States colleges and universities, with some comparative information about other countries. To provide a foundation of understanding, the United States history of general education was described. The second section of the literature review documented general education structure in higher education since 1990. Several studies that investigated different aspects of general education structure related to health sciences education were presented in the third section. The final sections of this chapter included the history of health sciences education, an overview of Bergquist's curriculum theory and dissertations that relate to general education curriculum.

Several themes emerged from the literature, the most apparent being the ebbs and flows in general education structure over the years. Because general education went through and will continue to go through much reform, frequent studies are warranted to understand current practice.

The second theme was that when general education was analyzed in the context of the major, its importance was often minimized. Studies of healthcare curricula focused on the majors rather than general education. Even when an attempt was made to investigate general education, the conclusion was that the major was most important. This relates to the Career-based Model with its focus on career preparation.

A third theme was that general education research was focused on institutions in the larger Carnegie classifications, rather than on special focus institutions. This made sense because in 2009 there were only 165 colleges with a health professions special

focus designation, with an average enrollment of 462 students per college (The Carnegie Foundation for the Advancement of Teaching, 2009). Colleges of health science do not have majors in the general education disciplines. Because the health science colleges differ from the colleges studied in the available literature in this way, further investigation into their general education structure is additionally warranted.

The history of health sciences education helped to illustrate the increasing levels of education required by the professions over the years. With each higher credential also comes an increase in the amount of general education courses required for the degree. The historical overview also identified how new technology led to new degrees and this theme will certainly continue into the future as health technology continues to develop.

Bergquist's theory of curriculum, in particular the Career-based Model, provided a foundation for understanding general education curriculum in health sciences colleges. The quantitative portion of this study afforded the opportunity to examine the prescriptive nature of the Career-based Model and the qualitative portion permitted the examination of how specific the general education curriculum is to the career.

This literature review confirmed the need to investigate the structure of general education in colleges of health science. A common theme that emerged from the literature was the perception that general education was not valued in health sciences education. Investigating general education at colleges of health science could help lend credence to its worth. Furthermore, the lack of research into general education in colleges of health sciences has limited the opportunity to identify best practices. The quantitative description and qualitative elaboration provided in this study could support the identification of best practices in general education at colleges of health science.

CHAPTER 3

METHODOLOGY AND PROCEDURES

Research Design

The researcher investigated the structure of general education in colleges of health sciences comprehensively by combining the examination of curriculum structure, through the quantitative investigation of documents that describe the structure, with qualitative interviews that garnered more specific information about the structure. Combining the quantitative and qualitative methods into a mixed methods study yielded a greater understanding than either method used alone. Tashakkori and Creswell (2007) defined mixed methods as “research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study” (p. 4). The type of mixed methods design employed in this study is explanatory sequential. Creswell and Plano Clark (2011) described this design as one “in which the researcher begins by conducting a quantitative phase and follows up on specific results with a second phase” (p. 82) that has a qualitative structure. The second phase served to provide more in-depth information about the quantitative results. In this study, the researcher used “quantitative results about participant characteristics to guide purposeful sampling for a qualitative phase” (p. 82).

This study added to the body of knowledge regarding the structure of general education in higher education. The majority of research into the structure of general education has been quantitative, focusing on tabulating information about curriculum design (Bourke, Bray & Horton, 2009; Hart Research Associates, 2009; Warner & Koepfel, 2009; Gaff & Wasescha, 2001; Jones & Ratcliff, 2001; Council of Higher

Education of Virginia, 1999; Zeszotarski, 1999; Gaff, 1981; Levine, 1978), number of credits (Mauldin & Gress, 2010; Bourke, Bray & Horton, 2009; Johnson, Ratcliff & Gaff, 2004; Cejda & Duemer, 2001; Ratcliff, Johnson, LaNasa & Gaff, 2001; Council of Higher Education of Virginia, 1999; National Association of Scholars, 1996; Toombs, Amey & Chen, 1991), and types of required courses (Cheyney, 2011; American Council of Trustees and Alumni, 2009; Bourke, Bray & Horton, 2009; Zeszotarski, 1999; Toombs, Amey & Chen, 1991; Gaff, 1981). This study's quantitative analysis of general education requirements focused on a population that has never been studied before, colleges of health science.

Another portion of the quantitative research into general education structure has been based on surveys which have low response rates. Mengel's (1988) study of general education had a response rate of 31.9% for the first survey, 40.3% for the second survey and 38.7% for the third survey administered (p. 17). Håård, Öhlén and Gustavsson (2008) obtained a response rate of 67% in their study of nursing education (p. 3). Johnson (2010) had a response rate of 20% in his survey of attitudes about general education. The issue of low response rates was not a concern in this study because curriculum materials from all institutions in the "Spec/Health: Special Focus Institutions--Other health professions schools" (Carnegie Foundation for the Advancement of Teaching, 2009) category that met the study's criteria were systematically examined through print and web-based documents. The researcher made follow-up contacts with institutions when the needed information was not readily available to ensure that data was collected from the entire sample.

Explanatory mixed methods research has been used to gain a deeper understanding in a variety of subjects. For example, Wesely (2010) explored “students’ language learning motivation as it relates to their attrition from a language immersion program” (p. 295). Abildso, Zizzi, Gilleland, Thomas and Bonner (2010) assessed “the physical and psychosocial impact of a 12-week cognitive-behavioral weight management program and explored factors associated with weight loss” (p. 278). Igo, Kiewra and Bruning (2008) intended to conduct a quantitative study about the impact of note-taking conditions on test-taking but when their findings contradicted previous research, they extended the study to include a qualitative phase of interviews with the students to determine why the unexpected results occurred.

There are two studies that used a mixed methods design to study general education. Studies by Kanter, London, and Gamson (1991) and Xu, Xu, and Zhang (2002) used an explanatory mixed methods design to investigate general education. Kanter, London, and Gamson (1991) conducted telephone surveys during the initial quantitative phase and case studies in the qualitative phase. The quantitative phase of Xu, Xu, and Zhang’s (2002) study involved content analysis of nursing curriculum and the qualitative phase involved interviews with nursing faculty. The mixed methods approaches used by Kanter, London, and Gamson (1991) and Xu, Xu, and Zhang (2002) helped expand knowledge about general education by including qualitative interviews and case studies to help elaborate upon the quantitative findings. Including a qualitative component also provided a more complete understanding of general education structure by going beyond the question of what is the structure to include questions about the processes behind choosing the general education curriculum. Combining quantitative and

qualitative data provided both confirmation and elaboration (Creswell and Plano Clark, 2011). In addition, using a mixed methods approach helped to enrich the mixed methods literature in higher education.

After a systematic evaluation of research into general education, the researcher chose a mixed methods approach because of the advantages it affords. The procedures that Xu, Xu, and Zhang used to carry out their research are most similar to this study's procedures. In general terms, Figure 3.1 describes the explanatory sequential design process. A diagram is included in Appendix C to elaborate upon the steps in the explanatory sequential design process that are specific to this study.

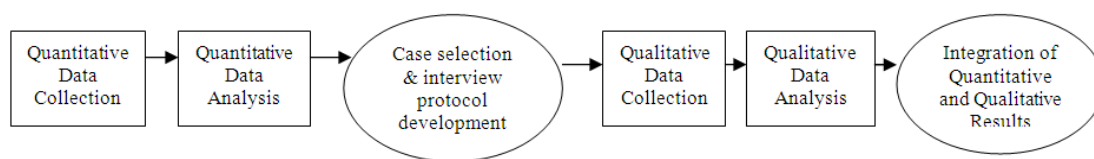


Figure 3.1 Explanatory sequential design process

Phase I- Quantitative

The initial phase of this study was quantitative. According to Creswell (2008), quantitative research involves the following components: “the researcher decides what to study; asks specific, narrow questions; collects numeric (numbered) data from participants; analyzes these numbers using statistics; and conducts inquiry in an unbiased, objective manner” (p. 64). Applying these concepts to this study, the subject under investigation was the structure of general education in colleges of health science. The researcher designed a plan for the systematic investigation of general education structure surrounding the following quantitative question: Do colleges of health science employ Bergquist’s (1977) Career-based Model by having a prescriptive curriculum?

In order to answer that question, the researcher developed four quantitative sub-questions as follows:

Phase 1 sub-question 1- At baccalaureate colleges of health science, what proportion of the total degree credit hours are required in general education?

Phase 1 sub-question 2- At baccalaureate colleges of health science, what proportion of general education requirements are in the sciences, social sciences, humanities, mathematics and other disciplines?

Phase 1 sub-question 3- What models of general education (core, major-dominated, distribution, or mixed) are used in baccalaureate colleges of health science?

Phase 1 sub-question 4- What types of mixed models of general education (core/major-dominated; core/distribution; major-dominated/distribution; major-dominated/core; distribution/core; or distribution/major-dominated) are used in baccalaureate colleges of health science?

Population and sample. The population under investigation was the 165 institutions of higher education in the United States with the Carnegie Foundation for the Advancement of Teaching (2009) classification “Spec/Health: Special Focus Institutions-Other health professions schools.” The sample institutions were selected from this population based upon the criteria of offering baccalaureate degrees in the health sciences that require general education courses. This eliminated two types of colleges in the classification from the sample. First, those colleges that only offered professional degrees beyond the baccalaureate were eliminated. Because the “Spec/Health: Special Focus

Institutions--Other health professions schools” category only requires a significant portion of the majors be in health sciences, colleges that offered degrees outside of the health science disciplines were also eliminated. After eliminating these two types of colleges, 44 institutions remained and all of these institutions were sampled in the quantitative phase.

Data collection and categorization. To enable effective data collection, the researcher created clear definitions of the general education disciplines and the general education models. The researcher coded the required courses into the disciplines of sciences, social sciences, humanities, mathematics and other disciplines based upon the Higher Education Research Institute’s (2011) categories as described in the Definitions of Terms section of this study. The institutions’ general education models were coded based upon the definitions of core (Cheyney, 2011), distribution (Cejda & Duemer, 2001), major-dominated (Hurtado, Astin & Dey, 1991) and mixed models (Cheyney, 2011; Hurtado, Astin & Dey, 1991; Cejda & Duemer, 2001) described in the Definition of Terms section. Mixed models were examined to determine exactly what kind of mix was present among the various models.

Prior to collecting data, the researcher sought input into the data collection plan from leaders of the Association of General and Liberal Studies. The researcher asked these experts to confirm that the definitions of the general education models and disciplines were clear and suitable and that the plan to categorize the data appropriately answered the research questions. Suggestions from the experts were integrated into the plan prior to its implementation.

The researcher analyzed the structure of general education for the sample institutions using a content analysis of college catalogs and websites. If information was not readily available in catalogs or websites, the researcher contacted institutions to get the needed information. The following data was obtained: the mean, median, mode and proportion of the total degree credit hours that were required in general education; the mean, median, mode and proportion of general education requirements that were in the sciences, social sciences, humanities, mathematics and other disciplines; the number and proportion of institutions using each general education model (core, major-dominated, distribution, or mixed); the number and proportion of institutions using each mixed model type; and the number and proportion of institutions using a prescriptive general education model. Where any unclear pieces of information or outliers were identified, follow-up contacts were made with the institutions to resolve any discrepancies or seek clarification.

The researcher obtained assistance from a leader with thirty years of higher education experience to double-check the curriculum coding. More than 20% of the coding was checked to confirm the categories were being consistently applied. Discrepancies in coding were re-evaluated to resolve any inconsistencies.

Data analysis. Each research question required specific data analysis. Much of the data was reported using a nominal scale, although percentages and mean, median and mode were also tabulated for several types of data. To answer the question about the application of Bergquist's (1977) Career-based model, a percent of colleges with prescriptive general education models was calculated out of all colleges studied. For the

purposes of this study, core and major-dominated models were considered prescriptive while distribution models were not considered prescriptive. Any mixed model that included a core or major-dominated model was considered prescriptive if those elements comprised more than fifty percent of the requirements. Table 3.1 describes each form of data collected from the colleges of health science and the types of analyses that were performed related to each.

Table 3.1

Data Types and Analyses

Data types	Analyses of data for health science colleges
Proportion of total degree credit hours that are required in general education	<ol style="list-style-type: none"> 1. Average total degree credit hours (mean, median and mode) 2. Average total general education credit hours (mean, median and mode) 3. Proportion of average total required credits that are average general education credits
General education requirements by subject	<ol style="list-style-type: none"> 1. Nominal scale tabulation of number of required courses by humanities, mathematics, science, social science and other 2. Average for each subject (mean, median and mode) 3. Percent of each subject
Model of general education	<ol style="list-style-type: none"> 1. Nominal scale tabulation of core, major-dominated, distribution, and mixed models identified 2. Percent of each category above
Mixed Model Type	<ol style="list-style-type: none"> 1. Nominal scale tabulation of core/major-dominated; core/distribution; distribution/major-dominated; and core/distribution/major-dominated types 2. Percent of each category above
Prescriptive	<ol style="list-style-type: none"> 1. Number of colleges having core, major-dominated and predominantly core or major-dominated mixed models 2. Percent of colleges in 1. above compared with all colleges studied

Reliability and validity. The researcher relied on leaders from the Association of General and Liberal Studies and a local higher education leader as experts in the field of general education to help ensure the reliability and validity of the study in three ways.

First, the researcher sought input into the definitions of disciplines and the general education models from the leaders to confirm they were valid definitions. This process helped establish content validity (Creswell, 2008, p. 172). Second, obtaining input into the data collection and analysis plan from the leaders helped confirm that it was a valid plan to answer the research questions. Third, the researcher had an expert code more than 20% of the colleges' model types and disciplines to confirm inter-rater reliability (p. 170).

Phase II- Qualitative

The second phase of this study was qualitative. According to Creswell (2008), qualitative research involves the following components: “the researcher relies on the views of the participants; asks broad, general questions; collects data consisting of words (or text) from participants; describes and analyzes these words for themes; and conducts the inquiry in a biased, subjective manner” (p. 64).

Following is the overarching qualitative question from phase two: How do the occupational majors influence how specific the general education curriculum is in colleges of health sciences?

The researcher used the three following qualitative sub-questions to obtain more descriptive information about the structure of general education at colleges of health sciences in the interviews:

Phase 2 sub-question 1- How would you describe the purpose of your general education curriculum structure?

Phase 2 sub-question 2- How is the required general education curriculum structure decided upon?

Phase 2 sub-question 3- How specific is the content in your general education courses to the healthcare majors?

The interview protocol in Appendix A includes the probing questions that were used to elicit responses from the six interviewees in relationship to these sub-questions.

Target population and sample. The qualitative method used in this portion of the study can be further defined as a multiple instrumental case study. Creswell (2008) used this term to describe when researchers “study several cases that provide insight into an issue” (p. 477). In this study, the researcher used this type of case study by selecting six cases to provide insight into the structure of general education at colleges of health science.

The target population for the qualitative portion of this study was colleges of health science. A sample of six institutions was purposefully selected to obtain information from two institutions with the three most common general education models. An explanation of how the sample was refined based on the quantitative results is provided in chapter five. Once the sample institutions were chosen, the individual who oversees the general education curriculum at those institutions was selected to be interviewed. Four out of the six individuals interviewed held Dean positions while the other two were Chairs. Half of the individuals interviewed taught while the other half held purely administrative positions. Prior to the interviews, these individuals received

information about the various curriculum models so they could discuss the models in relationship to their colleges' curriculum.

The researcher chose purposeful sampling using the typical case sampling method for this study because the colleges that were selected “can purposely inform an understanding of the research problem and the central phenomenon under study” (Creswell, 2007, p. 125). According to Schumacher and McMillan (1993), in purposeful sampling “the researcher decides what kind of information he/she needs, then searches for information-rich key informants” (p. 133). The researcher was able to identify which institutions had each type of general education model as a result of the quantitative portion of this study. The researcher divided the colleges into groups based on the four general education model types and randomly selected two colleges from each group. As is often the case with the qualitative phase of explanatory mixed methods research, the sampling plan changed as a result of the quantitative findings. Chapter five describes how this original plan was modified.

Data collection. The interview protocol for phase two of the study is contained in Appendix A. This interview protocol was evaluated by two general education administrators not involved in the study to determine how understandable it was and how effectively it elicits the desired information. Based on the results of this evaluation, the researcher made minor changes and implemented the tool. Institutional Review Board (IRB) approval was obtained prior to any data collection. A sample IRB Application is contained in Appendix D. Informed consent was obtained prior to the interviews and a sample Informed Consent Letter is contained in Appendix B. An email was sent to solicit

the participation of the six general education leaders. Appendix E contains the sample language for this communication. A follow-up telephone call was used with leaders who did not respond to the email request for participation using the verbiage from the email in Appendix E as a foundation for the discussion.

Once the participants were confirmed, the researcher emailed them a list of definitions prior to the interview to facilitate a common understanding of the terms used. The data was collected through structured interviews with the leader of general education at each of the six selected institutions. The interviews involved open-ended questions in a telephone interview because the participants' locations were inaccessible to the researcher. The interviews were digitally recorded and then transcribed verbatim by the researcher.

Data analysis. The first step in qualitative analysis involves becoming familiar with the data because “all inductive analysis must begin with a solid sense of what is included in the data set” (Hatch, 2002, p. 162). Hand transcribing the interviews provided an excellent opportunity for the researcher to become familiar with the data. The next data analysis step involves making margin notes while reading through the text (Creswell, 2007, p. 156). After the margin notes were completed for each transcript, the researcher constructed categories by “assigning codes to pieces of data” (Merriam, 2009, p. 179). During the process of coding and identifying categories, the researcher looked for themes. According to Richards and Morse (2007), “a theme runs right through data and is not necessarily confined to specific segments of text” (p. 143). Using coding software enabled the researcher to more easily assign codes to the content and then extract themes from the codes.

Verification. Morse, Barret, Mayan, Olsen and Spiers (2002) recommended that researchers use “methodological coherence...to ensure congruence between the research question and the components of the method” (p. 12). To ensure that the research problem matched the method, the researcher sought feedback regarding the planned interview guide from general education administrators as described in the Data Collection section. Their input was integrated into revisions as appropriate.

The researcher used Morse et al.’s (2002) verification strategy to ensure that the sample consisted of “participants who best represent or have knowledge of the research topic” (p. 12). By choosing the individuals with oversight for general education, the researcher accomplished this form of verification. The researcher sought verification of the interview transcripts by asking all participants to review the written record of their own interview. Where discrepancies were identified, the researcher sought clarification and made corrections. The researcher helped to further reinforce this strategy by including a statement that those without the experience to discuss general education structure at their college would be excluded from the study. All interviewees had sufficient experience to participate in the study. The researcher also followed Morse et al.’s verification strategy of “collecting and analyzing data concurrently” (p. 12). Because all interviews were conducted at about the same time, the collection and analysis were virtually concurrent.

Phase III- Mixed Methods

The final phase of this mixed methods study involved interpreting and connecting the quantitative and the qualitative data as recommended by Creswell and Plano Clark

(2011). The following mixed methods question was used to integrate the data: How does the qualitative general education leadership interview data help to explain the results of the quantitative content analysis data by providing insight about the application of Bergquist's Career-based Model to the structure of general education at baccalaureate colleges of health science?

Data interpretation. After the researcher summarized the quantitative and qualitative results separately, she examined them together to “interpret how the connected results answer the qualitative, quantitative, and mixed methods questions” (Creswell, 2011, p. 219). The researcher created a summary table to illustrate how the quantitative and qualitative data correlated.

Validation. The researcher addressed validation in data collection by selecting appropriate “individuals for the qualitative and quantitative data collection” (Creswell, 2011, p. 242). The colleges studied were chosen from a nationally-recognized list of colleges that specialize in healthcare education. The general education leaders interviewed were chosen from the list of specialized healthcare colleges analyzed in phase one that met specific criteria. Using an explanatory sequential design ensured that the data was collected separately. Focusing both the quantitative and qualitative questions on the topic of general education structure related to Bergquist's (1977) Career-based model ensured that they were addressing the same question. The researcher minimized validity threats to data analysis by choosing “results to follow up that need further explanation” (p. 242). Interpretation issues that threaten the study's validity were addressed by analyzing the quantitative data first and the qualitative data second to “fit the design” (p. 242).

Potential Ethical Issues

The quantitative portion of this study did not pose any potential ethical concerns because the data was not related in any way to human subjects. IRB approval was obtained to confirm the research was compliant with research ethics. The major ethical concern related to the qualitative portion of this study was that the interviews were recorded and transcribed. The informed consent form (Appendix B) that was completed by those interviewed explained the ways that interview information was protected. To maintain the confidentiality of the study participants, the researcher created pseudonyms for all of the college names and study participants. The researcher followed the stated procedures to ensure the confidentiality of interview data.

Researcher's Resources and Skills

The researcher completed a number of educational and experiential activities that have helped her develop research skills. The researcher finished both master's and doctoral level general research courses, as well as master's and doctoral level statistics courses. She also took doctoral-level courses in qualitative and mixed methods research and participated in a number of higher education workshops on assessment.

In her qualitative research class, the researcher conducted a brief qualitative study that involved all major aspects of conducting this type of research except for Institutional Review Board approval. In her work as Dean, Division of General Education, the researcher uses survey data to prepare reports and plan process improvements. Since 2004, the researcher has served on her college's Evaluation Committee which oversees all forms of institutional assessment. In 2006 and 2011, the researcher served as the co-chair of the Middle States self-study steering committee at her college. In this role, she

helped lead the college community in assessing all aspects of its operations, synthesizing the quantitative and qualitative findings, and writing the self-study report. Both accreditation teams commended the researcher's college on the quality of the self-study process and report. The researcher was also invited by the Middle States Commission on Higher Education to serve as a facilitator for self-study training to share her expertise with other colleges preparing for self-study.

CHAPTER 4

QUANTITATIVE RESULTS

Introduction

This study was conducted in two phases. Chapter four includes the results of the first quantitative phase to answer the overarching research question- Do colleges of health science employ Bergquist's (1977) Career-based Model by having a prescriptive curriculum? The results of phase two will be presented in chapter five. Chapter four begins with a description of the characteristics of the sample. Then, the researcher outlines how the data obtained through the examination of colleges' online and print information about curriculum relate to the study's four quantitative sub-questions. An analysis of credit hours for the baccalaureate degree and in comparison to general education requirements is presented, along with an analysis by discipline. The researcher then presents the analysis of general education models by type for all colleges and also for different aspects of the colleges, such as the number of majors and whether they offer their own general education courses. The primary and secondary/tertiary curriculum types of colleges with mixed models are presented. Finally, the researcher combines the data about curriculum models and mixed models to identify the proportion of colleges with prescriptive models.

The Quantitative Sample

The population and sample were described previously in chapter three. Although forty-four colleges were selected for the quantitative sample, six of those institutions were eliminated from the analysis because their baccalaureate degrees were only offered

in conjunction with master's degrees. Due to the two degrees being integrated in these programs, it was not possible to determine the baccalaureate general education requirements so those institutions were excluded from the study.

Although the research questions focused on credits and models, descriptive information about the institutions under investigation is important to lay the groundwork for interpreting this study's findings. Half of the institutions in the sample offered more than one major. The other nineteen colleges only offered one major, in most cases the baccalaureate of science in nursing (BSN). Only half of all colleges studied offered their own general education courses. Five of the colleges with multiple majors (26%) did not provide their own general education courses and fourteen of the colleges with one major (74%) did not offer their own general education courses.

Most of the colleges were private and non-profit. Seventeen of the colleges (45%) had a religious affiliation and a large number of the colleges were connected to a hospital or health system. The colleges' affiliations with healthcare systems reflected their beginnings as diploma schools in hospitals.

The colleges examined in this study offered a wide array of degree types. Among the 38 colleges studied, there were 47 traditional programs where all of the coursework was taken at the degree-granting institution. The colleges also offered 45 programs where the students completed their baccalaureate degrees after finishing a professional associate's degree, which is a transfer degree commonly called a two-plus-two program. In addition, the colleges offered 25 transfer degree programs that were not two-plus-two but required students to take general education courses at other colleges. Many of these programs were second baccalaureates that afforded students the opportunity to transfer in

a significant number of liberal arts credits. Three of the colleges offered nursing degrees in all three of these formats- traditional, two-plus-two, and transfer. Figure 4.1 illustrates how 40% of the degrees offered at colleges of health science are traditional four-year degrees while 60% of the degrees are a type of transfer degree.

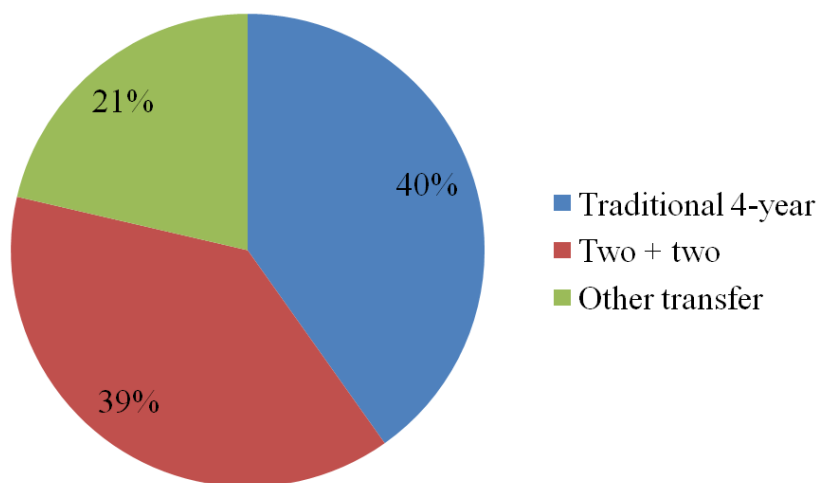


Figure 4.1 Colleges by degree type offered.

The colleges offered a variety of majors but the BSN was the most popular, with 32 of the colleges (79%) offering that program. There were 19 programs in various imaging areas, including radiography, nuclear medicine and diagnostic medical sonography. The third most common program was the RN to BSN completion program with 17 colleges (45%) offering that major. Figure 4.2 illustrates the three most common major programs at colleges of health science.

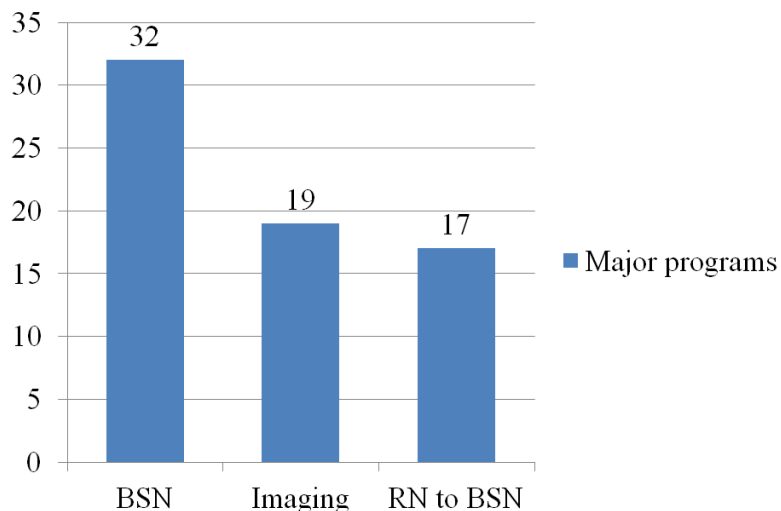


Figure 4.2 Most common programs at colleges of health science.

Phase 1 Sub-question 1- At Baccalaureate Colleges of Health Science, What Proportion of The Total Degree Credit Hours Are Required in General Education?

The first sub-question in phase one of the study was “at baccalaureate colleges of health science, what proportion of the total degree credit hours are required in general education?” To answer this question, the researcher visited the websites of the health sciences colleges in the sample and carefully tabulated the number of credit hours required for the degree and the number of credit hours required in general education for each degree program offered. For some colleges, the researcher requested print material to help validate the information obtained online. To enable all of the colleges’ credits to be compared, the researcher converted quarter credits to semester credits using a ratio of one quarter hour equaling 0.67 semester credit hours (United States Department of Education, 2008). After the credit hours were calculated, the researcher determined the means for total degree and general education credits and then calculated the proportion of means of general education credits to total credits.

The researcher found the mean total semester credit hours for a degree was 125. The mean was skewed somewhat by a range of required degree credits from 111 to 153; the median was 122.5 and the mode was both 122 and 127. When the completion degrees were removed from the calculation, the mean and the range for the degree remained the same; the median was slightly higher at 124 and the mode was 122 and 124.

The mean of the colleges' total general education credit hours required for the degree was 51. The proportion of mean total required credits that were general education credits was 41%. The range of general education credits was extensive, from 18 credits on the low end for majors that were two-plus-two degrees where it was assumed that general education credit was completed in the associate's degree, to a high of 104 in a major-dominated curriculum that was completely prescriptive outside of the major courses. Due to the number of outliers for two plus two programs on the low end of the range, the mean was distorted. The median of general education credits was 44.5, also distorted by the low end of the range. The median seems to be an inappropriately low measure given that the mode was 53. When completion programs were removed from the calculation, the general education credits ranged from 30 to 104 and the mean, median and mode were 53. It appears that the mode might be the best measure of average to use for all programs. Table 4.1 illustrates these differences.

Table 4.1

General Education Credits in All Programs Versus Only 4-year Programs

Statistic	Completion and 4-year Programs	4-year Programs Only
Mean	51	53
Range	18-104	30-104
Median	44.5	53
Mode	53	53

Phase 1 Sub-question 2- At Baccalaureate Colleges of Health Science, What Proportion of General Education Requirements Are in the Sciences, Social Sciences, Humanities, Mathematics and Other Disciplines?

The study's second sub-question was "at baccalaureate colleges of health science, what proportion of general education requirements are in the sciences, social sciences, humanities, mathematics and other disciplines?" Using the definitions for the different disciplines from chapter one, the researcher tabulated credit numbers using the colleges' curriculum information presented on the college websites and written publications. The researcher also converted quarter credits to semester credits to effectively compare college data in answering this question. After the credit numbers were totaled, proportions and means were calculated. Mean credits required for each discipline were 17 credits in humanities, 20 credits in math and science, 10 credits in social science, and four credits categorized as other. Types of credits that fell into the "other" category included required general education credits that could come from any discipline, physical education credits, and cross-disciplinary credits. The percent of credits by discipline was 34% humanities, 40% math and science, 20% social science and 6% other. Figure 4.3 depicts the proportion of each discipline type in the overall general education curriculum.

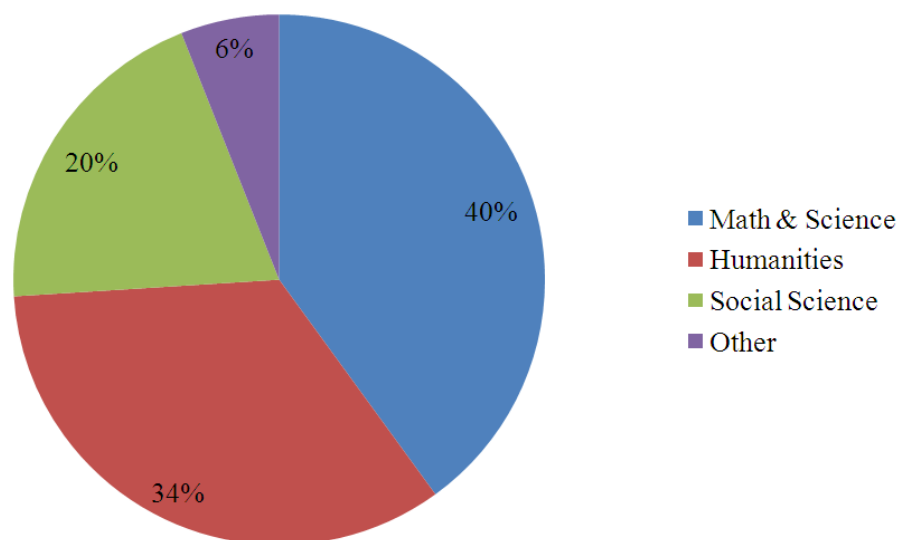


Figure 4.3 General education curriculum by discipline.

Because three programs did not distinguish between math and science credits in their requirements, those categories were combined in Figure 4.3. When the colleges with combined math/science requirements are excluded, the mean general education requirements were five credits in math and 15 credits in science. This translates to 10% of the mean general education credits being in math and 29% being in science.

To gain further insight into the data, the range, median and mode were also calculated for general education credits at all of the colleges. Table 4.2 illustrates these statistics for the four major categories of general education disciplines.

Table 4.2

Colleges of Health Science's General Education Credits by Discipline Category

Discipline	Range	Mean	Median	Mode
Humanities	0-36	17	15	15
Mathematics	0-14	5	3	3
Science	0-65	15	10	8, 17
Social Science	0-21	10	9	12

When completion programs are removed from the calculations, there are some differences in means, medians, modes and ranges. In humanities, the mean and mode were one credit higher for four-year programs and the range was smaller than for all types of colleges. In mathematics, the median and mode were each three credits higher. In four year programs, the mean for science was one credit higher and the median was six credits higher. In social sciences, the mean was one credit higher and the median was two credits higher in four year programs. Table 4.3 illustrates the range, mean, median and mode for the four-year college programs.

Table 4.3

Colleges of Health Science's General Education Credits for Four-year Programs by Discipline Category

Discipline	Range	Mean	Median	Mode
Humanities	9-36	18	16	15
Mathematics	0-14	5	6	6
Science	0-65	16	16	17
Social Science	0-21	11	11	12

Phase 1 Sub-question 3- What Models of General Education (Core, Major-Dominated, Distribution, or Mixed) Are Used in Baccalaureate Colleges of Health Science?

The third sub-question was “what models of general education (core, major-dominated, distribution, or mixed) are used in baccalaureate colleges of health science?” The researcher used the definitions of the general education models from chapter one to categorize the curriculum based on the requirements that were stated on the college websites and print material. In circumstances where colleges only had one major, the categorization of major-dominated was not used and the curriculum was described using the other types, core and distribution. The researcher tabulated both the number and percent of each model type. She found 17 colleges had a mixed model (45%), eight had a core model (21%), eight had a major-dominated model (21%), and five had a distribution model (13%). Figure 4.4 illustrates the model distribution graphically.

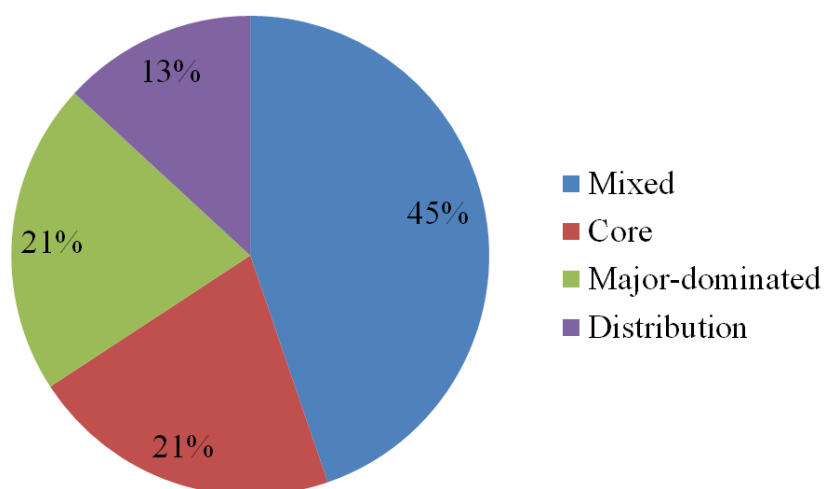


Figure 4.4 General education model by type- all colleges.

The researcher also examined the colleges' models based on specific characteristics of the colleges, such as offering only one major or more than one major. Following are the numbers of colleges that offered multiple majors by their curriculum type: nine major-dominated; seven mixed, two distribution and one core. The mixed models included two each core/distribution and distribution/core and one each of the following: major-dominated/distribution, major-dominated/core and distribution/major-dominated/core. For colleges with only one major, the category of major-dominated was not used because they were major-dominated by their nature. Following are the numbers of colleges that offered one major by their curriculum type: nine mixed, seven core and three distribution. Seven of the mixed models were the core/distribution type and the other two were distribution/core. Figure 4.5 graphically represents the model types by multiple majors versus one major.

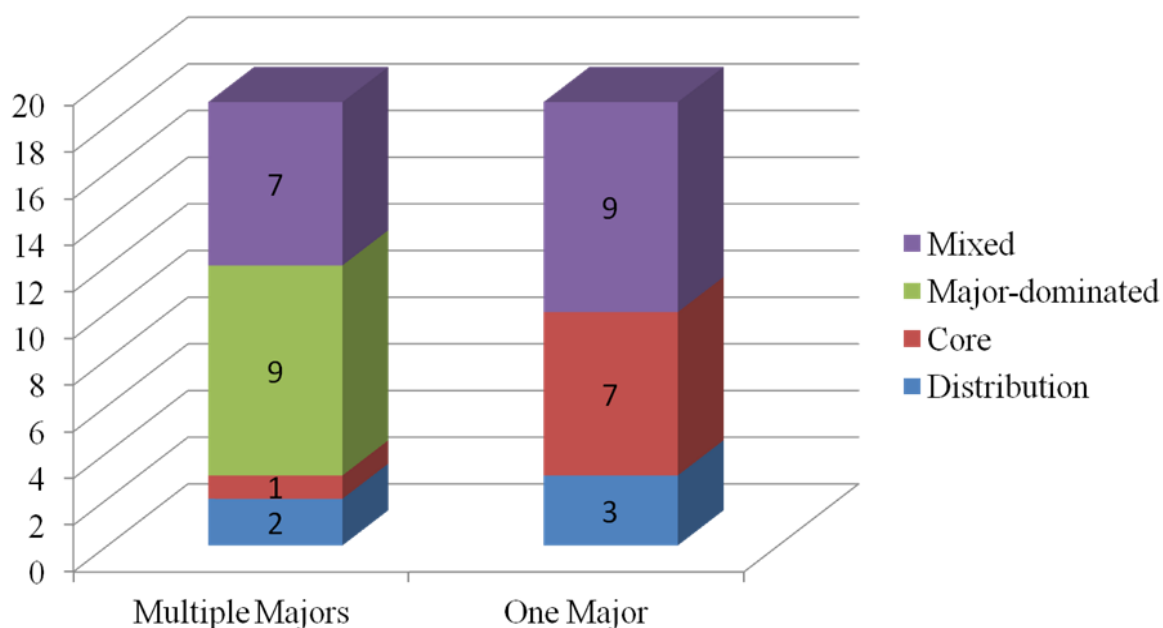


Figure 4.5 Curriculum models by multiple majors versus one major.

Some of the colleges provided their own general education courses while others had students take those courses at other colleges. For the colleges that did not offer their own general education courses, nine had mixed models; five were core; three were major-dominated; and two were distribution. The mixed models for colleges without their own general education courses included six core/distribution, two distribution/core, and one distribution/major-dominated. For the colleges that offered their own general education courses, eight were mixed, five were major-dominated, three were core, and three were distribution. This mixed models for colleges that offered their own general education included two each that were core/distribution and distribution/core, and one of each of the following: core/distribution/major-dominated, distribution/core/major-dominated, major-dominated/distribution, and major-dominated/ core. Figure 4.6 illustrates how the models were implemented at these types of colleges.

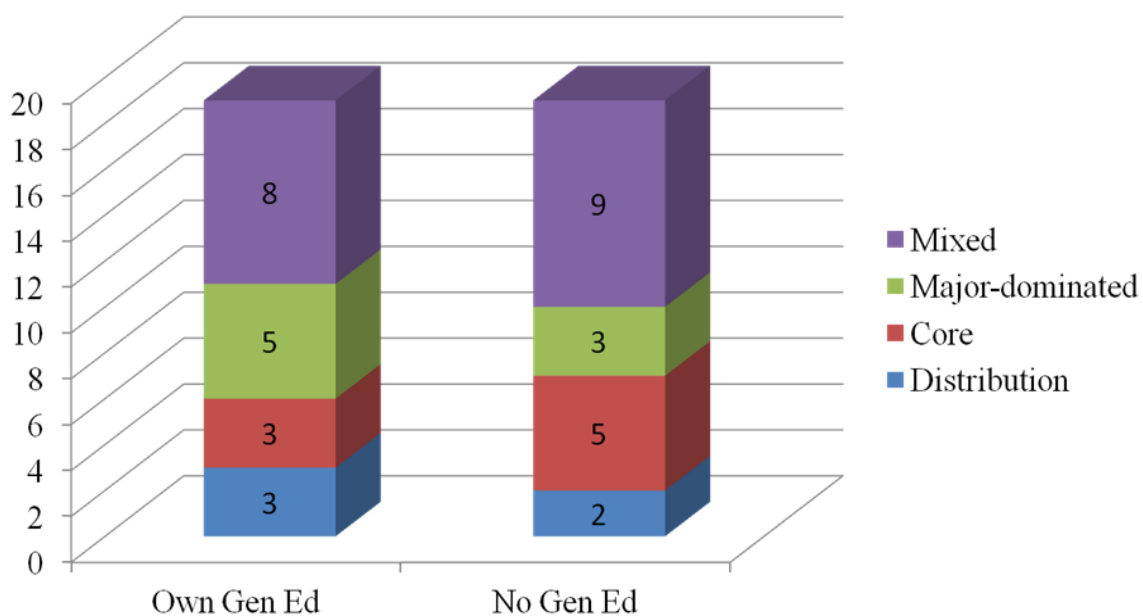


Figure 4.6 Curriculum model comparison by whether college offers general education.

Phase 1 Sub-question 4- What Types of Mixed Models of General Education Are Used in Baccalaureate Colleges of Health Science?

The final quantitative sub-question was “what types of mixed models of general education (core/major-dominated; core/distribution; major-dominated/distribution; major-dominated/core; distribution/core; or distribution/major-dominated) are used in baccalaureate colleges of health science?” To answer this question, the researcher calculated the number and percentage of requirements in each model type and the type with more than 50% of the general education credits was listed first as the dominant type and the other type was listed second as the subordinate type. Finally, the researcher added up the number of each mixed model type and calculated the percentage of each.

After analyzing the colleges’ mixed model composition, the researcher identified the following types: eight were core/distribution; four were distribution/core; and each of the following types was found at one college: distribution/major-dominated; major-dominated/distribution; major-dominated/core. In addition, there were two colleges with mixed models that integrated all three types: one was core primary, distribution secondary and major-dominated tertiary and the other was distribution primary, major-dominated secondary and core tertiary. The researcher found nine had core primary (53%), six had distribution primary (35%), and two had major-dominated primary (12%), as illustrated in Figure 4.7.

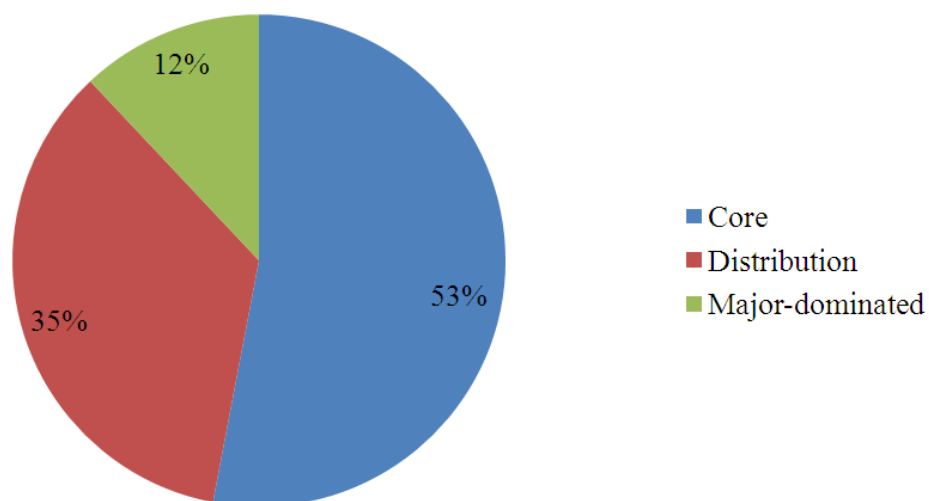


Figure 4.7 Primary curriculum type of colleges with mixed model.

In the secondary or tertiary position, ten colleges had a distribution model (53%), six colleges had core (31%) and three (16%) had major-dominated. Two colleges were counted twice in this analysis because they had one secondary type and one tertiary type.

Figure 4.8 illustrates the secondary and tertiary composition of the mixed models.

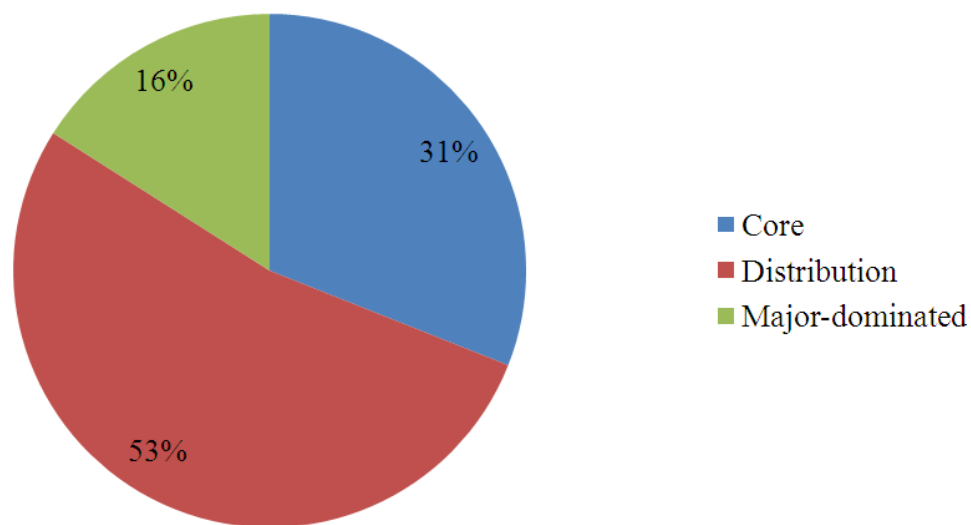


Figure 4.8 Secondary/tertiary curriculum types of colleges with mixed model.

Do Colleges of Health Science Employ Bergquist's (1977) Career-Based Model by Having a Prescriptive Curriculum?

Prescriptive types of general education models included core, major-dominated and any mixed model that includes these types as the primary component. The results of the general education type and mixed model analysis were combined to identify the proportion of colleges with prescriptive curriculum models. To verify the accuracy of the analyses, an expert in higher education checked how 20% of the curricula were coded. One question arose about whether a course was a core or distribution requirement and further checking was done to confirm its categorization. Twenty-seven of the colleges (71%) studied had prescriptive types, as follows: eight were core (21%), eight were major-dominated (21%) and eleven were mixed models that were predominantly core (24%) or major-dominated (5%). The colleges are shown by prescriptive and non-prescriptive types in Figure 4.9.

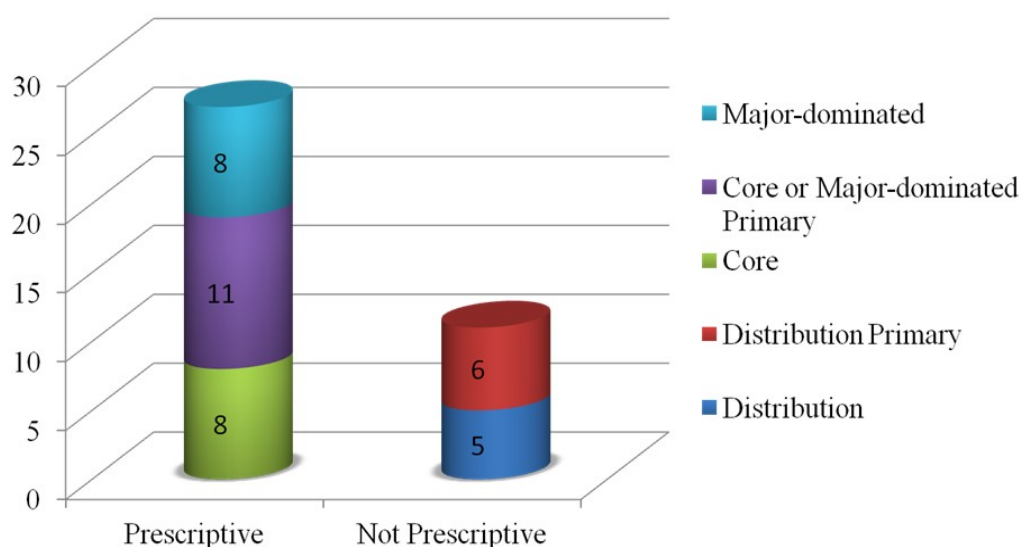


Figure 4.9 Curriculum models by prescriptive versus non-prescriptive types.

The researcher also examined the mixed models by various college characteristics. For colleges with multiple majors, there were two colleges with distribution/core models and one with each of the following: core/distribution; core/distribution/major-dominated; distribution/major-dominated/core; major-dominated/distribution; and major-dominated/core. Four colleges with multiple majors had prescriptive-primary models and three did not. For the colleges with only one major, there were seven colleges with a prescriptive core/distribution model and two with a distribution/core model. Colleges that offered their own general education courses had the core/distribution model and the distribution/core model in two cases each and only one each of the following: major-dominated/core, major-dominated/distribution, core/distribution/major-dominated and distribution/core/major-dominated. This translates to five colleges who offer their own general education with prescriptive-primary models and three that did not have prescriptive-primary models. Six colleges that didn't offer their own general education courses were categorized as prescriptive core/distribution, and the rest were in non-prescriptive categories, two distribution/core and one distribution/major-dominated. Figure 4.10 illustrates what types of mixed models colleges of various characteristics had in relationship to their curriculum being prescriptive or not prescriptive.

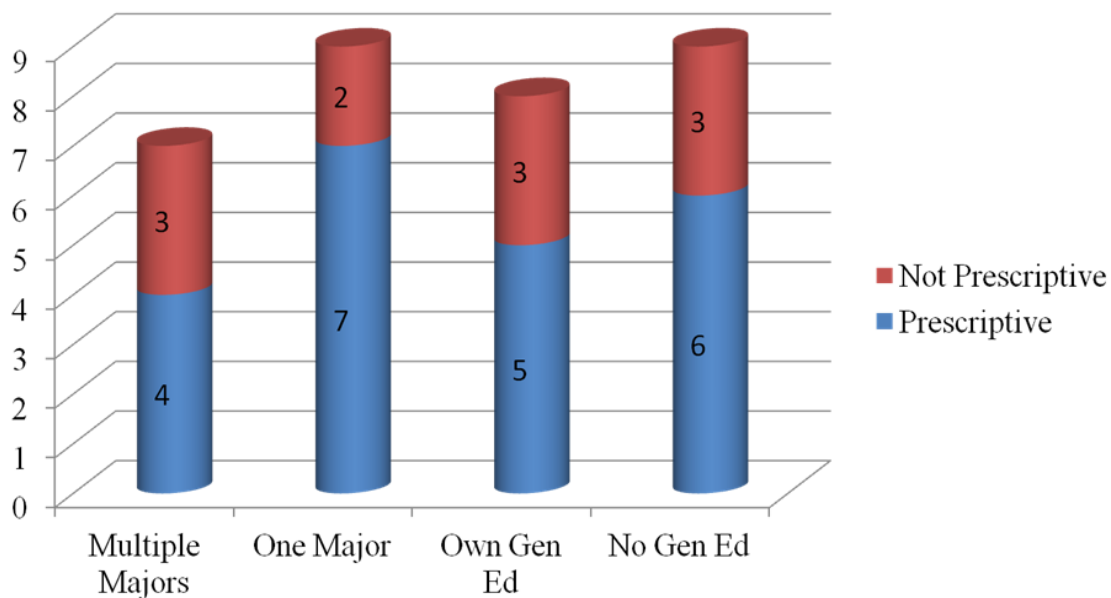


Figure 4.10 Prescriptive versus non-prescriptive mixed models by college characteristics.

Conclusion

Berquist's (1977) Career-based curriculum model has two components. The first component is that colleges with a professional curriculum are career-based and will have a more prescriptive curriculum. The quantitative analysis provided insight into how prescriptive the curriculum is at colleges of health sciences. The proportion of general education credits required in relationship to the degree exceeded 40% and the distribution of requirements was greatest in the combined category of math and sciences. Seventy-one percent of the colleges' models were prescriptive while only 29% were not. Core and major-dominated types were more likely to be primary than not in the mixed models and the distribution type was only slightly likely to be more prevalent in the secondary and tertiary components of the mixed models. The quantitative data from this study indicated that in colleges of health science there is a more prescriptive curriculum, supporting the first component of Bergquist's model.

The second component of Bergquist's model is that career-based colleges have a specific, as opposed to a general, curriculum. In order to determine how specific the curriculum is in colleges of health science, interviews were conducted with the general education leaders of six colleges in phase two of this study. The leaders were selected based upon the quantitative data; the interview data also served to confirm and expand upon the quantitative data described in this chapter. Chapter five presents how specific the general education curriculum is in colleges of health sciences by summarizing the qualitative data analysis conducted in phase two of this study.

CHAPTER 5

QUALITATIVE RESULTS

Introduction

Chapter four described the quantitative results of the first phase of this study, providing evidence that Bergquist's Career-based Model of curriculum is supported colleges of health science because they have prescriptive curricula. The researcher found that 71% of the institutions studied had a prescriptive curriculum. This chapter describes the results of the qualitative phase of the study in answering the following overarching qualitative research question: How do the occupational majors influence how specific the general education curriculum is in colleges of health sciences? After a description of the qualitative sample, the researcher presents an overview of the six cases and answers the research sub-questions that support the overarching qualitative research question. In the final portion of the chapter, the researcher discusses the quantitative and qualitative data together to explore how their integration increases the understanding of the answers to the overarching research questions and answers the following mixed methods question: How does the qualitative general education leadership interview data help to explain the results of the quantitative content analysis data by providing insight about the application of Bergquist's (1977) Career-based Model to the structure of general education at baccalaureate colleges of health science?

Qualitative Sample

Based on the quantitative results, the researcher decided that the following criteria would be used in selecting the qualitative sample. First, the colleges must provide their own general education courses. This criterion was selected because colleges that don't offer their own courses have limited control over them. Discussions about curriculum would be less meaningful under these circumstances. Second, the colleges must offer more than one degree. Colleges that offer more than one degree would provide richer information about the complexities of balancing the general education requirements of the different majors. The researcher sought to select two colleges that met these criteria from the three most common model types.

Modification of Interview Protocol

The researcher modified the interview protocol to reflect the specifics of the sample selection and to integrate suggestions from the expert reviewers. Probing questions about mission and outcomes were removed at the suggestion of an expert in general education research who recommended that more general questions about strengths and weaknesses would elicit richer qualitative data about the general education structure. Probing questions about support and concerns were added to the second question at the suggestion of experts in general education leadership and research. The third question was enhanced by modifications to several of the probing questions to increase clarity. This modified protocol is contained in Appendix A.

Qualitative Cases

Although the researcher sought to select two colleges from each of the three most common model types, meeting the criteria of having more than one major, offering their

own general education classes, and obtaining approval to participate in the study precluded this from occurring. Two colleges were selected with a mixed model having core primary; both with distribution secondary. Two colleges were selected with a mixed model and distribution primary; their secondary type was core in one case and major-dominated/core in the other. Two colleges were selected with a major-dominated model, one was a pure model and the other was mixed with distribution secondary.

The researcher interviewed an administrator who oversaw general education at each of the colleges chosen for the sample after the informed consent was completed. The researcher followed specific steps in analyzing the qualitative data. First, the researcher transcribed the interviews verbatim. The verbatim transcript of the interview was shared with each interviewee to obtain confirmation and clarification. Suggested changes were integrated into the transcripts used for qualitative analysis. Second, the researcher explored the data by reading through the transcripts and writing memos. Third, the researcher coded the data for each case by segmenting and labeling the text using the HyperRESEARCH3.03 tool. Appendix F contains a report of the codes from the qualitative analysis using HyperRESEARCH. From this coding, the researcher developed themes surrounding the research questions by aggregating similar codes together by case. The researcher also tabulated words from the transcripts relating to two themes, general education and the major, to identify which was more prevalent in the discussions. Next, the researcher wrote up a summary of the cases and finally, the researcher conducted a cross-case analysis of themes. To validate the accuracy of the findings, the researcher used triangulation with quantitative data and member checking with the interviewees (Creswell, 2008). To protect the identity of the colleges, pseudonyms were assigned and

only quotes with non-identifying information were included. After a summary of the six cases is presented, the answers to the following qualitative research sub-questions will be discussed:

Phase 2 sub-question 1- How would you describe the purpose of your general education curriculum structure?

Phase 2 sub-question 2- How is the required general education curriculum structure decided upon?

Phase 2 sub-question 3- How specific is the content in your general education courses to the healthcare majors?

Smith College of Health Sciences: core primary and distribution secondary.

Brian is the Dean of General Education at the Smith College of Health Sciences (SCHS). SCHS is a private, Christian college with seven healthcare majors and an enrollment of about 1,000 students. The college was founded in the 1990s, having evolved from hospital-based educational programs that began more than eight decades prior.

Brian shared that SCHS has a core general education curriculum model which requires 35 credits hours with some choices. This means the curriculum is mixed with core primary and distribution secondary. In addition to the core curriculum, SCHS has courses called “major-specific” and although they are not considered part of the core, they are determined by the major program requirements. The core curriculum has no science classes because they fall into this major-specific category.

Brian suspected that the curriculum was developed to promote interdisciplinary learning so the students in the different majors would be taking the same courses. When

asked about the impact of accreditation requirements on the curriculum, Brian stated that students must take major-specific courses to meet accreditation requirements. When the accreditors have changed requirements, the major-specific requirements have changed, but the general education core curriculum has remained the same. State requirements have affected the number of required hours in the core curriculum and regional accreditation requirements are also a major consideration.

When asked about the advantages of the core primary curriculum model, Brian listed some for the students and others for the college. He thought that the students benefitted from taking classes together to build relationships across majors that could be favorable to future collaboration in the workplace. He recognized that the college benefitted from the model because scheduling worked better when a large number of students needed the same courses. This also benefitted the students by giving them more choices of when to take classes. He also described how students were able to select courses in some areas based upon their personal interests, which is an advantage of the distribution model being secondary.

In response to a question about the disadvantages of the core primary model, Brian shared that “sometimes courses don’t necessarily meet everyone’s needs.” For example, having a generic algebra class was not necessarily the best choice for nursing students who needed more of an emphasis on ratio and proportions for their drug calculations. Although it wasn’t easy to identify another weakness of the core primary model, after much thought Brian indicated that the general education core curriculum tends to be the first year and the major-specific courses the second year and that perhaps

it's a weakness that the general education and major courses aren't better integrated throughout the curriculum.

When asked about how the general education curriculum is decided upon, Brian shared that when the general education core was reviewed four years ago, there was a representative from each division, including general education. He described their attempts to modify the curriculum to meet student needs while at the same time offer transferable courses. They considered a system where competencies could be fulfilled by any number of courses, which would be a distribution model, but they did not gain support for that change due to it creating too many budgetary challenges. Some of the factors that influenced decision making about the general education curriculum were the demand for credit hours in the major versus general education; accreditation issues; workload issues; and the budget.

At SCHS, general education curriculum changes originate in the general education division, and then feedback is sought from the other divisions. According to Brian, they need to have a "plan that would meet the needs of all the programs" before it goes to curriculum committee and then faculty assembly for approval. Brian described how a change proposal can be rejected at any step in the process. Because the Provost and President are part of faculty assembly, sometimes a lack of administrative support results in a proposal being rejected. According to Brian, there is no regular cycle for reviewing the general education curriculum and changes tend to come about as a result of situations, such as a change in accreditation requirements or to meet an identified student need. When concerns with the curriculum are identified, they typically come through the

Provost's Council and then get assigned to a task force or the general education division is asked to look at them.

Brian was pleased to share why the general education curriculum is supported at his college. He said there is "a lot of data to show that students who go through our general education ... score better on their credentialing exams later on." When asked about the weaknesses, he said "writing is the biggest complaint."

Brian acknowledged that Smith College of Health Sciences integrated healthcare information into the following classes: medical sociology, bioethics, literature in medicine, spiritual aspects of healthcare, and anatomy and physiology. In the public speaking class, he said "They probably do at least a lecture... to help them learn to talk to patient a little bit better." He added, "Our college algebra is pretty close but we do a little bit about dosage in there that you wouldn't get at another school" and in the computer science class "they probably do talk about some of that HIM (healthcare information management) technology." He estimated that the healthcare content was included "for most of our courses (in)... about 5% of the curriculum." In considering how general education content is integrated into the major, Brian explained that they call that "transfer of knowledge." One of the exemplary activities they do to accomplish this is have students in the major speak to anatomy and physiology and pathophysiology classes about how their learning applies to what they're experiencing as majors in the clinical environment. This helped to create a sense of the content's importance both in the students studying it and in the students reflecting back on it.

Newman College of Health Sciences: core primary and distribution secondary. Newman College of Health Sciences (NCHS) is affiliated with a church-

related health system and enrolls about 900 students annually. It began in the late 1800s as a school of nursing and became incorporated as a baccalaureate nursing college in the 1980s, adding allied health programs and master's degrees in the 1990s. Meg oversees Arts and Sciences faculty at NCHS. She explained that her college's model of general education is a core curriculum but that "in the bachelor degree they all take the same classes (but) there are also some general education courses that are programmatic requirements." NCHS's Core Curriculum Coordinator, Jen, further clarified the curriculum type in the following way:

I would call us a hybrid between a true core curriculum and distribution area requirements.... (In addition to the core curriculum,) we then have a series of courses that are divided into our four distribution areas: Communication, Humanities, Social Sciences, and Natural and Applied Sciences. Though most of the requirements are met by specific courses, some requirements have several options.

The college has a unique core curriculum model where courses in key areas during each year of study are incorporated into a portfolio and capstone project. Meg explained that if students transfer in one of those key courses, they still need to "take a one-credit course for the portfolio piece that's captured in that course."

When asked about how accreditation guidelines influence the curriculum model, Meg explained that nursing had the most stringent requirements and they "were able to accomplish those in (the) core curriculum." Because the sciences were so strictly dictated by accreditation, NCHS didn't worry about choosing what to offer. They just made the

science requirements dictated by the major. The humanities area was the one that students identified as lacking.

NCHS took what Meg termed a “backwards” approach to planning when revising their curriculum. They decided to start with what they wanted a graduate to be able to understand and do and then worked backwards to identify the courses that will enable the student to get there. The process was difficult because some courses had to be eliminated. In some cases, the general education course content was integrated into major courses, as was the case with gerontology. In other cases, a new course was developed to meet both accreditation requirements and what students needed to learn to achieve the expected outcomes, as was the case with cultural studies replacing introduction to sociology.

Meg shared that the strength of their general education model is that “it incorporates the students’ whole education... (and) it helps the students value all their experiences.” One of the challenges she identified about this strength was that NCHS’s specific requirements make it appear that it is more difficult to transfer in credits than colleges with a more open distribution curriculum model. She explained that initially they wouldn’t accept transfers for the core courses but over time they developed a one credit portfolio course for those who were transferring in the rest of the required course content. Jen also shared the following perceived strengths of the curriculum: the “integrated nature of the core,” the contribution of the professional courses to the goals, and the positive recognition the curriculum has received from outside accreditors and national associations.

The process NCHS used to create the general education model was extensive. There was a core curriculum task force that included faculty from every division and they

did extensive research into how other colleges designed their general education requirements and learned about best practices from attending conferences. Their first outcomes were too extensive to realistically manage so the task force cut them back by more than 50% and decided on three goals: reflection, communication, and embracing change. They identified which key skills were needed at various points in the curriculum and created the core courses to address them.

Jen described the process of developing the core curriculum as follows:

Though the initial core curriculum groups were quite large, the final core curriculum committee had two representatives from each of the three divisions of the Academic Affairs division and one chair. This committee met for one year to identify the (core) outcomes and required courses. Once the committee had approved the syllabi for all “core curriculum courses,” the group was disbanded and the Faculty Senate Curriculum Committee took over responsibility for core oversight.

To explain how concerns about the general education curriculum were raised and addressed, Meg shared that a frequent source of conflict was when programs “want good students and they don’t want the requirements for the core curriculum standing in the way.” She explained that the Arts and Sciences Division is pressured to accept as many transfers as their competition does but this creates a conflict with needing to ensure that all students are still achieving the core. In the past, program directors would decide what courses transferred in but that responsibility has now been shifted to the registrar. The college strives to strike a balance between meeting enrollment quotas, enrolling good students and ensuring students have achieved the core learning.

At Newman College of Health Sciences, Meg stated, “We do try to relate (healthcare) to most of the courses- not all of them.” She shared examples of the following courses where this is done most commonly: healthcare collaboration and leadership, the research course, and the language course. According to Meg, “You know if we connect the dots for the students then they see the value and they work harder.... If you’re going to give them an example, why not give them a healthcare example?” She also explained that the general education curriculum is integrated with the majors so that students can “better see the connection of general education to their whole experience” through student services activities and service trips. Meg stated that students really want to take courses with a healthcare focus, using the example of a new history of medicine course that “the students flock to.” Jen shared how the major faculty took pride in the connections throughout the curriculum by stating, “I think that because there was such an effort to engage and involve faculty across the campus in the development of the Core, that they feel a sense of connection to the final product.”

Davis College of Health Sciences: major-dominated primary and distribution secondary. Davis College of Health Sciences (DCHS) began as a hospital diploma school of nursing during World War II. It became a nursing college in the mid-1990s and began offering additional health science degrees while continuing its affiliation with a hospital. DCHS has approximately 500 students enrolled in its bachelor’s, associate’s, and certificate programs.

Sue’s role with DCHS includes overseeing the general education program and other administrative areas, such as institutional effectiveness. She described DCHS’s curriculum as mixed because “they do have to complete a number of courses from all

over the place.” which refers to distribution requirements. She also explained how curriculum plans describe what the requirements are for each program, which is evidence of a major-dominated curriculum. Sue stated that there is not a continuous four-year degree at DCHS, rather they have two-year associate’s degrees and then two-year baccalaureate completion degrees. She did acknowledge that there are a number of common courses across the programs but there wasn’t any clear articulation of those common courses being a core curriculum of any type.

When asked how the general education model was decided upon, Sue shared that the college has a long history of being affiliated with a hospital. Because the college was created with just one program, nursing, everything was decided by that program and the original general education chair was a nurse. Once other programs were added about ten years ago, the curriculum committee needed to consider general education from a broader perspective and general education began to evolve as a department. She explained that the idea of major general education requirements was developed for courses that students needed to pass with a C or better because they found that students were neglecting their general education classes so they could concentrate on their major ones. Sue stated, “These students were getting A’s in their nursing classes and D’s in their English class because they didn’t really care about them.” Requiring a C or better in these major general education requirements reinforced their importance to the students. The associate’s degree programs had more commonalities in general education but the completion program courses were “more geared toward the program.”

Sue described that the way they chose the curriculum was to consider what the students in each program needed for their major. The college was also concerned about

the order of the courses and setting pre-requisites and co-requisites so that students were taking courses in the required order. DCHS participates in a consortium of independent colleges in the state and Sue explained that she uses this group to make sure that her college's curriculum is aligned with others'.

When asked about the strengths of DCHS's general education model, Sue explained that having internal (programmatic) and regional accreditation meant that the college had to meet the requirements of both. She stated, "I think our model serves us well because we can tailor our gen eds so we're not in that predicament we were in years ago. You know where the students are (going to ask) why am I taking this?"

According to Sue, the perceived weakness of the general education model is students complaining that the courses have no meaning. She shared an example of their Phi Theta Kappa humanities honors course that focused on the classics and was very poorly perceived by the students. The college was able to add other humanities courses and integrate popular culture into the existing course to help address student concerns. Sue also thought that that assessment in general education was a weakness because the person who previously held her position overseeing general education did not have a strong background in it.

When asked about other changes the college instituted in its curriculum, Sue discussed how math instruction has changed. She explained that students perform poorly in math on the Collegiate Assessment of Academic Proficiency (CAAP), but because it was only used at the end of the curriculum, it was difficult to determine whether the students were not developing math skills because of the curriculum or if there was some growth during college. She knows that one problem could have been that math was

integrated into the major curriculum rather than taught as a separate general education math course. The types of math the students were being tested on were not the types they were learning in their major courses. To address this problem, algebra was added as a requirement for all programs. However, this course did not meet the needs of the medical assisting students so a pharmacology course is being developed for those students. Sue also learned that the validity and reliability of the CAAP were not high so DCHS is investigating using another standardized test to measure learning in general education, as well as assessing at multiple points throughout the curriculum to have evidence of growth.

Sue explained that her former role as chair of the medical assisting program and her experience attending a liberal arts college has given her insight into running a major program that is helpful in administering general education. She is able to understand how to balance program and regional accreditation requirements to effectively manage general education. Because all general education faculty members are adjunct, general education curriculum changes are driven solely by the programs. DCHS does have regular faculty in sciences but they are now considered a separate department and not part of general education.

When curriculum changes are proposed, the program chair works with faculty to put together a change proposal which is then reviewed by the provost. Once concerns are addressed, the proposal goes to a curriculum committee comprised of a variety of faculty from all areas of the college for a vote. DCHS also recently began to have a larger meeting of faculty and program chairs with the Provost once a month, similar to a faculty senate, where curriculum changes can be discussed.

According to Sue, concerns about general education tend to be expressed “during appropriate meetings.” She shared that faculty support the general education model because of the flexibility it provides and the biggest concern is making sure that there are enough sections for everyone to take the classes they need. Part of that concern is providing a general education schedule far enough in advance to allow students to plan their schedules. Sue also identified another weakness, writing. She explained that the research course was developed to address the baccalaureate students’ weakness in writing. DCHS is committed to identifying opportunities where the general education curriculum can be enhanced.

In describing the link between general education courses and healthcare applications, Sue thought that the leadership courses had the strongest bridge. She described how some of the college’s programs were developed to help people start new careers after being laid off from manufacturing jobs. These programs were offered as one year certificate programs with no general education to enable students to obtain a job as quickly as possible and then students had the option to continue with a year of general education to obtain an associate’s degree. In that situation, the general education courses were not used to lay a foundation for learning in the major; instead, they were designed for practicing healthcare professionals. Sue explained that the baccalaureate research course includes opportunities for students to choose what topic they want to research and that most students choose healthcare-related topics. A number of the faculty members are accustomed to bringing healthcare topics into their teaching based on their professional or teaching experience.

Sue was able to identify a strong linkage between the general education classes and the major curriculum. She stated that courses are planned to be in a specific order to support that linkage. For example, an English composition class is a co-requisite for a major class that requires a term paper. She shared another example of how the curriculum sequence was changed to create a better linkage. Nursing students were performing poorly in a class that required them to integrate information about nutrition because they had not yet taken the nutrition course. Once the course sequence was changed so they had nutrition first, the students' performance in the major course improved. She explained that monitoring student performance is an important part of ensuring the quality of the curriculum.

Students play an important part in the integration of the general education and major curricula at Davis College. According to Sue, students have suggested that electives with a healthcare focus, such as informatics, be developed. Sue explained that students are "encouraged to pick something that is healthcare related" when they do their assignments but the courses are designed to be general enough so that they look like what is being taught at other colleges.

Christian College of Health Sciences: a major-dominated curriculum model.

Jackie is the Dean of Liberal Arts and Sciences at the Christian College of Health Sciences (CCHS). CCHS is a private, religious college that has more than 800 students enrolled in 14 different academic programs at the associate, baccalaureate and certificate levels. CCHS was created from long-standing hospital-based training programs and although it became a college in 1995, it still maintains an affiliation with a health system.

When asked about her college's general education model, Jackie initially thought it was a core curriculum. But upon further discussion, Jackie shared that her college's goal is to have a common core curriculum but that right now the core is decided by the majors. Because of this, she agreed that although they talk about having a core and there are some courses that are common to all students, her college's model was major-dominated. To explain how this model was decided upon, Jackie discussed the need to have courses that were required by the majors, which further reinforced that her college's model was major-dominated. She explained that program accreditation did not allow for flexibility because of the strict requirements. She added that the state nursing board can also have credit mandates.

To explain the strength of the curriculum model, Jackie noted that it involves a building block approach where the coursework is carefully planned to be "a very step-like process in their knowledge." On the other hand, the model also had the weakness of transferability being challenging. Their specific courses that relate to healthcare are not taught at other colleges so there is no opportunity to transfer them.

Curriculum structure is decided upon at CCHS by the curriculum committee, which is comprised of members of the three schools: allied health, nursing and general education. Jackie shared that in the past, a program would decide upon the general education curriculum needed for it but "now the philosophy's changing to where we have to have a core and then the program goes behind it." When asked why the change to a common core is being considered, Jackie explained that a new provost saw the need for the common core. The process of deciding upon a common core has involved getting significant input from the larger college, with curriculum committee having "ownership

over all curriculum items and action items.” Jackie described the process of curriculum change coming from curriculum committee to the schools, then faculty association and then college senate taking a lot longer than the previous process that was centered on the schools initiating their changes.

Jackie shared that concerns about the general education program are generally expressed through her. In the past if there was a problem with general education and program requirements, general education was cut to allow the program to add the courses that were needed. With the change in philosophy of having a common core, Jackie acknowledged that she was concerned “about the general core being the center and then having that limitation in their program courses because it was always the other way around.”

Jackie explained that faculty members support their current major-dominated model because it is rigorous and has content that the programs need. She noted that students who take their general education courses at CCHS tend to do better than those that transfer them in, both because of the rigor and because of the way CCHS can tailor the general education courses to the students’ needs.

Jackie believed that at Christian College of Health Sciences the courses are “extremely... geared toward the major,” but at the same time the courses are taught in a general way so they are transferable. Jackie identified two courses that are very specifically geared to healthcare at CCHS. She acknowledged that there is some integration of healthcare, like in general psychology focusing on the types of psychopathology experienced in the clinical setting and an elective “special topics in literature” course that integrates healthcare literature. She explained that if the major

faculty started to push for major-specific content to be included in general education courses, general education faculty resisted that pressure because the courses had to be general. Jackie believed that the major course faculty members look at the general education course syllabi to determine the appropriate flow of their content to allow the major course to build upon the general education one. She noted, “It’s up to the program to say, ‘don’t talk about cardiovascular yet’ because they don’t cover that until third block.”

Johnson College of Health Sciences: distribution primary and core secondary. Foster is the Chair of Arts and Sciences at the Johnson College of Health Sciences (JCHS), a private college that enrolls approximately 1,000 undergraduate students in ten programs. JCHS began as a school of nursing in the early 1900s, became a college in the 1980s, and received regional accreditation but still maintains an affiliation with a health system.

Foster explained that the Johnson College of Health Sciences has a mixed model because although there are mostly choices from particular requirement areas, there are also some specific courses that students need to take, such as three one-credit interdisciplinary courses and English one and two. According to Foster, programmatic requirements influenced the college’s decision to use a mixed model, as well as to meet the educational needs of students entering the institution. He used the example of the one-credit library research course as addressing the need for students to be able to find information for research papers because they didn’t have that skill coming from high school.

When asked about the strengths of the mixed model, Foster shared that it's beneficial to have a model that has some requirements that are common to all, such as English, to ensure the students can write, and the interdisciplinary courses, to ensure the students can work well with other professionals. The college was also able to integrate the requirements of the different programs by having distribution requirements because they allowed for variation.

In analyzing the disadvantages of the model, Foster thought one problem was that many of their students have already taken their general education at other colleges and that "they're either not as well-prepared in usually the community colleges from which they come or haven't held on to the quality with which they were prepared as when they came to us." JCHS's only stipulation for transfer credits is a ten year limit on science courses. The college also doesn't do placement testing so it is difficult to determine how well prepared students are for college-level learning before they start taking classes. To help address this problem, Foster explained that the college is considering requiring everyone to take the same courses the first year.

According to Foster, the general education curriculum was originally decided upon by the program directors in order to meet their accreditation requirements. In general education, there is a program director for humanities and social sciences, which is the one program that doesn't offer degrees. Biomedical sciences and health psychology are also considered part of the department of arts and sciences that oversees general education, but each of those areas also has a degree program.

When asked why changes in the general education curriculum were being considered, Foster stated that the common first year seemed to be a good plan to address

two problems. One is that it would promote students' learning success because "students aren't coming out of general education doing all the things we want them to well enough." The other reason is to make it easier for students to change majors without having to make up too many courses and enable them to progress to graduation more quickly. Foster indicated that he anticipates JCHS "will become entirely core." The process to change the curriculum model will involve meetings with program directors and admissions where they will "hash it out." Foster surmised that "I really don't anticipate that coming up with a common year is going to include changing courses as much as it will involve saying yes or no about whether or not a particular course is included." Once the curriculum change is decided upon by the program directors, a proposal will be made for curriculum committee approval, followed by faculty senate, and finally the Dean who is also the Vice President of Academic Affairs.

Concerns about general education are expressed in a variety of ways at JCHS. Foster stated that they are often brought directly to him or one of the program directors in arts and sciences. They also might arise during discussions in committee meetings. Foster expressed an openness to hearing about problems; he stated, "I want to hear about (concerns) because I want to make sure that if it's our failure that we figure out a way to address it and if it's not our failure then we can figure out a way for someone else to address it." Support for the general education program is expressed through the major program faculty appreciating that the students enter their program with "particular skills in terms of writing, ...math,... scientific reasoning and bioethics."

Foster explained that three of Johnson College of Health Science's general education courses integrated healthcare into their core subject-matter: bioethics, statistical

methods for healthcare and social psychology of health and wellness. In addition, JCHS's interdisciplinary courses focused on team-based healthcare. One focused on teamwork and the other "has to do with learning a great deal about the other healthcare provider careers." In regard to other general education courses, Foster stated, "all of them involve healthcare through the instructor and through the examples" although they are identical to other colleges' course outcomes. Program faculty members integrate general education into their courses in a number of ways at JCHS. According to Foster, grammar and composition is used for writing papers in program courses, as are math and ethics skills. He summed it up by saying the program faculty "count on having those courses having been offered well and having been completed well. And when the students don't seem to be able to do things well is when we hear about it." The integration of learning will be even more critical when the college moves to a core curriculum that does not allow the variety of choices currently available.

Catholic Health Sciences College: distribution primary and major-dominated/core secondary. Alice oversees general education at Catholic Health Sciences College (CHSC) in her role as dean. CHSC was founded in the early 1900s as a Catholic hospital-based nursing school. It became a regionally-accredited nursing college in the 1990s and since then has added six health science degrees. The college has approximately 1,200 students enrolled.

The general education model used at CHSC is unique in how it combines a distribution and major-dominated model. According to Alice, "The state requires that there are a minimum number of certain hours in various disciplines," which is the distribution part of their model. She went on to explain that within those required

categories, the program faculty members determine which general education courses they want for their programs and “they’re usually courses that are supportive of their curriculum.” In addition to the major-required courses, all students who have never attended college before are required to take a two-credit success strategies course.

When asked why the CHSC curriculum model is a good one, Alice considered its benefit was that “it basically forces people to consider things other than the major.” She explained that if given a choice to add a course to the curriculum, the major faculty will always choose to add a major course instead of a general education one. The state prevents that from happening by requiring minimum credits in particular general education areas. State requirements also present a disadvantage in that there are a maximum number of credits allowed for a degree. This creates a problem when major program faculty members want to add major credits but they are caught between the required minimum general education credits and the required maximum degree credits and unable to make a change.

In response to a question about how the general education curriculum is decided upon, Alice explained that “it happened many, many years ago, long before most of us were here.” She explained that the changes that have been made over time were minor and were based upon program needs while also considering the state distribution requirements. CHSC recently instituted a general education advisory group to get input into the curriculum from health division faculty, students, and non-academic staff in the college. When new courses are proposed, they come from the division and must be approved by the curriculum committee, faculty senate and finally the dean.

CHSC is a small college that has no formal process to identify concerns about the general education curriculum. Alice explained “We’re a really tiny college and people usually just tell each other” when they have concerns. She shared a concern about an English faculty member not wanting to teach American Psychological Association (APA) format, even though it was the only format needed for health science students. The faculty member would only agree to teach with APA format in 10% of the class and eventually ended up leaving to teach at another college where the Modern Language Association format was used instead of APA. Alice stated that Catholic College made sure that all future English faculty members were hired with the understanding that they only teach the students to use APA format.

At Catholic Health Sciences College, Alice stated, “I think that faculty are very much aware that this is a primarily healthcare college, so they try to weave that within.” She shared examples of how she hears faculty discuss how healthcare topics are integrated into courses such as religion, communications, English, ethics and cultural diversity. Like Jackie, she mirrored the belief that the courses are separate from healthcare and that “it’s not so prescriptive that we’re only targeting healthcare.” Major courses at CHSC build upon general education ones, particularly ethics, cultural diversity and communication. Alice discussed the challenge of students being skilled in speech, both from the interpersonal communication side with patients and the public speaking side. CHSC is working on developing a course to address what the majors need in that area but each decision to change the curriculum is carefully weighed against the state distribution requirements that the college must meet.

Research Questions

The researcher sought to answer the following overarching qualitative research sub-question: How do the occupational majors influence how specific the general education curriculum is in colleges of health sciences? To answer this, the researcher investigated three research questions which focused on the purpose of the general education curriculum, how decisions are made about the general education curriculum, and how specific general education courses are to the major. The researcher identified a number of important themes in relationship to these three areas. Appendix G lists the codes from the interviews that relate to how specific and general the curricula are.

Phase 2 sub-question 1- How would you describe the purpose of your general education curriculum structure? Three major themes emerged related to the purpose of the general education curriculum at colleges of health science. The most significant theme was that the purpose of general education was to serve the major. The researcher conducted a content analysis of the six interviews by examining the words of each general education leader to determine whether the discussions focused more on general education, liberal arts, and the breadth of the curriculum or on the healthcare program and major. After scanning the content, the researcher chose the words “major,” “nursing,” “health,” and “program” to illustrate an emphasis on the major and the words “general,” “gen ed,” “liberal,” “citizen” and “broad” as the words to illustrate general education. The words (or these words within larger ones, like “liberally” and “broader”) were only counted when the context they were used in referred to the theme being sought. For example, “major” was not counted if it referred to important rather than a degree program or if it was in the word “majority” and “general” was not counted if it was just

used as a figure of speech, such as “generally.” As the word count illustrated in Figure 5.1 below demonstrates, the emphasis of the discussions was on the major (64%) rather than on general education (36%).

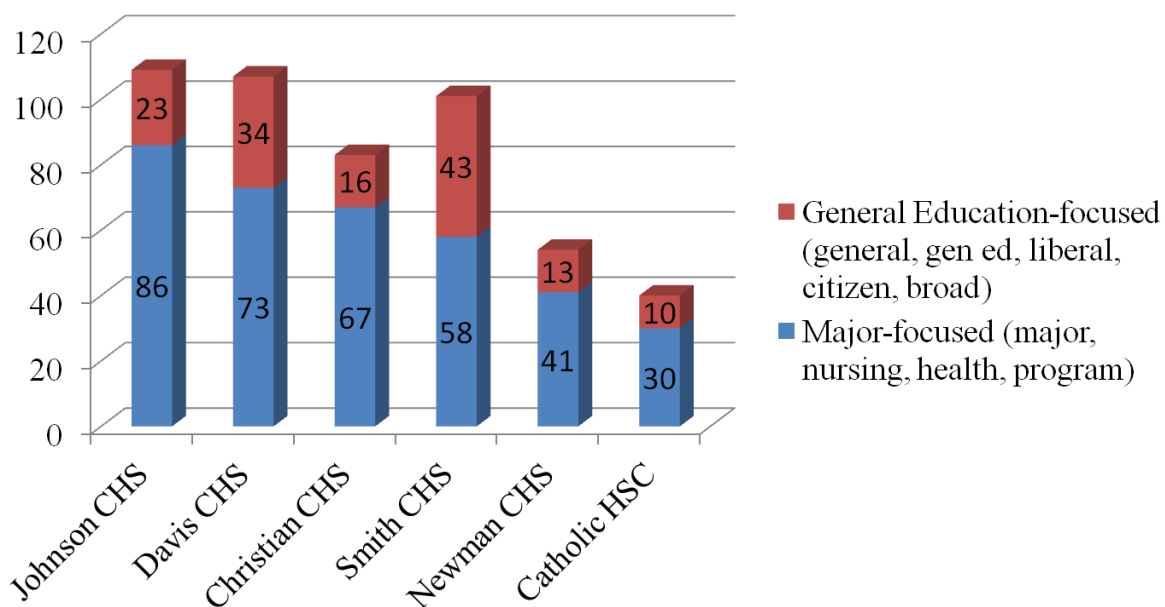


Figure 5.1 Word count by interview and theme.

When the researcher examined the interview coding, almost 20% of the coded statements from the interviews related somehow to the major driving the general education curriculum. Interestingly, descriptions about how general education served the major were pervasive no matter which curriculum type was dominant. Major-dominant institutions obviously put the major first in planning; Jackie stated that Christian College of Health Sciences has “required courses that were needed for the programs because they’re all in health sciences and so we did not have a lot of flexibility to say take a class in this area.” According to Sue, Davis College of Health Sciences identified courses that were common to other colleges they researched and they also had program-required courses in addition to the common requirements.

General education leaders of institutions with a core-dominant type indicated that general education requirements were chosen with what the major programs needed in mind. According to Meg at Newman College of Health Sciences, “The most stringent requirements were in ... nursing... and we were able to accomplish those in our core curriculum.” At Smith College of Health Sciences, the general education curriculum was divided into core and major-specific requirements.

General education leaders of institutions with a distribution-dominant type indicated that their model allowed choices so that the major programs could have their requirements met. At Johnson College of Health Sciences, Foster explained, “I think there are only two of our programs... that don’t require a year of anatomy and physiology so our requirement of at minimum three credit hours in a natural science is more a recognition that the students are already taking that.” According to Alice, “The state requires that there are a minimum number of certain hours in various disciplines.... Within that framework, however, each college can create their own requirements.... (At Catholic Health Sciences College), the program can kind of choose what they want.”

Some general education leaders described the importance of general education laying the foundation for learning in the major as evidence that the purpose of general education is to serve the major. Jackie stated the Christian College’s general education courses “apply to the profession and help build that student in a very step-like process in their knowledge with a building block type approach.” At Davis College of Health Sciences, the general education coursework was purposefully designed with pre-requisites and co-requisites to match appropriately with the major courses. Newman College of Health Sciences had key general education courses that were taught at

different points in the curriculum to pull the general education learning throughout the baccalaureate degree. Meg stated that her college's curriculum model "incorporates the students' whole education... and we see that there are contributions from general education, professional courses, and student services." According to Alice, Catholic College's general education divisions "primarily exist to support all the health programs;" in fact, Alice called them "support divisions."

Two institutions were in the process of changing to the core model from distribution and major-dominated models. The process the leaders described for that change involved the major programs having a significant role in negotiating what the core would be. Jackie explained that the change at Christian College of Health Sciences would come through the curriculum committee which is comprised of representatives from all divisions of the college. Foster, who is a health psychology program chair as well as the dean of general education, described how the curriculum change will be decided at Johnson College of Health Sciences as follows:

The program directors will have these long meetings in which we hash it out. For example, there are some programs that don't have any chemistry requirements.

There are other programs that do have chemistry requirements. So if we're going to really a core first year, then the ones without chemistry are going to have to add it or the ones with it are going to have to drop it.

The second theme that emerged was that a purpose of the general education was to integrate with the major. More than 18% of the coded statements from the interviews related to general education integrating with the major. According to Brian, "The purpose (of Smith College of Health Sciences' general education curriculum) was they wanted

(the students) to learn interdisciplinary and learn to work together.” In keeping with this purpose, general education faculty at Smith College advised nursing students during their first two years of study. Foster’s comment mirrored this theme of working together; “Students are required to take... some idiosyncratic courses based on interprofessionalism” at Johnson College of Health Sciences. Jen explained that one of the strengths of Newman College’s model was the “integrated nature of the core.” Integration is explored further in answering the third research sub-question.

The third theme about the general education curriculum was that it served a purpose outside of the major in providing students with broader learning. This theme received significantly less emphasis in the discussions than the first two themes. In some cases this broader learning was in response to regional accreditation requirements. Sue stated, “I would say that we were really following what the regional accreditor would say in that you’ve got to have this many gen ed hours” in a variety of prescribed areas. In other cases, it was to embrace the liberal arts as a critical component of a college education. According to Brian, Smith College has a “responsibility to have a well-rounded education.” Alice stated that Catholic College’s general education model “forces people to consider things other than the major.” Meg described Newman College’s curriculum as meeting three objectives, “students being reflective individuals, effective communicators and change agents.”

Phase 2 sub-question 2- How is the required general education curriculum decided upon? How the general education curriculum was decided upon varied from institution to institution, but the major programs always had a role. At one extreme were institutions whose general education curriculum was controlled by the major programs.

Catholic Health Science College's general education curriculum was established by the programs when it transitioned from a diploma school to a college and had not changed since. Alice shared that general education recently created an advisory group to get input into course offerings and although the suggestions are not relevant to changing the core, they will expand course offerings. Davis College of Health Sciences had only adjunct general education faculty and general education was overseen by a healthcare professional throughout the college's history. Program faculty also decided what grades were required in general education courses for their students.

Somewhere in the middle were institutions with well-established general education structures that were influenced by the health science programs. Christian College of Health Sciences historically made curriculum decisions based on the needs of the programs and Jackie struggled with the plan to create a common core because it wouldn't be able to satisfy all the program needs. Johnson College of Health Sciences had a general education leader who also oversaw a health science program; there were also health science programs in a number of the other general education departments. Only one area within general education did not also have a health science program. For this reason, there was an overlap in decision-making because the majors needed to be simultaneously considered with general education by most of the leaders within general education.

At the other extreme were institutions that were able to move beyond the majors in most ways and conceive of general education from a broader perspective. Newman College of Health Sciences and Smith College of Health Sciences pulled together multidisciplinary groups to create a general education curriculum that focused on

outcomes first and coursework to meet the outcomes second. Interestingly, though, both of these colleges did not prescribe any science courses in their core curricula because they let the major programs identify the required courses. Newman College also had a history of course transfers being decided by the healthcare program chairs but that process has been moved to the registrar's office so that input can be obtained from general education faculty when needed, rather than all the decision-making power being in the program faculty members' hands.

Phase 2 sub-question 3- How specific is the content in your general education courses to the healthcare major? To analyze how specific general education content was to the major at colleges of health science, the researcher explored three areas: how healthcare is integrated into general education courses, how easily students can meet the colleges requirements for transferring courses in and how easily the colleges' classes can transfer to other institutions.

One theme that emerged in every interview was that the colleges' writing standard was that of the health science disciplines rather than what's accepted in the discipline of writing. Because health science disciplines use American Psychological Association format, students were taught to use that format when writing papers instead of the Modern Language Association one. Although this might seem like a minor part of the curriculum, it demonstrates the pervasiveness of the majors' influence over the curriculum.

All of the general education leaders surmised that at least some of their faculty tended to integrate the specifics of healthcare in their general education courses, although the extent varied from college to college. Brian acknowledged that Smith College of

Health Sciences integrated healthcare information into five courses. He also shared examples of how healthcare information was integrated to a lesser extent into three other classes. Foster explained that four of Johnson College of Health Science's general education courses integrated healthcare into their core subject-matter. In regard to other general education courses, Foster stated, "all of them involve healthcare through the instructor and through the examples" although they are identical to other colleges' course outcomes. Jackie believed that at Christian College of Health Sciences the courses are "extremely... geared toward the major," but at the same time the courses are taught in a general way so they are transferable. She thought three of their courses were very specifically geared to healthcare at CCHS and mentioned another class used examples relevant to healthcare practice. At Catholic Health Sciences College, Alice shared examples of hearing faculty discuss how healthcare topics are integrated into five different courses. Alice also discussed the challenge of students being skilled in speech and how the college is working on developing a course to address what the majors need for healthcare into that course. Sue explained that at Davis College of Health Sciences, a number of the faculty members are accustomed to bringing healthcare topics into their teaching based on their professional or teaching experience. According to Sue, students are "encouraged to pick something that is healthcare related" when they do their assignments but the courses are designed to be general enough so that they look like what is being taught at other colleges. At Newman College of Health Sciences, Meg stated, "We do try to relate (healthcare) to most of the courses- not all of them." She shared examples of three courses where this is done most commonly. Meg stated that students

really want to take courses with a healthcare focus and will choose healthcare-related electives.

Although each general education leader described some aspects of integrating health science information into general education courses, there were also clear statements about how that was limited as well. Brian estimated that the healthcare content was included at Smith College “for most of our courses (in)... about 5% of the curriculum.” Jackie explained that at CCHS if the major faculty started to push for major-specific content to be included in general education courses, general education faculty resisted that pressure because the courses had to be general. According to Meg, the general education curriculum at Newman College of Health Sciences is “not so prescriptive that we’re only targeting healthcare.”

Colleges with very specific healthcare requirements in their general education courses would be unlikely to accept other colleges’ courses for transfer. Likewise, colleges with courses that are particularly specific to healthcare might find that other colleges are unlikely to accept their courses for transfer for anything other than an elective. For this reason, transferability is a helpful measure of how specific a curriculum is.

Brian explained that Smith College had a transfer problem with medical sociology being part of the required general education core because students were unlikely to have taken that at another college and general sociology was not specific enough to transfer. When Smith College administrators considered revising the general education curriculum to make a speech course more tailored to health sciences by including content on

interpersonal relationships, the plan was abandoned when they realized it would create transfer problems.

Foster explained that three interdisciplinary collaboration courses, as well as bioethics and developmental psychology were difficult for students to transfer into and out of Johnson College of Health Sciences. The three one-credit interdisciplinary courses on teamwork and “interprofessionalism” were unique to the college so students were unlikely to have obtained the learning elsewhere. Bioethics was difficult to transfer because of its healthcare focus. Developmental psychology was challenging because although it was called “developmental” it was created especially for nursing students and included additional content from introductory psychology. According to Foster, the nursing “curriculum was so full that students didn’t really have time to take introduction to psychology and then developmental psychology so this one four-credit course was developed to stand in for two three-credit courses.” Problems occurred when students wanted to receive transfer credit in developmental psychology because they must have credit in both introductory psychology and developmental psychology to meet the requirements of Johnson College’s course. Foster also surmised that other colleges would be unlikely to award students transfer credit for introductory psychology since the class the students took was called “developmental psychology.”

Meg described how Newman College of Health Science’s core curriculum required a number of specific courses that became part of students’ academic portfolios, such as a language and healthcare course and a healthcare leadership course. At first, the college wouldn’t accept transfer credit for these courses. Over time, the college recognized that certain students, particularly those who had majored in those fields, had

some of the learning required for the courses. To address this problem, the college allowed qualified students to transfer two credits of those courses and take a one-credit portfolio course that gave the students the particular learning they were lacking related to the healthcare application. However, no students are able to obtain a complete course-for-course transfer for those particular courses.

The researcher found that three of the colleges reported little difficulty with course transfers. In considering transferability of general education courses at Christian College of Health Sciences, Jackie stated that “they transfer very well,” especially to private colleges. Sometimes they have problems transferring courses to public colleges and they are looking into why that is the case. Even their very specific courses on diversity and caring have transferred to other colleges as electives. She shared that “these are our hallmark” courses. Students have also been successful transferring these courses in from other healthcare colleges. Sue didn’t think that students at Davis College of Health Sciences would have any difficulties with transfer courses because the general education faculty designed their courses around what was commonly accepted for transfer in their state. Likewise at Catholic Health Sciences College, Alice stated that their courses were designed around the state’s transfer guidelines to ensure they would be transferable. The only course her college had issues with accepting as a transfer was a medical ethics course due to the requirement that it must be taught from a Catholic perspective.

Integration of Quantitative and Qualitative Data

Comparing the quantitative and qualitative data is an integral part of mixed methods research and in this study, the comparison served two purposes. First, it verified

the data surrounding the prescriptive curriculum. If the quantitative and qualitative findings were consistent, then there is greater assurance of their validity. Second, the researcher used the qualitative information to elaborate beyond the quantitative numbers with rich narrative that creates greater meaning in the findings.

The overarching mixed methods research question was: How does the qualitative general education leadership interview data help to explain the results of the quantitative content analysis data by providing insight about the application of Bergquist's (1977) Career-based Model to the structure of general education at baccalaureate colleges of health science? Table 5.1 illustrates how the quantitative and qualitative data supported the finding that the curriculum at colleges of health science is both prescriptive and specific. The table is followed by a narrative summarizing the research findings about how the curriculum is prescriptive and specific related to each research question.

Table 5.1

Quantitative and Qualitative Evidence in Support of Prescriptive and Specific Curriculum

Factor	Quantitative Evidence	Qualitative Evidence
Prescriptive	<ol style="list-style-type: none"> 1. Health science colleges had more required general education credits than colleges of other types 2. Health science colleges had more requirements in math and sciences and fewer in humanities than colleges of other types 3. Core and major-dominated primary or sole models found in 71% of health science colleges 	<ol style="list-style-type: none"> 1. Interview data confirmed core and major-dominated primary or sole models as prescriptive models 2. Interview data revealed that distribution models implemented prescriptively
Specific	<ol style="list-style-type: none"> 1. Course titles that included healthcare 	<ol style="list-style-type: none"> 1. Integration of healthcare into general education courses 2. Course titles that included healthcare 3. APA format required in all writing 4. Transferability of general education courses limited due to specific healthcare content

Do colleges of health science employ Bergquist’s (1977) Career-based Model by having a prescriptive curriculum? Quantitative and qualitative data about curriculum models were largely consistent for the colleges studied. Appendix H lists codes that relate to the prescriptive and non-prescriptive themes. A college-by-college comparison of the quantitative and qualitative data follows.

At Smith College of Health Sciences, 26 of the credits (74%) are core but nine of the credits (26%) come from distribution areas; although the model is strongly core, it is also mixed in that there are some distribution requirements. This finding is congruent with the interview data in which Brian stated that the model was core “with some choices.”

Newman College of Health Sciences' 48 credit-hour curriculum has 24 of the credits (50%) as core because they are required by all baccalaureate students. Fifteen credits (31%) are from distribution areas and 9 credits (19% of total requirements) are dictated by the major program. This quantitative analysis supports the interview data that NCHS has a mixed general education model with core primary and distribution secondary. Meg stated, "We call it a core curriculum ... and there may be more than one choice in (certain) areas." In addition, the small major-dominated component in science was described in Meg's statement that "they were getting what they absolutely had to have (in the sciences) by their accrediting bodies."

The curriculum document analysis revealed that baccalaureate students at Davis College of Health Sciences need to complete at least one course from three curriculum areas. The only other description of general education requirements was in the program curriculum plans so the remaining credit hours are determined by the major. With 30 credit hours required in general education, this translates to 70% of the general education requirements being major-dominated and 30% distribution. This reflects how Sue described the curriculum as having distribution requirements "from all over the place" and being major-dominated in how the major's curriculum plans describe the requirements for each program.

Quantitative analysis of curriculum data at Christian College of Health Sciences supports the interview finding that the curriculum is major-dominated. Although Jackie referred to the curriculum as "core" in the discussion, it became clear that the curriculum is currently dictated by the majors but the Provost is pushing for consensus around a core curriculum. A follow-up email inquiry confirmed that the model is major-dominated.

At Johnson College of Health Sciences, the quantitative data revealed that the curriculum is a mixed model with distribution primary and core secondary. Twenty-two of the mandatory general education credits (71%) are distribution requirements and only nine are core requirements (29%). This is consistent with how the model was described by Foster in the interview as “it’s a mixed model in that we have some specific courses that students are required to take... but we also have not quite a distribution or menu model.”

The quantitative analysis of Catholic Health Science College’s curriculum revealed that its structure is mixed with distribution primary and major-dominated secondary, although it also contained four core requirements. Out of the 35 required general education credits across the distribution areas, twelve credits are required by all programs- six credits in English composition, three credits in cultural diversity and three credits in medical ethics from a religious perspective. The remaining twenty-two credits that are required in the various distribution areas are dictated by the major. This is consistent with how Alice described the curriculum in the interview as “the state requires there are certain hours in various disciplines” and within those areas “the program can kind of choose what they want.”

All six colleges studied qualitatively had a prescriptive type, either solely, primarily or secondarily. Johnson College of Health Sciences, which had a distribution-dominant model, had leadership committed to transitioning to a core model. Catholic Health Sciences College had a distribution model by state mandate, but dictated how that model was carried out through core and major-dictated requirements. Although four of

the colleges studied had a prescriptive primary type, either core or major-dominated, three of those also had distribution as a secondary type.

The researcher was able to learn from the interviews that for many of the health sciences colleges having distribution models allowed the programs to dictate what courses the students needed to take within that distribution. For example, neither Smith College of Health Sciences nor Newman College of Health Sciences had specific science requirements in their general education curricula; instead, they allowed the major programs to identify the required courses. In this way, the distribution model was also prescriptive in how it was carried out. Only rarely did a distribution model offer students a choice that wasn't already dictated by the major; usually the choices were between a small number of courses. For these reasons, the qualitative portion of the study not only reinforced the conclusion that colleges of health science have prescriptive curriculum types, it also provided insight into how even a seemingly non-prescriptive distribution model could be used to allow majors to dictate their requirements. The quantitative and qualitative data taken together strongly support Bergquist's (1977) Career-based model that colleges of health science have a prescriptive general education curriculum.

How do the occupational major requirements influence how specific the general education curriculum is in colleges of health science that offer general education courses? The integration of quantitative and qualitative data also provided insight into how specific the general education curricula are to healthcare at colleges of health science. In the quantitative analysis, idiosyncratic course titles that included healthcare were identified and these same courses were also mentioned in the interviews as being challenging to transfer. Some of these courses could not be categorized into the

core disciplines of humanities, mathematics, science and social science because their focus was both interdisciplinary and on healthcare.

When quantitative data is considered alone, some health science colleges' courses had healthcare themes in their titles but beyond that, they may not appear to be very specific. In many cases, they tended to have the same course titles and outcomes as those offered at non-health science colleges. The qualitative data provided insight into how those "typical" classes are taught by bringing in healthcare examples, spending more time on certain topics and adding content that relates to healthcare that is not readily apparent in the published information about the courses. One college even shared how the students returned to their anatomy and physiology classes to explain to current students how they've taken what they learned in that class and used it in their major studies. This specificity is present but only became known through the interview data.

Another subtlety that could not be identified through the quantitative data was how much the students wanted to take courses that are specific to their major. Time after time, the interviews included comments about students doing such things as expressing a desire to focus on their profession instead of general education, flocking to electives with a healthcare focus, and suggesting new electives with a healthcare focus. One strategy that general education departments at health science colleges took to address the latter was to create more specific courses. They recognized that building relevance helped the students buy into what they were learning which in turn increased their ability to learn.

Conclusion

The qualitative analysis provided insight into how specific the curriculum is at colleges of health sciences. In investigating the purpose of general education at colleges

of health sciences, three major themes were identified. First, the most commonly discussed purpose of general education was to serve the major. This was illustrated in the language used to describe the curriculum, in general education laying the foundation for learning in the major, in how each type of model was implemented and in how existing models were being revised. No matter which type of model was being discussed, the administrators emphasized the theme of general education serving the major. The second most common theme was how general education integrated with the major. Three of the college administrators described interdisciplinary courses as an integral part of their requirements. This theme was explored further in answering research sub-question three. The third theme about the purpose was that general education provided students with broad learning outside the major. This theme was emphasized much less than the others, most frequently in the context of regional accreditation requirements. Only half of the administrators mentioned the purpose of broad learning outside of accreditation requirements.

In answering the question about how curriculum decisions are made, the researcher found that although different institutions took different approaches, the major programs always had a role in decision-making. Some institutions' general education programs were completely controlled by the majors, in such ways as the program being created by the major programs, overseen by someone who was also working in a major program, or because all general education faculty were adjunct. Other institutions that had a bit more control over general education also struggled with oversight and decision-making that put the majors first. The two colleges with the greatest ability to control the

general education curriculum chose not to dictate science requirements, leaving them instead to the majors to prescribe.

How specific the general education curriculum was to the majors was explained by investigating three areas, the integration of healthcare into general education, general education course transfers into the health science colleges and transfers out. All of the colleges integrated the healthcare writing standard, APA format, into their writing requirements. All of the administrators discussed different ways that they integrated healthcare into general education classes, through instructional examples at the very least and healthcare course titles at the other extreme. In regards to courses transferring in, half of the colleges had specific courses that could not be taken elsewhere because their courses were too specific. Some colleges relaxed their transfer requirements or, in the case of one college, allowed students to transfer part of the course content and take a one-credit course for the remaining credit. Three college administrators reported few problems with courses transferring in due to aligning their curricula with local or state transfer guidelines. Related to courses transferring out, most administrators reported that their courses could be transferred elsewhere as electives. Course to course transfers were reported as being more challenging when the healthcare college courses were specific to healthcare, as was the case of medical sociology and bioethics, or idiosyncratic courses, such as the developmental psychology course that integrated both introductory and developmental psychology.

Mixing the qualitative and quantitative data both confirmed and expanded upon the quantitative findings, creating a clearer picture of how the curricula at colleges of health science align with Bergquist's (1977) Career-based model. A college by college

comparison of the quantitative and qualitative findings about the curriculum model types demonstrated that the data was consistent. The qualitative interviews provided insight into how the distribution model was implemented in a way that was prescriptive because the “choices” were created to allow the major programs to dictate what the requirements were for their students within those alternatives. These findings reinforced even more that the prescriptive nature of Bergquist’s (1977) Career-based model of curriculum applies to colleges of health science. How specific the colleges of health sciences’ courses were became evident to a certain degree in the healthcare-focused course titles identified in the quantitative portion of the study. In the interviews, the administrators explained how courses that appeared to have general titles integrated specific healthcare examples into their content. Combining the quantitative and qualitative data provided a more comprehensive picture that the nature of general education curriculum at colleges of health science is specific to healthcare. The qualitative and quantitative data support Bergquist’s Career-based model that colleges of health science were found to have both prescriptive and specific general education curricula.

CHAPTER 6

DISCUSSION

Introduction

This chapter will find meaning in the data collected to answer the study's research questions related to whether colleges of health science have a prescriptive and specific curriculum in accordance with Bergquist's (1977) Career-based model of curriculum. The researcher will first present an answer to the overarching quantitative research question examined in phase one of the study, followed by an analysis of the findings related to each research sub-question in relationship to existing research on the topic and to the other findings within the study to aid in drawing conclusions. Next, the researcher will present an answer to the overarching qualitative research question and its three supporting sub-questions from phase two of the study. After that, the researcher will explain the answer to the mixed methods research question. Finally, the significance of the study will be identified, as well as its limitations and recommendations for future research.

Do Colleges of Health Science Employ Bergquist's (1977) Career-Based Model by Having a Prescriptive Curriculum?

Phase one of this study examined general education curricular requirements to describe them in relationship to Bergquist's (1977) Career-based Model which predicts that colleges of health science would have prescriptive requirements and models. Both the quantitative and qualitative data support the prescriptive aspect of Bergquist's model. The quantitative data related to requirements being prescriptive in colleges of health science in three ways. First, the mean of required general education credits at colleges of

health science was higher than the mean general education requirement at other types of colleges. Second, the distribution of requirements at colleges of health science was higher in the sciences and lower in the humanities when compared with other types of colleges. Finally, the proportion of health science colleges with a prescriptive model (core, major-dominated, and mixed models with those types primary) was 71%, which is a much greater proportion than is found in other types of colleges which largely have the distribution model.

The qualitative data supported the idea that colleges of health science have prescriptive curricula in three ways. First, the qualitative data verified the models that were identified quantitatively. Second, one of the interviews with an administrator who had a distribution-primary curriculum revealed that his college was transitioning to a core curriculum so it was becoming more prescriptive. Third, the data provided additional insight into how distribution models were actually prescriptive by describing how the programs dictated which courses their students needed to take from the distribution areas.

Phase 1- sub-question 1: At baccalaureate colleges of health science, what proportion of the total degree credit hours are required in general education? The researcher found the mean semester credit hours for a degree at colleges of health science was 125 and the mode of general education credit hours required for the degree was 53. At colleges of health sciences, the proportion of average total required credits that are general education credits was 42%. This average of general education credits for colleges of health science was found to be greater than what has been found as the required amount in other studies. According to Mauldin and Gress (2010) the Middle States and Southern associations require 30 semester hours of general education for the

baccalaureate; the New England association requires 40 semester hours; the Western association requires 45 semester hours; and the North Central and Northwest associations do not specify the number of hours, just that general education be included in the curriculum. Toombs, Amey, and Chen (1991) studied a sample of 652 institutions offering baccalaureate degrees in Research, Doctoral, Comprehensive, and Liberal arts Carnegie Classifications and calculated the average number of general education credits was 47 (p. 109). Ratcliff, Johnson, LaNasa, and Gaff (2001) found “the average general education requirement is 37.6% of the baccalaureate degree, or 45.1 credit units” (pp. 12-13). When looking specifically at the BS degree, the mean number of hours was 125.83 and general education comprised 37.48% of the total credits (p. 15). Bourke, Bray, and Horton (2009) studied the top twenty-five institutions in the liberal arts and research according to *US News and World Report* and determined the average number of hours in the general education curriculum was 35 for liberal arts institutions and 34 for research institutions (p. 227). All of these studies found general education requirements below 47 hours, a level lower than what was found for colleges of health science.

The Council of Higher Education of Virginia (1999) found the average number of required general education credits was 46.5 for Virginia’s “the public four-year institutions and 50 among the private not-for-profit institutions” (p. 9). The health science colleges required more credits than the public institutions but it is not surprising that their requirements were more closely in line with private not-for-profit institutions because that is largely the same type they are.

Phase 1- sub-question 2: At baccalaureate colleges of health science, what proportion of general education requirements are in the sciences, social sciences,

humanities, mathematics and other disciplines? The researcher found that at colleges of health science the mean credits required for each discipline were 17 credits in humanities, 20 credits in math and science, 10 credits in social science, and four credits categorized as other. The percent of credits by discipline was 34% humanities, 40% math and science, 20% social science and 6% other. Types of credits that fell into the “other” category included required general education credits that could come from any discipline, physical education credits, and cross-disciplinary credits. The large proportion of total credits being in math and science is indicative of a prescriptive curriculum that would be needed to educate healthcare professionals.

When comparing the distribution of required courses at colleges of health science to other studies about general education structure, differences are apparent. Toombs, Amey, and Chen’s (1991) study of baccalaureate degrees at Research I and II, Doctoral I and II, Comprehensive II, Liberal arts I and II institutions revealed that humanities averaged 12 credits and social science nine credits; eight credits were required in both natural sciences and speech writing, and about seven credits each in foreign language and values (p. 109). The health science colleges required more credits in the natural sciences and the social science requirements were about the same. Combining humanities, speech and foreign language and values requirements into one category of humanities as the health science college data was coded, the health science colleges’ humanities requirements were significantly lower.

According to Gaff and Wasescha (2001), the average curriculum in general education “includes two courses in writing, one course in mathematics, four courses in the humanities, one course in the fine arts, two courses in the natural sciences. . . , and

three courses in the social sciences” (p. 237). Like the previous study, the social science requirements in Gaff and Wasescha’s study were virtually identical to the health science colleges but the humanities requirements were greater and the science requirements were fewer than those at colleges of health science.

Bourke, Bray, and Horton’s (2009) study of top liberal arts colleges revealed the average course requirements were two courses each in language, literature, and social science and one course in math, science, writing, and physical education (p. 227). The average course requirements for research institutions were two courses each in language and math, and one course in each of the following: quantitative research, multicultural, history, literature, science, social science, and writing (p. 227). When compared with colleges of health science, the colleges’ requirements in Bourke, Bray, and Horton’s study were lower in math, science, writing, and social science. Some of the courses that were not widely required at colleges of health science include physical education, required by one college of health science (3%); literature, required by two colleges of health science (5%); language, required by three colleges of health science (8%); and history, required by nine colleges of health science (24%).

Phase 1 sub-question 3: What models of general education (core, major-dominated, distribution, or mixed) are used in baccalaureate colleges of health science? The researcher found that eight colleges of health science had a core model (21%) and the same number had a major-dominated model (21%); 17 colleges had a mixed model (45%) and only five had a distribution model (13%). Hart Research Associates (2009) studied 906 Association of American Colleges and Universities member institutions across all major Carnegie Classifications and found about 15% of the

members responded that they used only a distribution model; 64% used other models in combination with the distribution model (pp. 2-3). Rempel (1992) examined Bible colleges' curricula and concluded that their "programs are generally largely prescribed, with few electives" (p. 135). This finding could be also consistent with Bergquist's model since these colleges are preparing students for a career in ministry.

Other researchers examining curriculum models throughout higher education have found that the distribution model is the most prevalent. Bourke, Bray, and Horton (2009) studied the *US News and World Report's* top liberal arts and research institutions and found that a majority of the institutions used a distribution requirement, with 65% of the research institutions and 80% of the liberal arts institutions using that form (p. 227). Kanter, London, and Gamson (1991) studied comprehensive and doctorate-granting institutions in New England and found that 47% of the institutions "had a distribution system with some required courses" (pp. 123-124). Zeszotarski (1999) studied the structure of general education in 32 community colleges transfer degree programs and found that 69% of the colleges had distribution requirements; 21% had a core with electives; only 10% had a core curriculum by program or major, which is categorized in this study as a major-dominated curriculum model. The Council of Higher Education of Virginia (1999) studied 64 of the Commonwealth's higher education institutions and found that the greatest proportion of institutions had a distribution model (64%) with either required content or required skills; the next most common model was a core curriculum with 20% of the institutions having that form (p. 33). Hurtado, Astin and Day (1991) noted in their study of 322 baccalaureate degree-granting institutions that "only a

few general education programs can be described as... major dominated and that a distribution system is by far the most common” (pp. 156-157).

Phase 1 sub-question 4: What types of mixed models of general education are used in baccalaureate colleges of health? The researcher found that 17 colleges of health science had a mixed model. Eight were core/distribution; four were distribution/core; and each of the following types was found at one college: distribution/major-dominated, major-dominated/distribution, major-dominated/core, core/distribution/major-dominated and distribution/major-dominated/core.

Prescriptive curriculum models include core and major-dominated types, either solely or primarily. Integrating data from sub-questions three and four revealed that 71% of the colleges studied quantitatively were core, major-dominated, or primarily these types. When taking into account curriculum models that include core and major-dominated types in any way, 87% of the health sciences colleges fit the criteria of having prescriptive elements. Only 13% of the health science colleges had a purely distribution model and 53% of the colleges included distribution into their model in some way. The proportion of health science institutions that had a prescriptive curriculum type was not only high; it was also higher than most other studies of higher education institutions. This quantitative data strongly supported Bergquist’s (1977) Career-based model that colleges of health science tend to have a prescriptive curriculum and that this is different than the other institution types within higher education.

How Do the Qualitative Data Help to Explain the Results of the Quantitative Data?

In all six cases, the qualitative data verified the models identified in the quantitative analysis. The qualitative data also revealed that one of the colleges with a distribution model was actually transitioning to a prescriptive, core curriculum model. The most common notion of a distribution model is that it provides certain categories from which students must take a required number of courses and it is up to the students to determine which courses they would like to take. The qualitative analysis revealed that the way distribution models were largely used in colleges of health science was as a place to identify the common denominators among the healthcare programs and require that number of credits. The students in many cases did not have true choices within the distribution categories because their major programs dictated the actual requirements. For example, Newman College of Health Sciences had a distribution category in its curriculum for science and each program had requirements for specific courses within that science category. Foster acknowledged that the science distribution requirements at Johnson College of Health Sciences merely reflected the minimum credits required in the programs so what the students actually took was dictated by the programs. Smith College of Health Sciences did not include any science requirements in the general education curriculum, placing them instead in a different category of courses required by the program.

The conclusions drawn from this study may not apply to colleges that don't offer their own general education courses or only have one major because the researcher chose to qualitatively investigate colleges that offered their own general education courses and

multiple majors. However, the colleges chosen for consideration in the qualitative sample were very similar to the colleges not chosen in their prescriptive and non-prescriptive model types. When mixed types are included, colleges that offered their own general education had a ratio of 13 prescriptive to six non-prescriptive types while colleges that didn't offer their own general education classes had a ratio of 14 prescriptive to five non-prescriptive types. When comparing colleges with multiple majors to one major and including mixed types, both groups had a ratio of 14 prescriptive to five non-prescriptive. The qualitative portion of this study broadened the picture of how curriculum models are implemented in colleges of health science and reinforced that all of the models can be prescriptive in how they are implemented.

How Do the Occupational Majors Influence How Specific the General Education Curriculum Is in Colleges of Health Sciences?

Phase two of this study explored how specific the general education curriculum was at colleges of health science. According to Bergquist's (1977) Career-based model, colleges of health science should have a specific rather than general curriculum. The qualitative interviews in phase two integrated three different issues related to the specificity of the general education curriculum. First, the purpose of the general education curriculum was explored to establish whether it was specific or general. Second, how decisions were made about the curriculum were investigated to determine whether they involved a focus on general studies or specific healthcare agendas. Finally, the integration between general education and the major was examined to figure out whether it was a general or specific approach.

Phase 2 sub-question 1: How would you describe the purpose of your general education curriculum structure? Three themes emerged regarding the purpose of general education at colleges of health science. The most prevalent theme was that the purpose of general education was to serve the major. This theme was reinforced repeatedly throughout the interviews with comments about being pressured to accept transfer courses, changing course content to meet the needs of the major, enforcing grade requirements that the majors dictated, and the resistance of the majors to come to consensus around a core curriculum. The interviews also included descriptions of the specific courses that were developed around healthcare themes and the sacrifices made in removing general education requirements when majors wanted to add credits. The problem that general education credits were sacrificed for the major was also reflected in Cejda and Deumer's (2011) study of professional preparation at Regional institutions, which also found the emphasis on the major to "limit breadth of study" (p. 19). From a broader perspective, the theme was reinforced by the way general education was described as serving the major, no matter which curriculum model was used. The second most common theme was that the purpose of general education was to integrate with the major in specific ways. This theme will be explored more fully in the discussion of the last research question regarding integration. These first two themes were consistent with the idea that the general education curriculum at health science colleges was specific rather than general which supports Bergquist's (1977) Career-based model.

The last theme identified was that the general education curriculum served a purpose outside the major in providing students with broader learning. Leaders at three of the colleges discussed the broader approach to learning that general education afforded

students as a benefit, while a fourth leader discussed it as a requirement of accreditation. While this more general purpose of general education was mentioned, it was not acknowledged as prevalently as the themes of serving the major and integrating the major. Mengel's (1988) study of nursing curriculum also revealed "a lack of emphasis on a liberal or general education" (p. 40). In contrast to this finding, Toombs, Amey and Chen (1991) found that among the research, doctoral, comprehensive and liberal arts institutions they studied, "general" or "liberal" were descriptors in 65% of the institutions' general education statements while "core" or other were only in 35% (p. 111).

Phase 2 sub-question 2- How is the required general education curriculum decided upon? A clear theme concerning how the general education curriculum was determined at colleges of health science was that the major programs played an important role. One reason that the majors had a significant role was that they had external accreditations that required particular general education coursework. In two cases, the leaders of general education were also leaders of healthcare programs so their two roles were intertwined when decisions were made. In another instance, there were only adjunct faculty members in general education. Because adjuncts were not involved in decision-making, curriculum decisions were made by regular faculty in the major programs. Other examples of how the majors yield decision-making power over the curriculum included setting the general education grade requirements for specific required courses by program and the major faculty, rather than the general education faculty, reviewing general education coursework for transfer. Even the colleges that had the most general curricula decided to have the major programs dictate the specific science requirements in general

education. There is ample evidence to support that decision making at colleges of health sciences focused on the specific needs of the majors rather than a general curriculum.

Phase 2 sub-question 3- How specific is the content in your general education courses to the healthcare major? How specific the general education content was to the major programs was evaluated by looking at how the general education courses integrated healthcare and how easily general education courses transferred into and out of colleges of health science. A number of indicators pointed to general education courses integrating specifics from healthcare. One clear illustration of the integration being specific was that APA format, the format used in healthcare journals, was required by all of the colleges for writing rather than MLA format, which is the format used in English. Some general examples of integration included using healthcare examples in general education classes, having general education courses with healthcare in their titles or descriptions, and general education classes being team taught by general education and major faculty. Creating new general education courses or changing existing ones so they had healthcare content to meet the needs of the majors, and using faculty who work in healthcare to teach general education subjects were some additional examples.

General education leaders' comments about faculty's interest in teaching the health science majors is in contrast to Warner and Koeppe's (2009) account that the American Association of Colleges and Universities reported "faculty often had little interest in teaching in their field to non-majors or in connecting their field with other disciplines" (p. 257). Because general education faculty members didn't have the dual purpose of educating majors and non-majors, they were able to embrace their role in

teaching non-majors. The prevalent theme of integration was also less common in the research. Hart Associates (2009) surveyed the Chief Academic Officers at 433 Association of American Colleges and Universities member-institutions and found that the integration of requirements was between 45%, for institutions with a distribution model, and 60%, for institutions with a core curriculum (p. 11).

The researcher found that transferring classes away from colleges of health science was not as difficult as transferring courses in. This was due in part to other colleges accepting transfer courses for elective credit where the specific content was not a concern. Transferring classes into health science colleges was a concern for the colleges at four out of the six colleges where qualitative data was collected. Two of these colleges had one healthcare-specific course that would not transfer in; one college had two courses and another had five courses with transfer difficulties. The reason for the transfer difficulty in all but one college was that the courses had to have content specific to healthcare; the other college had a religious requirement. One college reported that healthcare-specific courses transferred in when they were taken at other health science colleges.

Combining the findings on the integration and transferability of the curriculum at colleges of health science, the general education curriculum appeared to be more specific than general. Although some of the colleges studied had a more general curriculum, the majority of the evidence points toward health science colleges having a curriculum that integrates the specifics of healthcare which supports Bergquist's (1977) Career-based model.

How Do the Qualitative and Quantitative Data Provide Insight about the Application of Bergquist's (1977) Career-Based Model to the Structure of General Education at Baccalaureate Colleges of Health Science?

The specific nature of general education curriculum at colleges of health sciences was identified in course names that included healthcare during the quantitative phase of the study. Discussions during the qualitative phase about how courses were implemented revealed more specific ways that healthcare was implemented into general education courses, such as healthcare examples used in teaching. The interview data also revealed challenges with transfers due to the specific healthcare nature of the courses.

Significance of Study

This study's findings are significant to educational research for three important reasons. First, this study contributed to the body of knowledge about general education and colleges of health science. One particular aspect of general education that this study contributed to is an understanding of how mixed curriculum models are implemented at colleges of health science. The researcher learned that the mixed model allowed the colleges to prescribe the elements they wanted to and have choices, either for the students or the majors to dictate, for other elements. The researcher also drilled down to identify primary and secondary components present in the mixed models and discovered that some colleges actually integrated all three model types to some extent.

Second, this study contributed to the body of mixed methods research by investigating a subject that has not been previously studied using mixed methods research. Mixing the findings of the quantitative and qualitative portions provided data

verification which validated the method's helpfulness. In addition, the study demonstrated the helpfulness of quantitative research in identifying an appropriate sample for qualitative research. This study clearly illustrated how important the combination of quantitative and qualitative findings is to understanding general education curriculum. The two components of Bergquist's (1977) Career-based model could not have been tested without both the quantitative and qualitative methods. Identifying a distribution model in the quantitative portion of the study was very different than understanding how it was implemented in a prescriptive way through the qualitative portion of the study. The richness of the interview data significantly contributed to clarifying the quantitative findings.

Third, this study contributed to the understanding of Bergquist's (1977) Career-based Model of curriculum as it applies to colleges of health science. The evidence obtained through this study supported the model by showing that colleges of health science have prescriptive and specific curricula. In addition, an increased understanding of career-based curriculum could be beneficial to faculty and administrators at any career-based institution of higher education. This study could provide faculty and administrators at other types of specialized colleges a good stepping stone to understand or investigate their own general education structure in relationship to Bergquist's model.

This study is also significant in its benefits to practitioners. Faculty and administrators can learn from the models and experiences described in this study in a number of specific ways to improve practices on their own campuses. In addition, accreditation visitors can benefit from a better understanding of general education at

colleges of health science to aid in their evaluation of other colleges' programs from both a programmatic and regional accreditation perspective.

The quantitative and qualitative data could help faculty and administrators in colleges of health science gain a better understanding of general education's composition and characteristics to overcome the perception that general education is something that students need to get out of the way. Examples of integrative practices could be helpful for faculty and administrators to implement at their own colleges. Those who oversee general education in colleges of health science and leaders of health science diploma schools who aspire to transition their institutions to become health science colleges could find this research helpful in planning their general education curriculum. The study demonstrated that there is no one way to implement general education curriculum at colleges of health science and that each model can bring certain benefits and challenges. It showed that each of the models can be implemented in a prescriptive manner and that there were a variety of ways to make general education learning specific to the major. The study also highlighted some of the transfer credit risks that colleges face when they make courses too specific and some strategies that colleges have used to successfully overcome these challenges.

Individuals involved in program and regional accreditation visits could use this study's findings to help them understand more about general education at colleges of health science. Program accreditors tend to be experts in the health professions, not general education, so this study can help them better understand the complexities of general education structure and the various ways that colleges integrate the major and general requirements. Regional accreditation visitors are likely to be from non-health

science colleges and therefore have a very different frame of reference for understanding general education structure. This study could help them understand how colleges of health science have a prescriptive and specific general education structure, rather than a more general and elective one as is common at liberal arts colleges or research universities. It also provided a clear sense of the struggles colleges of health science face in balancing the demands of the major with the demands of liberal learning and offered strategies that other colleges have successfully employed to cope.

Limitations

One limitation of this study was that the results are restricted by the accuracy of the Career-based Model to reflect the phenomena of general education curriculum. Although the model addressed how prescriptive and specific the general education curricula were, there may be other important factors about the curriculum outside of this model that were not taken into account.

Second, this study was limited by the definition of the various models of general education and how those definitions were applied to the phenomena. One of the study's underlying assumptions was that the distribution model was not prescriptive but the findings indicated that any model could be implemented prescriptively. In the quantitative portion of the study, the terms used in describing the curriculum in the colleges' documents were taken at face value unless an inconsistency revealed the need to seek clarification. The interview data revealed how confusing the model types were because often the words used to describe them were not the same as the names they were called in this study. Seeking the meaning behind the words rather than taking terms at face value was an important component of the qualitative portion of the study.

Third, this study is limited by the validity and reliability of the methods used. The researcher sought to address the validity of the tools by seeking expert input into their design and having an expert review the coding to confirm reliability. In addition, the mixed methods design helped to provide some assurance of reliable results when the quantitative and qualitative results were the same. The researcher chose “results to follow up that need further explanation” (Creswell, 2011, p. 242). Interpretation issues that could threaten the study’s validity were addressed by analyzing the quantitative data first and the qualitative data second to “fit the design” (p. 242).

Fourth, this study has several limitations related to its generalizability. The sample of healthcare colleges used in the quantitative portion of the study was based upon the Carnegie Classification “Spec/Health: Special Focus Institutions—Other health professions schools” (Carnegie Foundation for the Advancement of Teaching, 2009). Not all baccalaureate health science colleges are listed in that classification due to misclassifications or recent changes in their status. For this reason, the quantitative findings of the study did not provide a complete picture of all colleges of health science. Another limitation was that it was not possible to draw any conclusions about particular general education models at colleges of health science due to an inability to get informed consent for interviews from two colleges with each model. However, the colleges included in the interview had a variety of models and because most of them were mixed, this contributed to the understanding of mixed models.

Recommendations

This study lends credibility to Bergquist’s (1977) Career-based Model of curriculum being accurate in colleges of health science having a prescriptive and specific

general education curriculum. Further research should be done to determine whether this model holds true for other types of career-focused colleges. In addition, the other models within Bergquist's model should be examined to determine if research supports their existence at other types of colleges.

Colleges of health science have demonstrated a variety of approaches to integrating a prescriptive and specific general education curriculum that are characteristic of their career focus. This study demonstrated that any general education model or combination of models can integrate prescriptive and specific elements. Additional qualitative research should be done to further examine this phenomenon in colleges of health science, as well as investigate it in other types of colleges. Looking into how health science colleges that don't offer their own general education classes integrate specific healthcare content in general education would be interesting to investigate as well.

This study pointed to the need for future research into general education curriculum to move beyond the typical quantitative summary of requirements. Having a mixed methods study that used qualitative interviews to expand upon the quantitative data provided important insight into how the stated requirements are carried out. One of the study's underlying assumptions was that the distribution model was not prescriptive but the findings indicated that any model could be implemented prescriptively. Determining whether other colleges of all types are implementing their distribution requirements prescriptively could aid the understanding of whether there is a link between general education models and prescriptive versus non-prescriptive characteristics.

Practitioners can use the findings of this study in a number of ways. Faculty and administrators at colleges of health science can use this study's findings to better understand how general education is implemented at similar colleges. They can consider whether any of the innovative practices or solutions to challenges employed by the colleges in this study might be helpful on their campuses. They can use evidence of the integration of general education to support the value of general education. For any practitioner who is developing or revising a general education curriculum at a college of health science, this study can demonstrate that each model can be successfully implemented in a way that meets the prescriptive and specific requirements of the programs. When a general and non-prescriptive curriculum is the expectation in an accreditation visit, the reality of a health science college can be shocking. Individuals acting in accreditation roles can use this study's findings as foundational knowledge to reviewing general education curricula at colleges of health science.

Conclusion

This mixed methods study illustrated how the general education curricula at colleges of health science were both prescriptive and specific, which supports Bergquist's Career-based model of curriculum. The quantitative portion of the study provided evidence about the prescriptive nature of the general education curricula. The qualitative interviews verified the quantitative information and expanded upon it by revealing that distribution curriculum requirements were often carried out in a way that is prescriptive. One of the findings of this study was that all of the models could be prescriptive and specific in nature; the most important aspect was not the model itself but how it was employed. Although it might be assumed that in order to change general education, the

model employed must be changed, this study indicated that the implementation of general education can be modified within a model. The interviews also provided insight into the specific nature of the general education curricula through the inclusion of healthcare examples in general education courses, the presence of healthcare in course titles and the difficulties experienced with course transfers due to the healthcare course content. The richness of the interplay between the quantitative and interview data contributed to a more complete understanding of general education curriculum at colleges of health science, setting a path for future discovery.

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APPENDIX A

GENERAL EDUCATION IN HEALTH SCIENCE-FOCUSED INSTITUTIONS:
AN EXPLANATORY MIXED METHODS STUDY INTERVIEW PROTOCOL

Name	Date
Title	Time
College	Mailing Address
Phone	Email address
<p>Introduction</p> <p>I want to thank you for taking time out of your busy schedule to talk with me today. As you know, I am interested in investigating general education in colleges of health science. I sent you a list of definitions to clarify the terms I will be using today. Did you have any questions about them?</p> <p>I am interviewing general education administrators at six different health science colleges. My goal is to identify themes surrounding general education in these types of institutions to aid in the understanding of general education structure. I want you to know that I will be recording and transcribing our communication verbatim. I will send you a copy of the transcription and my interpretation of our communication to confirm that I am capturing it correctly. The confidentiality of your responses will be maintained in the written report. I expect that our interview will take about 60 minutes and I want to confirm that we can have that time together now before we begin. At this time, I will begin recording our communication. <i>Start recorder.</i></p>	
<p>1. Why are you using the general education model you have?</p> <p>Probes: How would you describe your model of general education, core, major-dominated, distribution or mixed? (Provide definitions)</p> <p>How do state and program accreditation requirements impact general education at your college?</p> <p>What are the strengths and weaknesses of your model?</p>	
2. How is the required general education	

<p>curriculum structure decided upon?</p> <p>Probe: Who is involved in general education curriculum decisions?</p> <p>What factors influence the decision to change the curriculum?</p> <p>What occupational major requirements drive certain general education requirements?</p> <p>What process do you follow to change the general education curriculum?</p> <p>How are concerns about general education programs expressed and addressed?</p> <p>What are the major reasons faculty support the general education program and what are their major concerns or problems with it?</p>	
<p>3. How specific are your general education courses to the healthcare majors?</p> <p>Probe: Could you describe how you integrate healthcare information into your general education courses? In which courses are healthcare issues explored?</p> <p>In your experience, how easily do your general education courses transfer to other colleges? Have you ever had problems with your general education courses transferring because are too specific to healthcare?</p> <p>In which major courses are general education issues considered or built upon?</p>	
<p>Conclusion: Thank you for participating in this interview. Your answers will be transcribed verbatim along with the other interviews I am conducting. I will seek your confirmation as to the accuracy of my notes concerning our interview. Themes will be identified and each interviewee's confidentiality will be maintained in the summary of my findings. If you are interested in receiving a report on my findings, I would be happy to share one. Again, thank you for your time.</p>	

APPENDIX B
UNIVERSITY OF
Nebraska
Lincoln
INFORMED CONSENT FORM

Principal Investigator: Peggy Rosario, pkrosari@lancastergeneralcollege.edu
Telephone 717-544-4976, Facsimile 717-544-5970

Project Title: General Education in Health Science-focused Institutions: An Explanatory Mixed Methods Study

Purpose of the Research: The purpose of the study will be to describe the structure of general education at baccalaureate colleges of health science in relationship to Bergquist's Career-Based Model of curriculum using an explanatory sequential mixed methods approach. First, the structure will be investigated quantitatively and then further insight will be obtained qualitatively. In the first quantitative phase of the study, college catalogs and websites will be evaluated to identify how prescriptive the general education requirements are at colleges of health sciences. The second, qualitative phase will be conducted as a follow up to the quantitative analysis to more fully explain the specific structure of general education at colleges of health science. In this exploratory follow-up, the researcher plans to examine general education structure through interviews with leaders of general education at six colleges of health sciences that offer general education courses. You have been chosen for this study as a leader who oversees general education at a college of health science. If you don't have sufficient experience in your position to discuss general education at your college, you would be excluded from this study.

Procedures: Participation in this telephone interview will require approximately 45- 60 minutes of your time. You will be asked three overarching questions, along with additional probing questions, related to the structure of general education at your college. The researcher will schedule this interview at a mutually agreed-upon time. The interview will be audio-taped for transcription. You will have the opportunity to review the transcript and notes from the interview to confirm the information is correct and will be invited to provide clarification; however, no additional interviews will be required.

Risks and/or Discomforts: There are no known risks or discomforts associated with this research.

Benefits: If interested, you will receive an electronic copy of this study's findings. You may find the results of this study provide insight into the structure of general education at colleges of health science, which could be beneficial for development, revision, and management of general education, as well as preparation for accreditation reviews.

Page 2 of 2 Pages

Confidentiality: Any information obtained during this study which could identify you will be kept strictly confidential. The interview recording will be transcribed verbatim by the researcher and the recording will be erased after the transcription is reviewed. The transcription data will be stored in a password-protected computer account only accessible by the researcher. All personally identifiable information will be removed from the study narrative and aliases will be used to protect your privacy. This study will be published as a doctoral dissertation and its findings may be shared in professional presentations or publications.

Compensation: There will be no compensation for participating in this research.

Right to Ask Questions: You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. Or you may call the investigator at (717) 544-4976. Please contact the investigator if you want to voice concerns or complaints about the research or in the event of a research related injury. Sometimes study participants have questions or concerns about their rights. In that case you should call the University of Nebraska- Lincoln Institutional Review Board at 402-472-6965.

Freedom to Withdraw: Participation in this study is voluntary. You are free to decline to participate in this study. You can also withdraw at any time without harming your relationship with the researcher or the University of Nebraska-Johnson.

Consent, Right to Receive a Copy: You are voluntarily making a decision whether or not to participate in this research study. Your signature certifies that you have decided to participate having read and understood the information presented. You should keep and copy of this form and returned a signed copy as directed below.

_____ Check if you agree to be audio taped during the interview.

Signature of Research Participant

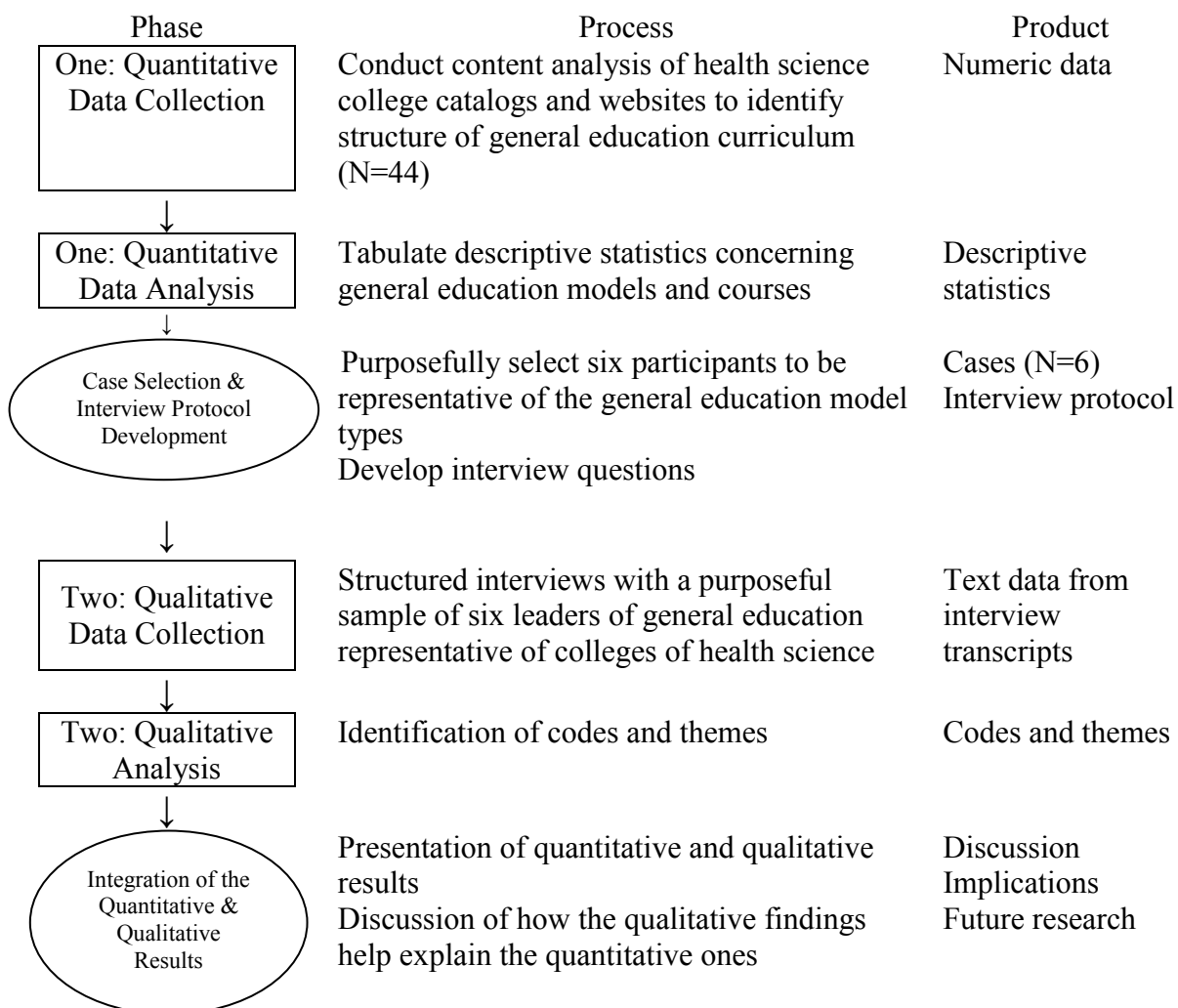
Date

Name and Phone number of investigator: Peggy Rosario, M.Ed., Principal
Investigator Office: (717) 544-4976

Please return this consent form to Peggy Rosario, Principal Investigator, through one of the following methods: email attachment to pkrosari@lancastergeneralcollege.edu or facsimile (717) 544-5970.

APPENDIX C


VISUAL MODEL FOR EXPLANATORY SEQUENTIAL DESIGN



Based on model from Ivanka and Stick, 2007, p. 98

APPENDIX D

PRELIMINARY INSTITUTIONAL REVIEW BOARD APPLICATION

	University of Nebraska- Lincoln Institutional Review Board (IRB) 312 N. 14 th St., 209 Alex West Lincoln, NE 68588-0408 (402) 472-6965 Fax (402) 472-6048 irb@unl.edu	FOR OFFICE USE ONLY
		IRB# _____
		Date Approved: _____
		Date _____
		Received: _____
		Code #: _____

IRB NEW PROTOCOL SUBMISSION

Project Title:	General Education in Health Science-focused Institutions: An Explanatory Mixed Methods Study
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Investigator Information:

Principal Investigator:	Peggy Rosario	Project Supervisor*:	Brent Cejda
Department:	Student, Education Administration	Department:	Faculty, Education Administration
Dept Phone:	717-544-4976	Dept Phone:	402-472-3729
Contact Phone:	717-544-4976	Contact Phone:	402-472-0989
Contact Address:	410 N Lime Street	Contact Address:	141 Teachers College
City/State/Zip:	Lancaster PA 17602	City/State/Zip:	Lincoln NE 68588-0360
E-Mail Address:	Pkrosari@lancastergeneralcollege.edu	E-Mail Address:	Bcejda2@unl.edu

* Student theses or dissertations must be submitted with a faculty member listed as Secondary Investigator or Project Supervisor.

Principal Investigator is:

<input type="checkbox"/>	Faculty	<input type="checkbox"/>	Staff	<input type="checkbox"/>	Post Doctoral Student
<input checked="" type="checkbox"/>	Graduate Student	<input type="checkbox"/>	Undergraduate Student	<input type="checkbox"/>	Other

Type of Project:

<input checked="" type="checkbox"/>	Research	<input type="checkbox"/>	Demonstration	<input type="checkbox"/>	Class Project
<input type="checkbox"/>	Independent Study	<input type="checkbox"/>	Other	<input type="checkbox"/>	

Does the research involve an outside institution/agency other than UNL*?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
--	------------------------------	--

* Note: Research can only begin at each institution after the IRB receives the institutional approval letter

If yes, please list the institutions/agencies.	
Where will participation take place (e.g., UNL, at home, in a community building, etc)	

Project Information:

Present/Proposed Source of Funding:	n/a		
Project Start Date:	12/1/2011	Project End Date:	4/15/2012

*Please attach a copy of the funding application.

Type of Review Requested: Please check either exempt, expedited, or full board. Please refer to the investigator manual, accessible on our website:

<http://research/unl.edu/ReComp1/compliance.shtml>, to determine which type of review is appropriate. **Final review determination will be made by the IRB.**

Please check your response to each question.

	Yes	<input checked="" type="checkbox"/>	No	1. Does the research involve prisoners?
	Yes	<input checked="" type="checkbox"/>	No	2. Does the research involve using survey or interview procedures with children (under 19 years of age) that is not conducted in an educational setting utilizing normal educational practices?
	Yes	<input checked="" type="checkbox"/>	No	3. Does the research involve the observation of children in settings where the investigator will participate in the activities being observed?
<input checked="" type="checkbox"/>	Yes		No	4. Will videotaping or audio tape recording be used?
	Yes	<input checked="" type="checkbox"/>	No	5. Will the participants be asked to perform physical tasks?
	Yes	<input checked="" type="checkbox"/>	No	6. Does the research attempt to influence or change participants' behavior, perception, or cognition?
	Yes	<input checked="" type="checkbox"/>	No	7. Will data collection include collecting sensitive data (illegal activities, sensitive topics such as sexual orientation or behavior, undesirable work behavior, or other data that may be painful or embarrassing to reveal)?
	Yes	<input checked="" type="checkbox"/>	No	8. For research using existing or archived data, documents, records or specimens, will any data, documents, records, or specimens be collected from subjects after the submission of this application?
	Yes	<input checked="" type="checkbox"/>	No	8a. Can subjects be identified, either directly or indirectly, from the data, documents, records, or specimens?

Exempt

Expedited

Full Board

Description of Subjects:

Total number of participants (include 'controls'):	6
--	---

Will participants of both sexes/genders be recruited? Yes

No

If "No" was selected, please include justification/rationale.

--

Will participation be limited to certain racial or ethnic groups? Yes No
 If "Yes" was selected, please include justification/rationale.

--

What are the participants' characteristics?

Higher education administrators who are leaders of general education at colleges of health science.

Type of Participant: (Check all appropriate blanks for participant population)

<input checked="" type="checkbox"/>	Adults, Non Students	Pregnant Women	Persons with Psychological Impairment
<input type="checkbox"/>	UNL Students	Fetuses	Persons with Neurological Impairment
<input type="checkbox"/>	Minors (under age 19)	Persons with Limited Civil Freedom	Persons with Mental Retardation
<input type="checkbox"/>	Victims	Adults with Legal Representatives	Persons with HIV/AIDS
<input type="checkbox"/>	Other (Explain):		

Special Considerations: Yes No

If yes, please check all appropriate blanks below.

<input checked="" type="checkbox"/>	Audio taping	Videotaping	Archival/Secondary Data Analysis	Genetic Data/Samples
<input type="checkbox"/>	Photography	Web-based research	Biological Samples	Protected Health Information

Project Personnel List:

Please list the names of all personnel working on this project, starting with the principal investigator and the secondary investigator/project advisor. Research assistants, students, data entry staff and other research project staff should also be included. For a complete explanation of training and project staff please go to <http://research/unl.edu/ReComp1/compliance.shtml>

Name of Individual:	Project Role:	UNL Status*	Involved in Project Design/Supervision? Yes/No	Collect Data? Yes/No
Peggy Rosario	Principal investigator	Graduate Student	Yes, design	Yes
Dr. Brent Cejda	Project Advisor	Faculty	Yes, supervision	No

*Faculty, Staff, Graduate Student, Undergraduate Student, Unaffiliated, Other

Required Signatures:

Principal Investigator:		Date:	
Secondary Investigator/Project Advisor:		Date:	
Unit Review Committee:		Date:	

PROJECT DESCRIPTION**FOR OFFICE USE ONLY****PROTOCOL:****DATE APPROVED:****1. Describe the significance of the project.**

What is the significance/purpose of the study? (Please provide a brief 1-2 paragraph explanation in lay terms.) The purpose of the study will be to describe the structure of general education at baccalaureate colleges of health science in relationship to Bergquist's Career-Based Model of curriculum using an explanatory sequential mixed methods approach. First, the structure will be investigated quantitatively and then further insight will be obtained qualitatively. In the first quantitative phase of the study, college catalogs and websites will be evaluated to identify how prescriptive the general education requirements are at colleges of health sciences. The second, qualitative phase will be conducted as a follow up to the quantitative analysis to more fully explain the specific structure of general education at colleges of health science. In this exploratory follow-up, the researcher plans to examine general education structure through interviews with leaders of general education at six colleges of health sciences that offer general education courses

2. Describe the methods and procedures.

Describe the data collection procedures and what participants will have to do. Participants will participate in a telephone interview consisting of three overarching questions related to the structure of general education at your college. Additional probing questions will be asked as appropriate. The interview will be audio-taped for transcription.

How long will this take participants to complete? Participation in this interview will require approximately 45- 60 minutes.

Will follow-ups or reminders be sent? If so, explain. Participants will have the opportunity to review the transcript and notes from the interview to confirm the information is correct and will be invited to provide clarification; however, no additional interviews will be required.

3. Describe recruiting procedures.

How will the names and contact information for participants be obtained? The population under investigation is institutions of higher education in the United States with the Carnegie Foundation for the Advancement of Teaching (2009) classification "Spec/Health: Special Focus Institutions--Other health professions schools." Six leaders of general education will be selected from this population based upon the criteria of their institutions offering baccalaureate degrees and their own general education courses, and randomly selected from the following models: core, major-dominated, distribution and mixed. Their names and contact information will be obtained from college catalogs and websites.

How will participants be approached about participating in the study? The participants will be emailed a request to participate that includes the informed consent form. Non-responders will be contacted by telephone to request participation.

****Please submit copies of recruitment flyers, ads, phone scripts, emails, etc.**

4. Describe Benefits and Risks.

Explain the benefits to participants or to others. If interested, participants will receive a copy of this study's findings. Participants may find the results of this study validate the structure and of general education at their colleges and educate faculty, administrators and students about general education. The study may also provide insight into alternative approaches that may prove beneficial to implement and may prove helpful in educating accreditation visitors who do not have experience in evaluating single focus institutions about the unique structure of general education inherent in these types of institutions.

Explain the risks to participants. What will be done to minimize the risks? If there are no known risks, this should be stated. There are no known risks or discomforts associated with this research. In the event of problems resulting from participation in the study, psychological treatment is available on a sliding fee scale at the UNL Psychological Consultation Center, telephone (402) 472-2351.

5. Describe Compensation. Will compensation be provided to participants? Yes No

√

If 'Yes', please describe amount and type of compensation, including money, gift certificates, extra credit, etc.

6. Informed Consent

How will informed consent/assent be obtained? Informed consent will be obtained using an informed consent form that will be faxed or emailed to the participant as an attachment. The form will be returned to the researcher in the same manner.

****Please attach copies of informed consent forms, emails, and/or letters. Please refer to the last page for a checklist of the information that needs to be included in the informed consent document.**

7. Describe how confidentiality will be maintained.

How will confidentiality of records be maintained? Any information obtained during this study which could identify participants will be kept strictly confidential.

Will individuals be identified? Aliases will be used to protect privacy.

How long will records be kept? Records will be kept for a period of five years.

Where will records be stored? Records will be kept in a password-protected account.

Who has access to the records/data? Due to the password protection, only the researcher has access to records/data.

How will data be reported? All personally identifiable information will be removed from the study narrative.

If transcriptions are required, how will transcriptions be handled? Who is doing the transcriptions? The interview recording will be transcribed verbatim by the researcher and the recording will be erased after transcription.

8. Copies of questionnaires, survey, or testing instruments.

Please list all questionnaires, surveys, and/or assessment instruments/measures used in the project. Interview questions:

1. How would you describe the purpose of your general education curriculum structure?
2. How is the required general education curriculum structure decided upon?
3. How specific is the content in your general education courses to the healthcare majors?

Checklist for the Informed Consent Form (cover letter, email, etc): Basic information that must be included

Project Description

yes	Is the project title identified?
yes	Is it stated that the study involves research?
yes	Purpose of the research?
yes	How long will it take to participate?
yes	Why participant was selected?
adult	Is the age of participant stated (under 19 needs parental consent)?
yes	Are procedures described?
telephone	Where will it take place?
n/a	Are experimental procedures identified? (include if applicable)

Risks, Benefits, and Alternatives

no, yes	Are risks and discomforts to participants explained? If no risks, does it say no known risks?
n/a	If there are risks, what will be done to minimize the risks? Referrals?
yes	Are benefits to participants and to others that might be expected from the research explained?
n/a	Are alternative procedures or course of treatment that might be advantageous to the participant identified?
n/a	If the study offers course credit, are alternative ways to earn the credit explained?

Confidentiality

yes	Will confidentiality of records identifying participant be maintained?
yes	How will data be reported: scientific journal, professional meeting, aggregated data?

Compensation

no	Is compensation offered?
n/a	Are medical treatments available if injury occurs?
n/a	Who will pay for treatments (participant or department)?
yes	What conditions would exclude participant from participating?

Right to Ask Questions

yes	Is it stated that participants have a right to ask questions and to have those questions answered?
yes	Are the names & phone numbers of persons to contact for answers to questions about the research provided?
yes	Does it state who to contact concerning questions about research participants' rights, "Sometimes study participants have questions or concerns about their rights. In that case you should call the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965."

Freedom to Withdraw

yes	Does it state, "You are free to decide not to participate in this study. You can also withdraw at any time without harming your relationship with the researchers or the University of Nebraska-Lincoln."
yes	Does it state participation is voluntary?

APPENDIX E

SOLICITATION EMAIL TO PARTICIPATE IN STUDY

Dear _____,

I am contacting you as an administrator who oversees general education at a health sciences college to see if you would be interested in being interviewed for my study *General Education in Health Science-focused Institutions: An Explanatory Mixed Methods Study* (see study introduction copied below). I am conducting this research for my dissertation to complete a doctoral degree in higher education administration at the University of Nebraska- Lincoln.

If you are interested in participating, please do the following:

1. Review and complete the attached consent form and return it to me, Peggy Rosario, either via email attachment (pkrosari@lancastergeneralcollege.edu) or fax (717-544-5970).
2. Identify the best time for our telephone interview. The times below are start times and since the interview will take between 45 and 60 minutes, please take that into account when you are choosing a time. If you prefer evening hours, please suggest which days would work best for you so that I can identify what time works for both of us. Also, be sure to indicate your time choice with a time zone since some of my interviews cross time zones.
3. Please send me the telephone number that you would like me to call for our interview.

Excerpt from Introduction to Study

General education is an essential component of a college education, but its integration with health sciences professional education creates challenges. According to Ratcliff, Johnson, LaNasa & Gaff (2001), “students perceive that general education does not contribute to career success, whereas majors do” (p. 15). General education involves “a combination of training in basic proficiency in writing, mathematics, and foreign language and a sampling of humanities, social sciences, and natural sciences” (Stevens, 2001, p. 166-167). In health science-focused institutions, the major and general education requirements dictated by program accreditation have a significant impact on the common general education requirements (Stark & Lattuca, 1997, p. 165).

The purpose of the study will be to describe the structure of general education at baccalaureate colleges of health science in relationship to Bergquist’s Career-Based Model of curriculum using an explanatory sequential mixed methods approach. First, the structure will be investigated quantitatively and then further insight will be obtained qualitatively. In the first quantitative phase of the study, college catalogs and websites will be evaluated to identify how prescriptive the general education requirements are at colleges of health sciences. The second, qualitative phase will be conducted as a follow up to the quantitative analysis to more fully explain the specific structure of general education at colleges of health science. In this exploratory follow-up, the researcher plans to examine general education structure through interviews with leaders of general education at six colleges of health sciences that offer general education courses.

References

- Ratcliff, J.L., Johnson, D.K., LaNasa, S.M., & Gaff, J.G. (2001). *The status of general education in the year 2000: Summary of a national survey*. Washington D.C.: Association of American College and Universities. (ERIC Document Reproduction Service No. ED463684).
- Stark, J.S. & Lattuca, L.R. (1997). *Shaping the college curriculum: Academic plans in action*. Boston, MA: Allyn and Bacon.
- Stevens, A.H. (2001). The philosophy of general education and its contradictions: The influence of Hutchins. *The Journal of General Education*, 50(3), 165-191.

Thank you for your consideration of this request. I hope to hear from you soon.

Peggy Rosario

APPENDIX F

QUALITATIVE INTERVIEW CODE REPORT FROM HYPERRESEARCH

Code	Total	Min	Max	Mean	Std Dev	Bar Graph
	0	0	0	0	0	
Collaboration	5	0	1	0.833	0.408	
Communication	5	0	1	0.833	0.408	
Concern- assessment	1	0	1	0.167	0.408	
Concern- budget	2	0	2	0.333	0.816	
Concern- credits too specific or limit the major ones	6	0	2	1	0.894	
Concern- lack of relevance	9	0	5	1.5	1.975	
Concern- planning	4	0	2	0.667	1.033	
Concern- recruitment	4	0	3	0.667	1.211	
Concern- transfer students weak	3	0	2	0.5	0.837	
Concern- transferability of courses	7	0	3	1.167	1.169	
Concern- writing	4	0	2	0.667	0.816	
Creative solution	3	0	3	0.5	1.225	
Driven by accreditation	8	0	2	1.333	0.816	
Driven by Gen Ed	3	0	2	0.5	0.837	
Driven by major	43	3	13	7.167	4.021	
Driven by state	3	0	1	0.5	0.548	
Driven by students	7	0	2	1.167	0.753	
Established practice	2	0	2	0.333	0.816	
Integration- Gen ed with major	36	4	10	6	2.449	
Model- core	11	1	4	1.833	1.169	
Model- distribution	8	0	4	1.333	1.366	
Model- Major-dominated	9	0	3	1.5	1.049	
Outcomes first	3	0	3	0.5	1.225	
Strength- accreditation balance	1	0	1	0.167	0.408	
Strength- broadens curriculum	5	0	2	0.833	0.983	
Strength- flexibility	2	0	2	0.333	0.816	
Strength- integrative	5	0	3	0.833	1.169	
Strength- needed skills	4	0	2	0.667	0.816	
Strength- scheduling	1	0	1	0.167	0.408	
Strength- student outcomes	3	0	1	0.5	0.548	
Transferability ensured	4	0	1	0.667	0.516	
Transition to core	5	0	3	0.833	1.329	
Transition to higher degree	4	0	1	0.667	0.516	

APPENDIX G

QUALITATIVE THEMES BASED ON CODES: SPECIFIC AND GENERAL

Code	Theme
Collaboration	Specific
Concern- lack of relevance	Specific
Concern- Limits major credits	Specific
Concern- recruitment	Specific
Concern- transferability of courses	Specific
Concern- writing	Specific
Integration- Gen ed with major	Specific
Strength- integrative	Specific
Strength- needed skills	Specific
Strength- broadens curriculum	General
Strength- flexibility	General
Transferability ensured	General

APPENDIX H

QUALITATIVE THEMES BASED ON CODES:

PRESCRIPTIVE AND NON-PRESCRIPTIVE

Code	Theme
Driven by accreditation	Prescriptive
Driven by major	Prescriptive
Driven by state	Prescriptive
Established practice	Prescriptive
Model- core	Prescriptive
Model- Major-dominated	Prescriptive
Transition to core	Prescriptive
Driven by Gen Ed	Non-prescriptive
Driven by students	Non-prescriptive
Model- distribution	Non-prescriptive
Outcomes first	Non-prescriptive