EXAMINING PROFESSIONAL STEREOTYPES IN AN INTERPROFESSIONAL
EDUCATION SIMULATION EXPERIENCE

by

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A DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
in the Department of Educational Leadership, Policy,
and Technology Studies
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2014
Health professions educators are answering the call for interprofessional education (IPE) because it has been shown to enhance collaborative care in practice, thereby improving patient outcomes. IPE also provides a platform for early professional socialization, potentially affecting the accuracy of stereotypes among pre-professional students. The purpose of this study is to implement an interprofessional simulation with nursing, respiratory therapy (RT), and speech language pathology (SLP) students, and using the Student Stereotype Rating Questionnaire (SSRQ), evaluate how an IPE simulation approach may alter stereotypes that learners carry with them related to themselves and professions other than their own. Using the SSRQ, which examines perceptions based on nine professional characteristics, participants were asked to rate the extent to which they believe the attributes apply to either their own profession (autostereotypes), other professions (heterostereotypes), or their own profession as seen by others (perceived autostereotypes). A quasi-experimental pretest-posttest design was used, and descriptive statistics were analyzed. Participants were also asked rate their impressions of the IPE experience. Results showed a significant difference from pre-IPE simulation to post-IPE simulation in nursing heterostereoptype, autostereotype, and perceived autostereotype scores. No significant difference was seen in heterostereotypes of RT and SLP students pre-IPE simulation to post-IPE simulation. Major findings, limitations, implications for health professions education, conclusions, and recommendations for research are presented.
DEDICATION

To Mark

Husband, Friend, Champion

Thank you for your steadfast support, timely reassurances, and always

Gospel-centered guidance. I love you.
**LIST OF ABBREVIATIONS AND SYMBOLS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
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<tr>
<td>IPE</td>
<td>Interprofessional Education</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>HP</td>
<td>Health Professions</td>
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<td>SLP</td>
<td>Speech Language Pathologist</td>
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<td>SSH</td>
<td>Society for Simulation in Healthcare</td>
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<td>SP</td>
<td>Standardized Patient</td>
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<td>ASPE</td>
<td>Association of Standardized Patient Educators</td>
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<td>SSRQ</td>
<td>Student Stereotype Rating Questionnaire</td>
</tr>
<tr>
<td>TJC</td>
<td>The Joint Commission</td>
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<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
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<td>ITOSCE</td>
<td>Interprofessional Team Objective Structured Clinical Examination</td>
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<tr>
<td>SACS</td>
<td>Southern Association of Colleges and Schools</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>MANOVA</td>
<td>Multivariate Analysis of Variance</td>
</tr>
<tr>
<td>G*</td>
<td>Test Statistic</td>
</tr>
<tr>
<td>AHN 447</td>
<td>Adult Gerontologic Nursing (a nursing course)</td>
</tr>
<tr>
<td>USACON</td>
<td>University of South Alabama College of Nursing</td>
</tr>
<tr>
<td>USA</td>
<td>University of South Alabama</td>
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<tr>
<td>IV</td>
<td>Independent Variable</td>
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<td>DV</td>
<td>Dependent Variable</td>
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</tbody>
</table>
ACKNOWLEDGEMENTS

I would first like to thank the “faculty champions,” Dr. Julie Estis (speech language pathology), Dr. Theresa Wright (nursing), and Mr. Bill Pruitt (respiratory therapy) that made this interprofessional study possible. Your creative thinking and enthusiasm for teaching made this project enjoyable, and one that I hope we can continue to replicate and refine.

Thank you to the committee, Dr. Rick Houser, Dr. Vivian Wright, Dr. Kay Sackett, Dr. Heather-Carter Templeton, and Dr. Julie Estis for your seasoned advice and valuable feedback throughout the course of this study.

Thank you, Anjie Davis, for your unwavering ability to think positively, provide timely encouragement, and most of all, make me laugh. When we started this journey in August 2010, we barely knew each other. You are now both colleague and friend, and I am so grateful.

Thank you to my mother, Ruth, and sisters, Elizabeth and Katherine, for reinforcement in the form of babysitting, cooking, cleaning, transporting, and just generally helping. Your servants’ hearts make me proud to call you family.

Finally, to my precious daughter Katie-Ruth, thank you living the sacrifice of what it means to have a mommy in graduate school. You have been a remarkable cheerleader and incredible helper. I love you.
CONTENTS

ABSTRACT.........................................................................................................................ii
DEDICATION....................................................................................................................iii
LIST OF ABBREVIATIONS AND SYMBOLS.................................................................iv
ACKNOWLEDGEMENTS..............................................................................................v
LIST OF TABLES.............................................................................................................x
LIST OF FIGURES..........................................................................................................xi
CHAPTER I INTRODUCTION.............................................................................................1
  CONCEPTUAL FRAMEWORK......................................................................................2
  PROBLEM STATEMENT..............................................................................................4
    Positive and Negative Stereotypes............................................................................4
    Stereotypes and Collaborative Care.........................................................................5
  PURPOSE STATEMENT..............................................................................................6
  RESEARCH QUESTION AND HYPOTHESIS...........................................................6
  KEY DEFINITIONS.....................................................................................................7
  SIGNIFICANCE...........................................................................................................9
    Research..................................................................................................................9
    Education...............................................................................................................10
    Practice................................................................................................................10
CHAPTER II REVIEW OF THE LITERATURE...................................................................12
  INTERPROFESSIONAL EDUCATION.........................................................................12
    Need.....................................................................................................................12
    Assessment..........................................................................................................13
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Definitions of Stereotypes</td>
<td>8</td>
</tr>
<tr>
<td>Table 2</td>
<td>Instruments that Measure Stereotypes/Attitudes of Health Professions</td>
<td>19</td>
</tr>
<tr>
<td>Table 3</td>
<td>Faculty Champions for the Interprofessional Education Simulation</td>
<td>23</td>
</tr>
<tr>
<td>Table 4</td>
<td>Student Professional Groups Completing the SSRQ Pre and Post Simulation</td>
<td>25</td>
</tr>
<tr>
<td>Table 5</td>
<td>Research Questions, IV, DV, and Statistical Analysis</td>
<td>32</td>
</tr>
<tr>
<td>Table 6</td>
<td>Summary of Paired Samples Statistics for Nursing Autostereotypes</td>
<td>34</td>
</tr>
<tr>
<td>Table 7</td>
<td>Summary of Paired Samples Statistics for Nursing Heterostereotypes</td>
<td>35</td>
</tr>
<tr>
<td>Table 8</td>
<td>Summary of Paired Samples Statistics for RT Heterostereotypes</td>
<td>35</td>
</tr>
<tr>
<td>Table 9</td>
<td>Summary of Paired Samples Statistics for SLP Heterostereotypes</td>
<td>36</td>
</tr>
<tr>
<td>Table 10</td>
<td>Summary of Paired Samples Statistics for Nursing Perceived Autostereotypes</td>
<td>37</td>
</tr>
<tr>
<td>Table 11</td>
<td>Summary of Student Group Impressions</td>
<td>37</td>
</tr>
<tr>
<td>Table 12</td>
<td>Summary of Total Participant Impressions</td>
<td>38</td>
</tr>
<tr>
<td>Table 13</td>
<td>Participant Impressions Question</td>
<td>38</td>
</tr>
<tr>
<td>Table 14</td>
<td>Demographics</td>
<td>39</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

1. MUSC Conceptual Framework for Interprofessional Education..........................3
CHAPTER I:
INTRODUCTION

There is a needed and growing transformation in healthcare for professionals to collaborate with one another for improved patient care (IPEC, 2011). Even as all the body’s parts work together, so specialists in their fields can work together and accomplish more improved patient outcomes that no single health professional can. For most health professionals, collaboration must be learned, as it does not come naturally for individuals who choose these professions. That education is called Interprofessional education (IPE) and it is defined as “when students from two or more professions learn about, from, and with each other, to enable effective collaboration and improve health outcomes” (World Health Organization [WHO], 2010, p. 7).

In recent years, health professions (HP) educators have been answering the call of the Institute of Medicine, accrediting bodies, and other advisory councils for students to be prepared for purposeful collaboration, with the shared objective of constructing a more patient-centered and community-oriented healthcare system. Promoting IPE in health science education is gaining widespread interest and many professionals agree that a transformation of HP education is taking place (Interprofessional Education Collaborative [IPEC], 2011).

Even needed change brings implementation changes. In HP education, barriers to IPE may present themselves in many ways. These include, but are not limited to institutional challenges, faculty development issues, assessment concerns, and existing perceptions (IPEC, 2011). “Existing perceptions” refers to dissimilarities among the disciplines, and how these disparities may pose a challenge to the health delivery arena. While it is effective to have a
variety of experts consulting in the care of a patient, for those experts to remain fragmented due to dissimilarity and misunderstandings, becomes ineffective and unsafe (Margalit et al., 2009).

Edmonson and Roloff (2009) refer to these HP differences as “variety diversity” (p. 183). Because of the abundance of professional differences in an ever-evolving healthcare system, stereotyping of professional roles, both positive and negative, has a very real existence among health professionals (Hean, in press). For HP students, attitudes and ideas are formed through socialization and how other professions are represented inside their training. These stereotypes may be accurate or inaccurate (Hean, 2006a). Psychologists Siy and Cheryan (2013) categorize these stereotypes as positive or negative.

By the time students become practicing health professionals, stereotypical beliefs and attitudes may be rooted (Hean, 2006a). Therein lies the challenge for HP educators: position groundwork in training that will enhance the accuracy of professional stereotypes and nurture attitudes that value professional diversity. Professional socialization begins in HP education (Thistlethwaite, 2012). Early participation by students in IPE can help to lay a foundation for collaborative practice that will continue into their respective disciplines, and ultimately create a safer healthcare system for patients and families (Dillon, Noble, & Kaplan, 2009).

Conceptual Framework

The framework used in this study is the Medical University of South Carolina (MUSC) conceptual framework for advancing IPE (MUSC, 2007). MUSC’s illustration of a “learning spiral” (see Figure 1) is conceptualized around two domains: building teamwork competencies and transforming ways of knowing. The framework draws from three different learning theories, mostly centered on adult learning. Within each loop of the spiral, three phases of learning—
acquisition, application, and demonstration—flow into one another, illustrating a learner’s
development from basic to increasing complexity (IPEC, 2011).

Building team work competencies are a fundamental premise of the model, and students
move through four key phases on their journey to becoming healthcare professionals (MUSC,
2007). The first phase, prepare self as team member, is where this study is focused. The MUSC
(2007) framework illustrates that learners must prepare themselves to be part of the healthcare
team and become cognizant of the fact that they carry with them stereotypes, beliefs, and
attitudes of other professionals which may hinder or enhance collaborative education and
practice (Blue, Mitcham, Smith, Raymond, & Greenberg, 2010). A greater understanding of not
just one’s own role, but others’ roles, on the patient care team will aid learners in progressing
through the ways of knowing which will ultimately create a collaborative care environment for
healthcare delivery.

**Conceptual Framework for Advancing Interprofessional Education**

![Conceptual Framework](image)

**Figure 1:** Retrieved from Creating Collaborative Care: A Quality Enhancement Plan (Medical
University of South Carolina, 2007).
Problem Statement

Stereotypes among the disciplines have potential to erode mutual respect and inhibit the ability to work as a collaborative team. Collaborative care is defined as practicing health professionals working in teams and has been shown to be effective in providing safer, higher-quality patient care (Blue et al., 2010). While diverse teams can be effective teams, the ability to understand and appreciate one another’s differences underpins the idea of collaborative care (Edmonson & Roloff, 2009). The major issues related to this study are: (1) inaccurate stereotypes exist among practicing health professionals, and (2) these existing stereotypes set a precedent for being unsafe and non-collaborative.

Positive and Negative Stereotypes

Merriam-Webster (2012) dictionary defines stereotypes as standardized mental pictures held in common by members of a group, and that represent oversimplified opinions, prejudiced attitudes, or judgments. Each health profession is its own culture, with values, customs, and behaviors unique to itself, but obscure to those outside. Some stereotypes that exist may be related to the historical context in which that profession was shaped, for example, medicine has a tradition of being the authoritative in nature, and therefore, medical students may be viewed as obstinate (Hall, 2005).

These stereotypes are further disseminated when members of that culture enter healthcare as practitioners. Then commonly held beliefs are being carried into practice, and have the potential to become reality. Negative attitudes held by health professionals may generate false expectations, and therefore affect the ability to work as a team in providing patient care (Hean, 2006a). For example, the stereotype that nurses do what physicians order, no questions asked,
harbors feelings of inadequacy and poor self-image, thereby affecting the nursing profession’s ability to make meaningful contributions to the healthcare team.

Positive stereotypes also exist among health professionals. For example, all nurses are caring. While other health professionals may feel virtuous about making such a statement, this positive stereotype can leave the nurse feeling categorized and ultimately, depersonalized (Siy & Cheryan, 2013). In a series of five studies by Siy and Cheryan (2013), individuals who were subjects of positive stereotypes reported it as being a negative interpersonal experience and interfering with their desire to be seen as persons separate from the group.

Stereotyping is a natural human process which can be either positive or negative. What is fundamental is that HP students find exactness. Through IPE, and subsequent early socialization, students may find both fact and fiction in previously held impressions of themselves and other HP groups (Haslam, 2002).

**Stereotypes and Collaborative Care**

The ultimate goal of interprofessional learning is collaborative practice, which has been shown to have positive effects in terms of patient health outcomes (IPEC, 2011). Interdisciplinary collaboration improves professional interactions and causes value-added work flow, thereby enhancing patient safety and creating high-quality patient care (Blough & Walwrath, 2007). Inaccurate stereotypes can constrain practicing health professionals’ ability to work as a team, thereby undermining the patient’s access to the safest care possible. While IPE does not seek to create undiversified teams, it does seek to generate a platform that allows for understanding and appreciation of health professionals’ differences (Edmonson & Roloff, 2009).
Purpose

The purpose of this study was to implement an interprofessional simulation using students from nursing, respiratory therapy (RT), and speech language pathology (SLP) disciplines, using the Student Stereotype Rating Questionnaire (SSRQ) (see Appendix A) to evaluate how an IPE approach may change stereotypes that learners carry with them related to themselves and professions other than their own. One goal of early participation in IPE of HP students is to bring about early socialization, which has the potential to enhance the accuracy of stereotypes among the disciplines (Hall, 2005). In addition, the simulation activity served to augment mastery content related to the care of tracheostomy patients with speaking valves, assist students in participating in teamwork among the disciplines, and enhance professional role development. Results of the study are useful in building future IPE activities among health sciences students.

Research Question and Hypothesis

Three research questions guided this study. The study answered the following questions:

Is there a difference in:

1. Autostereotypes of nursing students, as measured by the SSRQ, after an IPE approach using simulation?
2. Heterostereotypes of student professional groups nursing, RT, and SLP, as measured by the SSRQ, after an IPE approach using simulation?
3. Perceived autostereotypes of nursing students, as measured by the SSRQ, after an IPE approach using simulation?

The null hypotheses were:
1. There is no difference in autostereotypes of nursing students after an IPE approach using simulation.

2. There is no difference in heterostereotypes of student professional groups nursing, RT, and SLP, after an IPE approach using simulation

3. There is no difference in perceived autostereotypes of nursing students after an IPE approach using simulation.

**Key Definitions**

The term *interprofessional education* presented itself continually throughout this study. IPE is “when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes” (WHO, 2010). Other terms such as *interprofessional teamwork* and *interdisciplinary care* are used interchangeably, but the term IPE has become the most widely accepted in HP education.

The contrary term to IPE is *uniprofessional education*. Uniprofessional education is when students learn together as a single group. While uniprofessional education does help to achieve the knowledge, skills, and behaviors required for patient care, its outcomes are somewhat different when compared to IPE. Interprofessional learning prepares students for deliberately working together, in order to provide high-quality, safer patient care as compared to traditional teaching methodology (IPEC, 2011).

The term *stereotyping*, or *stereotypes*, will be used frequently throughout this paper. Stereotypes are commonly held beliefs of a specific group, made by a different group of individuals. It typically represents oversimplified opinions, critical or non-critical judgments, or prejudiced attitude. Carpenter (1995) developed the terms *autostereotype*, *heterostereotype*, and *perceived autostereotype*, and for the purposes of this study, they are defined in Table 1.
Table 1

*Definitions of Stereotypes*

<table>
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<tr>
<th>Stereotype</th>
<th>Definition</th>
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<tr>
<td>Autostereotype</td>
<td>belief or attitude about one’s own profession</td>
</tr>
<tr>
<td>Heterostereotype</td>
<td>belief, attitude, or perception about a profession different from one’s own</td>
</tr>
<tr>
<td>Perceived Autostereotype</td>
<td>belief or attitude about one’s own profession as seen by others</td>
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The term *simulation* will be used frequently throughout this paper. In HP education, simulation is the bridge between classroom learning and real-life clinical experiences for the purpose of education, assessment, research, and health system integration in facilitation of patient safety (Society for Simulation in Healthcare [SSH], 2012). A simulation debrief, commonly called *debrief*, is a time set aside after a simulated scenario to summarize the event, including, but not limited to, suitable actions, questionable decisions, and how participants worked together as a team. It serves to identify and close gaps in the learning process, as well as provide a safe forum for participants to share openly about mistakes made, and difficulties encountered during the scenario (Raemer et al., 2011).

A form of simulation using *standardized patients* (SPs) also exists inside HP education. A standardized patient is an individual who has been trained to simulate a role within a patient scenario, whether that is the actual patient, a family member, or a healthcare provider. SPs may be used as practice models for health assessment, and they are involved in assessment and feedback of a learner’s abilities or services (Association of Standardized Patient Educators [ASPE], 2013). In this study, SPs were used as family members in order to enhance the reality of
the clinical atmosphere and serve as a platform in which the students could demonstrate their patient and family education skills.

*Collaborative practice* is a term used throughout the paper, and it is a by-product of IPE. The WHO (2010) defines collaborative practice as multiple health workers from different professional backgrounds working together with patients, families, and communities to deliver the highest quality of care. Collaborative practice is becoming a common goal of healthcare institutions, and is thereby affecting HP education.

**Significance**

There are various significances of this study. Each serves to inform HP research, education, and practice. The study contributed to a growing body of research on IPE in HP education. It also created an opportunity for students to experience early professional socialization, and provided a chance to enhance collaborative care which will ultimately improve patient outcomes.

**Research**

Throughout the literature runs the constant theme of needing further research in all areas of IPE in HP education. Clarke (2006) addresses the need for IPE research to inform theoretical framework. Two articles (Curran et al., 2009; Curran, Mugford, Law, & MacDonald, 2005) sought to develop tools to evaluate the effectiveness of IPE. Both articles emphasized the need for research which tests the validity and reliability of the tools. In the case of this study, the Student Stereotype Rating Questionnaire (SSRQ) was further validated, as it was the fourth time the tool has been used among HP students to examine professional stereotypes (Ateah et al., 2011; Bell & Allain, 2011; Hean et al., 2006a, 2006b; Robben et al., 2012).
**Education**

Students learning through IPE absorb more than the content; they learn to develop an understanding of professional roles and backgrounds while practicing communication and conflict management (Clarke, 2006). Systemic reviews of IPE reflect that it fosters positive interactions and improves attitudes; however, the need exists for educators to find ways to measure learning outcomes within IPE (Thistleton, 2011). This study examined how IPE can enhance the accuracy of stereotypes among a sample group of interdisciplinary students, an opportunity that fails to present itself in uniprofessional education.

**Practice**

Historically, RTs, SLPs, and nurses are trained separately and function independently. However, collaboration among these disciplines is essential for optimized patient care and patient communication, particularly for management of tracheostomy patients who need speaking valves (Baumgartner, Bewyer, & Bruner, 2008). In a study by de Mestral et al. (2011), they examined care of critically ill tracheostomy patients by an interdisciplinary team comprised of physicians, RTs, SLPs, and nurses, and they noted significantly decreased tracheostomy-related complications and increased placements of speaking valves with collaborative versus independent care.

Use of speaking valves in patients with a tracheostomy restores the patient’s ability to communicate by vocalization. In addition to physiologic benefits (e.g., improved cough, reduced risk of infection, improved swallowing, and reduced risk of aspiration), speaking valves are associated with improved quality of life, decreased level of patient fear, and improved self-advocacy in care (de Mestral et al. 2011). The Joint Commission (TJC) (2008) clearly outlines responsibilities of hospitals and caregivers to provide optimal patient communication, however
care is often focused only on physiologic needs. RTs and nurses are often unaware of communication options for tracheostomy patients. SLPs, responsible to assess and treat communication and swallowing in tracheostomy patients, rely on RTs and nurses to ensure physiologic readiness for speaking valve placement (Baumgartner et al., 2008).
CHAPTER II:

REVIEW OF THE LITERATURE

In order to examine the literature surrounding the significance of IPE in HP education, and how it is related to stereotypes that exist among health professionals, three major areas of the literature were reviewed. The first section of this literature review focuses on the meaning of IPE and its role in HP education. Although this is not intended to be an exhaustive review, it provides an understanding of IPE within a pedagogical context. The second section is a review of utilization of simulation within IPE in HP education. The third section narrows the research to stereotyping within IPE, including instruments and tools.

Interprofessional Education

Using the CINAHL, PubMed, Scopus, ERIC, and MEDLINE Plus research databases, an extensive search was done on IPE in HP education. Keywords used included *interprofessional education, interdisciplinary learning, health professional students, collaborative practice, and health professions education*. From the studies that have been reviewed, some of which contained their own synthesis of the IPE literature, four major themes presented themselves. The themes are: (1) the comprehensive need for IPE in HP education, (2) assessment of IPE, (3) faculty development for IPE, and (4) theory to guide the pedagogy itself.

**Need for IPE in Health Professions Education.** The immense realization of the complexity and fragmentation of the healthcare environment is most likely how the IPE movement began. The WHO released a report in 1988 entitled *Learning Together to Work Together for Health*. Several authors begin their studies citing this report (Baker et al., 2008; Hertweck et al., 2012; Lidskog, Lofmark, & Ahlstrom, 2008; Thistlethwaite, 2012). The WHO report concentrated on the need for IPE in HP programs and called for a global change toward
IPE in order to improve the quality of healthcare delivery (Rodger & Hoffman, 2010). Similarly, the Institute of Medicine (IOM) released a report in 2003 entitled *Health Professions Education: A Bridge to Quality*. In it, the IOM summoned both HP students and practitioners to develop and uphold five core competencies for “working in interdisciplinary teams” and focusing on quality improvement outcomes for patients. In this literature, several authors cited the IOM (2003) as a rationale for HP programs to purposefully engage in IPE (Kyrkjebo, Brattebo, & Smith-Strom, 2006; Lidskog et al., 2008; Margalit et al., 2009).

Justification for IPE has come from the acknowledgement that healthcare teams who practice collaboratively create a culture of quality and safety (Nisbet, Hendry, Rolls, & Field, 2008). This systems-based approach to care has surpassed its days of popularity, and has progressed into categorical necessity. Collaborative practice is essential, especially in the United States where healthcare ranks uncomfortably low among developed nations (Margalit et al., 2009).

**Assessment of IPE.** A common theme was identified in studies related to IPE in that the authors cited the need for more comprehensive assessment approaches and tools; largely they acknowledge that empirical evidence is needed to support the use of IPE over uniprofessional education (Gough, Hellaby, Jones, & MacKinnon, 2012; Reeves, 2009; Thistlethwaite, 2012). Completed research has focused mostly on learner readiness, attitudes, knowledge attainment, and skill development (Nisbet et al., 2008). As more HP training programs move toward competency-based curriculum, the ability to evaluate effectiveness of pedagogical tools and interventions will become fundamental (Curran et al., 2009). IPEC (2011) contends that evaluation of interprofessional competencies signifies the “next step” in the expansion of IPE, and admits that evaluative development is still in the early stages.
In a research report by Curran et al. (2009), an assessment rubric was created for the evaluation of collaborative competencies. A format called the Interprofessional Team Objective Structured Clinical Examination (ITOSCE) is proposed for use in a pan-Canadian IPE study. Authors anticipate that the study will allow the development of two evaluation tools in both French and English that will measure performance criteria and behavioral indicators (Curran et al., 2009). Tools such as the ITOSCE are what the pedagogy needs to further substantiate its value in teaching, learning, and HP practice.

As previously mentioned, there is a large body of evidence related to the assessment of learner readiness, attitudes, knowledge, and skills within IPE (Nisbet et al., 2008). Those studies do not go undeserved. Findings have reflected that IPE enhances attitudes toward collaborative care, attitudes that are necessary for effective teamwork and the confidence needed to provide interprofessional care to patients (Curran et al., 2005; Pollard & Miers, 2008). This study serves to contribute to the body of evidence related to learners’ knowledge of HP roles, specifically perceptions and beliefs of role characteristics of HP other than their own.

**Faculty Development in IPE.** A concern exists related to development and maintenance of IPE in HP education programs; faculty may or may not be adequately prepared and trained (Reeves, 2009). Because the process of interprofessional learning is so different from traditional teaching methodologies, HP faculty require preparation and training in order to be effective interprofessional educators (IPEC, 2011). For the most part, little is known about what support is required so that faculty can effectively facilitate interprofessional learning (Reeves, 2009). In a study by Bennett et al. (2011), perceptions of IPE by nursing and allied health faculty were examined. Some central factors were identified by faculty that will help lead to the success of
IPE within an institution. Those factors included organizational support including adequate funding, dedicated leadership, and an IPE-based curriculum (Bennett et al., 2011).

Lack of institutional support is a shared barrier to having effectively trained faculty to implement and sustain IPE. Common among institutions that have developed systemic programs for IPE is administrative support from top leadership (IPEC, 2011). MUSC is an example of systemic IPE integration that began in 2007 (Blue et al., 2010). What began as a small IPE initiative years prior, soon turned into genuine institutional IPE culture. In 2005 MUSC was preparing for its Southern Association of Colleges and Schools (SACS) reaccreditation, and submitted as its 10 year quality enhancement plan (QEP) a strategic plan for IPE (Blue et al., 2010). Institutional support allowed faculty to easily embrace and engage in IPE in their classrooms, labs, and clinic settings.

Once institutional support is in place, faculty development programs will help to create sustainability. In a paper by Silver and Leslie (2009), curriculum suggestions, planning guides, teaching tools and strategies are provided for IPE faculty development programs. The authors suggest that successful IPE is dependent on faculty preparation and training, and that organizations must adopt an outcomes-based curricular design in order to obtain quality and longevity (Silver & Leslie, 2009). A positive example for combating faculty development issues is the University of Toronto Centre for Interprofessional Education (IPEC, 2011). The Centre has a comprehensive IPE faculty development program specifically for healthcare leaders that are interested in being catalysts for change in the area of IPE integration (University of Toronto, 2013).

**Theory to Guide IPE.** In a review of the literature, IPE in HP education is experiencing a lack of guidance from theoretical frameworks, in order to guide and inform the pedagogy
Educators have not specifically relied upon theory to influence development of IPE initiatives (Reeves, 2009). Several learning theories to inform IPE in HP education have been suggested in the literature. The theories include, but are not limited to, social identity theory, the ecological approach to team cognition, social learning theory, experiential learning theory, and complexity theory (Clark, 2006; Reeves et al., 2007; Sargeant, 2009). Improved theorizing will lead to effectual educational practice and improved assessment, evaluation, and research (Clark, 2006). This study used the MUSC conceptual framework for advancing IPE (MUSC, 2007). The framework itself draws from several adult learning theories, and it has been useful in building a comprehensive, systems-based IPE program at the MUSC since 2007 (Blue et al., 2010).

**Simulation Utilization in IPE**

The literature was reviewed for themes related to IPE and simulation utilization. Keywords used include *interprofessional education, simulation, and health professions students*. Simmons and Wagner (2009) examined the concept of IPE and assessment of learning. Interestingly, the authors identified simulation as having the potential to be a significant method in the evaluation of learning within IPE. This section will narrow the review to the use of simulation in IPE, its practice, samples used, and common assessments by faculty and learners.

In a review of the literature by Gough et al. (2011), qualitative, quantitative, and mixed method research studies were examined containing the use of interprofessional simulation-based education (IPSE). Overall, 18 articles were included. Gough et al. (2011) discerned common outcomes related to IPSE including improved confidence, knowledge, leadership, teamwork, and communication skills.
Baker et al. (2008) evaluated an IPE approach using simulation focused on student and teacher reactions. The study concluded that IPE using simulation offers an auspicious approach to preparing future healthcare professionals for collaborative practice. Kyrkjebo et al. (2006) found that through an interprofessional simulation training students struggle with roles, capabilities, and skills, especially the skills needed to work as a team. Overall, these studies showed that simulation provides an effective platform for IPE, providing students with valuable learning experiences. Additionally, when learners were surveyed, most wanted more IPE simulation training because it is helpful to reinforce realistic clinical scenarios, and it taught a great deal about how learners perform as members of the healthcare team (Kyrkjebo et al., 2006; Reese, Jeffries, & Engum, 2010).

There were no studies found that reflected IPSE using the specific student groups the proposed study is using; nursing, RT, and SLP. The most comparable sample was from a study by Reeves et al. (2002) using nursing, medical, occupational therapy, and physiotherapy (the United Kingdom’s equivalent of RT) students. It was a mixed methods design in which students completed a questionnaire and semi-structured interviews before, during, and after an interprofessional simulated training ward placement. Results were that students found the IPE activity valuable, and focus group themes included improved communication and teamwork (Reeves et al., 2002).

**Stereotyping and IPE**

The literature was reviewed for themes related to professional stereotyping and IPE. Keywords used include *interprofessional education, stereotyping, professional stereotypes*, and *health professions students*. The concept of stereotyping related to interprofessional interactions first gained importance in the mid-1990’s by Carpenter (1995) in an evaluation of an
interprofessional program for medical and nursing students. Since then, the body of knowledge has expanded to include studies related to a variety of health education students and the concept of stereotyping. Studies such as Ateah et al. (2011) and Robben et al. (2012) examined if characteristics, or perceptions, collected at the time of initial assessment were changed by an IPE experience. Hean et al. (2006a, 2006b) and Bell and Allain (2011) examined stereotypes at baseline, and as a means to begin a discourse about stereotypical assumptions of HP students and how assumptions can impact student learning and IPE. A consistent premise in each study was that learners have attitudes and perceptions about other professional groups, and that IPE has the potential to further develop students’ knowledge of professional roles, thereby exacting stereotypes. Several studies (Barnes et al., 2000; Bell & Allain, 2011; Hean et al., 2006a, 2006b) also examined stereotypes learners carry with them related to their own professional role.

The IPEC (2011) discusses stereotyping in its roles and responsibilities competency, stating that because diversity in the workforce exists, it is necessary to examine pre-existing notions, or stereotypes, and how they may affect IPE. One study (Ateah et al., 2011) suggests stereotyping may become a barrier to IPE, but at the same time it proposes that stereotypes will only serve to enhance patient-centered collaborative care as long as the discourse ensues. Overall, research suggests that more inquiries are needed to understand professional role development, including stereotypes, within IPE. The knowledge that each professional role brings with it certain strengths and weaknesses, and how those roles can complement one another, will help to develop an atmosphere of collaborative and patient-centered healthcare (Suter et al., 2009).

**Stereotype Tools.** Finally, the literature was searched for tools to measure stereotypes among healthcare professionals and HP students. Keywords used include stereotype rating,
stereotype scales, and stereotype questionnaires. Limited rubrics exist for evaluating IPE overall.

In a comprehensive review of IPE and interprofessional collaboration measurements, Thannhauser et al. (2010) determined that most IPE assessments lack adequate theoretical underpinnings and psychometric development. This review was narrowed to finding tools that measure stereotypes, role perception, or participant attitudes toward others, which made limitations even more narrow. The instruments found are featured in Table 2 and include the SSRQ (Hean et al., 2006a, 2006b), the Attitudes to Health Professionals Questionnaire (AHPQ) (Lindqvist, Shepstone, Watts, & Pearce, 2005), and the Role Perception Questionnaire (RPQ) (MacKay, 2004). The SSRQ was selected for this study.

Table 2

*Instruments that Measure Stereotypes/Attitudes of HP Students*

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Reliability</th>
<th>Validity</th>
<th>Sample</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Stereotype Rating Questionnaire (SSRQ)</td>
<td>Test-retest using</td>
<td>Content validity established by</td>
<td>1426 first year students (SW, radiography, podiatry, physiotherapy, pharmacy, OT, nursing, midwifery, medicine, audiology)</td>
<td>5 point scale, 9 items</td>
</tr>
<tr>
<td>Hean, et al., 2006a &amp; 2006b</td>
<td>Pearson’s R</td>
<td>panel of academics, professionals, and students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudes to Health Professionals Questionnaire (AHPQ)</td>
<td>Internal consistency (r=0.87)</td>
<td>Construct exercise with various professionals</td>
<td>(Stage 1)190 first year students, (Stage 2) 160 1st year students (nursing, medicine, OT, pharmacy, midwifery, PT)</td>
<td>20 items, visual analogue scale, one construct with anchors at each end</td>
</tr>
<tr>
<td>Lindqvist et al., 2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Perception Questionnaire (RPQ)</td>
<td>Test-retest (r=0.7)</td>
<td>Content validity verified through consultation with sample group</td>
<td>16 third year students (midwifery, nursing, OT, PT, podiatry, prosthetics and orthotics, radiography, SW)</td>
<td>10 point scale, 20 items</td>
</tr>
<tr>
<td>MacKay, 2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER III:

METHODOLOGY

The research design used was a quasi-experimental pretest-posttest design examining student groups nursing, RT, and SLP. Data collection, by administration of the SSRQ, occurred before and after the IPE simulation experience. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) software and using paired t-tests for within group comparisons. Data collection took place February 2014.

Sample

The sample consisted of 90 nursing students, 22 SLP students, and 20 RT students. All students were enrolled in the professional portion of their respective training programs. G* power is a tool used to compute statistical power analyses for many different statistical tests and helps to decrease the possibility of Type II error (Faul et al., 2009). A post hoc power analysis was done using G* power found at .90 power with medium effect size 0.5. Post hoc power analysis found a power of 0.9989 for the nursing group (n=90), 0.7336 for the RT group (n=22), and 0.6951 for the SLP group (n=20).

The nursing group (n=90) was comprised of students enrolled in the course AHN 447 (Adult-Gerontologic Nursing). All nursing participants were enrolled in a Bachelor of Science in Nursing (BSN) four-year pre-licensure track, and they were accepted into the professional component of the nursing curriculum, which is a five semester program. Participants were in their fourth semester of the professional nursing curriculum. Prerequisite clinical courses for AHN 447 include Foundations of Professional Nursing Clinical, Psychiatric/Mental Health Clinical, and Childbearing/Child Rearing Nursing Clinical (University of South Alabama College of Nursing [USACON], 2013).
The SLP group (n=20) was comprised of students enrolled in a Master of Science in SLP program. The program is a two year course of study, and participants were in their fifth and final semester. Students complete clinical courses throughout the entire program across a variety of settings. Graduate-level SLP students, as opposed to undergraduate speech and hearing sciences students, were chosen due to enrollment in a professional program and course of study. The undergraduate speech and hearing program is foundational, and it is centered on knowledge of basic sciences material. The graduate program includes clinical application and professional expectations, similar to the SLP’s nursing and RT counterparts.

The RT group (n=20) was comprised of students enrolled in a Bachelor of Science in Cardiorespiratory Care program. The program is a four-year course of study, and participants were in their third year, the professional component. Prior to the IPE simulation, students had completed one clinical course entitled Cardiorespiratory Care Practicum, or CRC 342. Skills covered in that course include oxygen therapy, aerosol therapy, bronchial hygiene, introduction to positive pressure ventilation, and arterial blood gas sampling and interpretation (University of South Alabama [USA], 2013).

Students were recruited by means of the simulation being part of their coursework. Typically, simulations occur within each course using a uniprofessional model; for example, nursing would typically participate in a similar scenario independently. Faculty identified the need for an interprofessional model and collaborated. Participation in the study was voluntary, and informed consent was obtained from each student participating in the study (see Appendix B).

Each cohort of students was selected based on prior knowledge, and the ability of that student group to care for the simulated patient. Each student’s ability to have progressed in the
curriculum to a certain point served as an indication of prior knowledge, therefore allowing realistic expectations of patient care. For example, nursing students were recruited from the course AHN 447 based upon that student groups’ ability to care for patients with tracheostomies (USACON, 2013). Nursing students from courses completed earlier in the curriculum would not be appropriate, as they were not be prepared to apply complex treatments to chronically ill patients at that point in their training. The same applied to SLP and RT students; faculty selected those student groups based on their prior knowledge and the students’ curriculum progression.

Procedures

An overview of study procedures is outlined in the following section. A faculty member from each discipline collected data from his or her respective student group by administering the SSRQ and demographic survey before the simulation. Next, students completed a brief 45-minute online training module from home. The IPE simulation and debrief took place with all three student groups, nursing, RT, and SLP (n=132), on February 26, 2014. Immediately following the interprofessional simulation, a post-simulation SSRQ and participant impressions survey were administered. Data analysis took place at the conclusion of these events using paired t-test analysis.

Faculty Involvement. The diffusion of innovations theory (Rogers, 2004) identifies characteristics of individuals that will contribute to the evolution of technology in a particular micro-system. While this study is not about adoption of a new technology, it is addressing the use of a new teaching methodology (IPE) within a social system (HP education at the University of South Alabama). In this study, the use of an IPE approach relies heavily on coordination between four groups of faculty: nursing, SLP, RT, and simulation.
The three individual characteristics Rogers (2004) identifies are disparager, disseminator, and champion. This study utilized the efforts of three champions besides the author. The faculty and corresponding departments and titles are listed in Table 3.

**Table 3**

*Faculty Champions for the Interprofessional Education Simulation*

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alison B. Rudd, MSN, RN</td>
<td>Simulation</td>
<td>Assistant Director of Simulation for the Division of Health Sciences</td>
</tr>
<tr>
<td>Julie M. Estis, Ph.D., CCC-SLP</td>
<td>Pat Capps Covey College of Allied Health Professions</td>
<td>Associate Professor and Graduate Coordinator in the Department of Speech Pathology and Audiology</td>
</tr>
<tr>
<td>Bill Pruitt, RRT, CPFT, AE-C</td>
<td>Pat Capps Covey College of Allied Health Professions</td>
<td>Director of Clinical Education and Senior Instructor in the Department of Cardiorespiratory Care</td>
</tr>
<tr>
<td>Theresa Wright, RN, CCRC, DNP</td>
<td>College of Nursing</td>
<td>Vice Chairman and Assistant Professor in the Department of Adult Health</td>
</tr>
</tbody>
</table>

Faculty involvement in the IPE simulation required a time commitment exceeding normal teaching load. Each of the above listed faculty members is dedicated to furthering the use of IPE within their respective curriculum. Evidence of this includes a divisional grant which was written by these faculty champions, and ultimately funded by the Vice President for the Division of Health Sciences at the University of South Alabama in the fall of 2012. Faculty executed a similar IPE simulation, utilizing the same patient scenario and with comparable student groups, in February 2013.

Because use of the SSRQ for data collection was new, faculty training to administer the SSRQ in this study took place over the course of three meetings – December 17, 2013, January
The author scheduled and led these meetings. During the meetings, logistics for the simulation were reviewed, the SSRQ was introduced and reviewed, demographic data collection was discussed, and the plan for obtaining informed consent and general data collection was examined.

Each faculty champion has utilized the simulation pedagogy in their respective training programs and is informed of simulation best practice as evidenced by direct observation, publication, and curricular integration. Dr. Tootie Wright (nursing) engages her students in approximately four simulations each semester, spring, summer, and fall, for a total of 12 per calendar year. Mr. Bill Pruitt (RT) uses simulation to prepare first-year students for clinical rotations, and in the second year to ascertain preparedness for practice. Dr. Julie Estis (SLP) uses simulation with SLP students to orient them to the critical care environment and with audiology students to prepare them for delivering difficult news to patients and family members.

**Data Collection of Demographics.** In order to identify factors that may affect student perceptions, or stereotypes, of other student professional groups, a brief demographic survey was administered, along with the pre-simulation SSRQ. Pre-simulation demographic and SSRQ data collection took place on February 14, 2014 (RT), the week of February 17, 2014 (SLP), and on February 21, 2014 (nursing). See Appendix C for the demographic questionnaire.

**The Student Stereotype Rating Questionnaire.** The SSRQ (Hean, 2006a & 2006b) was administered to the entire cohort (nursing, RT, and SLP students). Pre-simulation demographic and SSRQ data collection took place on February 14, 2014 (RT), the week of February 17, 2014 (SLP), and on February 21, 2014 (nursing). Post-simulation SSRQ data collection took place on February 26, 2014. Students were asked to rate the following using the questionnaire:
1. Autostereotypes – their own profession (nursing only)
2. Heterostereotypes – other professions in the cohort (nursing, respiratory, and SLP)
3. Perceived Autostereotypes – their own profession as seen by others (nursing only)

After the simulation and debrief, which will took place February 26, 2014, students completed the same questionnaire, also involving autostereotypes, heterostereotypes, and perceived autostereotypes. See Table 4 for an outline of administration of the SSRQ to each student professional group; pre and post simulation.

Table 4

*Student Professional Groups Completing the SSRQ Pre and Post Simulation*

<table>
<thead>
<tr>
<th>Pre-Simulation Professional Groups</th>
<th>Student Stereotype Rating Questionnaire (SSRQ)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autostereotypes</td>
<td>Heterostereotypes</td>
</tr>
<tr>
<td>Student Nurse</td>
<td>Nursing</td>
<td>SLP &amp; Respiratory</td>
</tr>
<tr>
<td>Student SLP</td>
<td>Nursing &amp; Respiratory</td>
<td>Nursing</td>
</tr>
<tr>
<td>Student Respiratory</td>
<td>Swimming</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Post-Simulation Professional Groups</th>
<th>Student Stereotype Rating Questionnaire (SSRQ)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autostereotypes</td>
<td>Heterostereotypes</td>
</tr>
<tr>
<td>Student Nurse</td>
<td>Nursing</td>
<td>SLP &amp; Respiratory</td>
</tr>
<tr>
<td>Student SLP</td>
<td>Nursing &amp; Respiratory</td>
<td>Nursing</td>
</tr>
<tr>
<td>Student Respiratory</td>
<td>Swimming</td>
<td></td>
</tr>
</tbody>
</table>

**Student Preparation for IPE Simulation.** As preparation for the interprofessional simulation, specifically as it relates to clinical benefits of speaking valves, all three professional groups were asked to view an online module entitled *Application of the Passy-Muir Swallowing and Speaking Valves*. Passy-Muir is the brand of speaking valves used in the patient scenario, or simulation. The 45-minute online course allowed learners to be equally prepared on aspects of the Passy-Muir valve including design, clinical indications, types of valves, clinical benefits, and patient assessment (Passy-Muir, 2013). As assurance that each student viewed the online module prior to the IPE Simulation, participants were prompted to complete a 10-question online quiz.
and print the course completion certificate. All students were instructed to bring the course completion certificate with them to the IPE Simulation.

**Interprofessional Simulation.** The IPE simulation occurred on February 26, 2014. Students were given patient information before entering the simulation including patient name, age, gender, admitting diagnosis, and healthcare provider orders. All three professional student groups were expected to function collaboratively to carry out assessments, treatments, and general care of the patient. Students participated in the simulation in groups of four, consisting of two nursing students, one RT student, and one SLP student per group. The simulator iStan (CAE Healthcare, 2012) served as the patient, and standardized patients (ASPE, 2013) served as family members. See Appendix D for the interprofessional patient simulation scenario. See Appendix E for the student rotation schedule of the IPE simulation scenario day.

The patient scenario of Mr. Stanley Halstead was developed collaboratively by faculty champions from each discipline. Refer to Table 3 for faculty champions. The scenario was chosen because it incorporates the care of each discipline specifically. In this case, nursing held the role of primary caregiver and advocate. The RT provided assessment, treatment, and care for the patient related to his respiratory disorder. The SLP provided consultation to the patient for speaking valve placement. Because of the faculty members’ varied backgrounds, including care of patients similar to Mr. Halstead, the students experienced a case scenario that is both realistic and relevant to their roles as future healthcare professionals.

After the simulation, students debriefed on the simulation as an interdisciplinary group in a separate classroom, specifically designed for simulation debriefing. Chairs were arranged so that students sat in their simulation team (1 SLP, 1 RT, and 2 nursing students). Faculty from each profession facilitated the discussion about challenges, pitfalls, and successes that occurred...
within the simulation. The debrief was an opportunity to provide immediate feedback within a supportive climate. See Appendix F for an outline of the PowerPoint presentation that served as a guide to the student groups in the debriefing phase. Each simulation team discussed the question from the slide, and then elected a leader to present information for the team. Up to 30 minutes was allotted for the debriefing session. After the debrief, students completed the SSRQ and impressions survey in a separate classroom with a proctor present.

**Setting**

The study took place at the University of South Alabama (USA) in Mobile, Alabama. Founded in 1963, USA is a public institution of higher education with a Carnegie classification as a high research university. Since its founding, USA has educated over 2400 physicians, over 9400 nurses, and over 5100 allied health professionals. The University of South Alabama has a large Division of Health Sciences, under which are the College of Medicine, College of Nursing, Pat Capps Covey College of Allied Health Professions, USA Medical Center, and USA Children’s and Women’s Hospital. The university asserts that it takes seriously preparing students for a diverse and highly technologic healthcare environment (USA, 2014).

The simulation took place in the state-of-the-art simulation lab in the Health Sciences Building on the main campus of USA. The Human-Patient Simulation Program at the University of South Alabama provides multi-disciplinary simulation learning opportunities at its six locations in the Mobile and Baldwin County area. Its extensive inventory of partial task trainers and high-fidelity human patient simulators create an optimal learning environment designed to improve technical skills, clinical judgment, decision making, communication, and teamwork. Its staff is committed to excellence in healthcare education, practice, and research through the use of human and non-human patient simulation.
Data Collection and Instruments

Three tools were used for data collection in the study. In the pre-simulation phase, a demographic survey and SSRQ was given to each student participant. In the post-simulation phase, an impressions survey and SSRQ was administered. Each of these tools is outlined in the following sections.

Demographic Survey. The demographic survey can be found in Appendix C. IPE studies by Robben et al. (2012) and Hertweck et al. (2012) included demographic characteristics of participants. The Robben et al. (2012) study analyzed gender, age, discipline, and (healthcare) work experience in years, while the Hertweck et al. (2012) study collected data on age, gender, discipline, length in professional program, and healthcare exposure.

Descriptive analysis of age, gender, clinical experience, and interprofessional collaboration experience was analyzed using SPSS. More in-depth analysis of existing student healthcare experience will be used for future studies. In a study by Hertweck et al. (2012), students exposed to the healthcare system through personal experience were inclined to agree with statements about the value of working within a healthcare team collaboratively. Pollard and Miers (2008) did a longitudinal study of a health and social care interprofessional curriculum in Bristol, United Kingdom. In the first phase of the study, researchers found that students with previous health and social care work experience held more negative perceptions than other students related to health and social care workers ability to interact and work as a team.

The Student Stereotype Rating Questionnaire. The instrument used to collect data on student perceptions of both themselves and other HP students is the Student Stereotype Rating Questionnaire (SSRQ). The SSRQ can be found in Appendix A. The scale was duplicated with written permission from the author (see Appendix G). Perceptions were based on stereotypes the
students hold of nine professional characteristics. These nine characteristics are academic ability, professional competence, interpersonal skills (warmth, sympathy, and communication), leadership abilities, the ability to work independently, the ability to be a team player, the ability to make decisions, practical skills, and confidence. Participants were asked to rate the extent to which they believe these attributes apply to either their own profession (autostereotypes), other professions (heterostereotypes), or their own profession as seen by others (perceived autostereotypes), on a five-point scale (1=very low and 5=very high) (Hean, 2006a & 2006b).

**Evolution of the SSRQ.** The SSRQ was originally drawn from the work of Barnes, Carpenter, and Dickinson (2000). Barnes et al. (2000) found that interprofessional stereotypes and perceived status differences do exist within an IPE approach to community mental health examining nurses, psychologist, therapists, social workers, resource workers, and psychiatrists. The work of Barnes and colleagues was based on similar characteristics evaluating autostereotypes, heterostereotypes, and perceived autostereotypes.

The tool Barnes et al. (2000) used for rating attributes was based on a seven-point scale (1= very low and 7=very high). The seven attributes included: academic rigor, interpersonal skills, communication skills, leadership, practical skills, breadth of life experience, and professional competence. Hean et al. (2006a, 2006b) adapted the instrument for use with post registration students. Before its use with study participants, the SSRQ was extensively piloted with a group of 411 health and social care students in England. Content validity was ascertained by a panel of academic professionals, health and social care workers, and pre-registration students. The panel examined each question for clarity, application to the construct it was measuring, and its suitability for first year pre-registration students. Each item’s test-retest reliability was tested using Pearson’s R. The items that were shown unreliable over time at a
level of 5% significance were rejected (Hean, 2006a, 2006b). The SSRQ has been cited a total of five times in the literature, across four studies (Ateah et al., 2011; Bell & Allain, 2011; Hean et al., 2006a, 2006b; Robben et al., 2012).

**SSRQ in the Literature.** In the Hean et al. (2006a, 2006b) study, the scale was completed by over 1400 students across 10 professional groups. The instrument was extensively piloted, content validity was corroborated, and the tool ultimately developed for the Hean et al. (2006a, 2006b) study. Robben et al. (2012) used the nine characteristics established by the Hean et al. (2006a, 2006b) study to measure interprofessional attitudes of 80 primary healthcare professionals. Bell and Allain (2011) used the SSRQ with a group of 32 students in phase I and 41 students in phase II, in order to help initiate discussions about collaborative practice among students in a child and family specialist social work module.

**The SSRQ and the Conceptual Framework.** The MUSC framework is conceptualized around a learning spiral. One side of the helix is conjoined by a sequence for developing teamwork competencies (MUSC, 2007). Learners progress through these domains on their journey to becoming effective healthcare practitioners. The first domain is to prepare one’s self as team member. A component of self-preparation is to become more aware of other surrounding health professionals and learn how to function as part of the healthcare team. In addition, learners begin to develop ideas for future collaborative possibilities (Blue et al., 2010).

The SSRQ is a tool that will reflect learners’ beliefs and attitudes about themselves and other professional groups related to nine professional characteristics (Hean, 2006a, 2006b). Stereotypes, as measured by the SSRQ, were evaluated before and after an IPE approach using simulation. The SSRQ allowed students to further reflect on their perception of self and others while also developing the ability to prepare themselves to be healthcare team members, at the
same time giving credence to their ways of knowing. Transforming ways of knowing is the other conjoined side of the learning spiral in the MUSC (2007) conceptual framework, which illustrates the transformational process by which students move from absolute knowing to contextual knowing. In summary, student use of the SSRQ aids in student preparation toward becoming members of the healthcare team, in turn contributing to students’ ability to transform from absolute knowing to transitional knowing, the next stage of the framework spiral (MUSC, 2007).

**Participant Impressions.** Students were asked to rate their overall impressions of the IPE simulation experience on a scale of 1 to 5 (1 being strongly disagree and 5 being strongly agree). The participant impressions survey can be found in Appendix H. Seven questions were asked using the Likert scale. In addition, two open-ended questions were asked at the end of the survey. They were: 1) Name one thing you learned from this experience, and 2) What would you like to see changed about this activity in the future? See Appendices I and J for an outline of student comments/answers to these questions.

**Data Analysis**

Data was collected before and after the interprofessional simulation experience. Data analysis was completed by the author and occurred after the interprofessional simulation, in the months of March, April, and May, 2014. Data was analyzed using the SPSS software and using paired *t*-tests for within group comparisons. Other authors who have used the SSRQ (Ateah et al., 2011; Bell & Allain, 2011; Hean et al., 2006a, 2006b) compared mean stereotype ratings made by students of each profession on all nine characteristics, or traits. The Ateah, et al. (2011) study, also compared a summary mean score of all characteristics as an overall indication of the perception of a profession. Robben et al. (2012) used summarized mean scores only in their data
analysis. This study used mean stereotype ratings for data analysis. See Table 5 for how each research question was analyzed.

Table 5

*Research Questions, IV, DV, and Statistical Analysis*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Statistical Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a difference in autostereotypes of nursing students, as measured by the SSRQ, after an IPE approach using simulation?</td>
<td>IPE Simulation</td>
<td>Autostereotypes of Nursing Student Group</td>
<td>Paired t-tests</td>
</tr>
<tr>
<td>Is there a difference in heterostereotypes of student professional groups nursing, RT, and SLP, as measured by the SSRQ, after an IPE approach using simulation?</td>
<td>IPE Simulation</td>
<td>Heterostereotypes of Nursing, RT, and SLP Student Groups</td>
<td>Paired t-tests</td>
</tr>
<tr>
<td>Is there a difference in perceived autostereotypes of nursing students, as measured by the SSRQ, after an IPE approach using simulation?</td>
<td>IPE Simulation</td>
<td>Perceived Autostereotypes of Nursing Student Group</td>
<td>Paired t-tests</td>
</tr>
</tbody>
</table>
CHAPTER IV:

RESULTS

This study examines how an IPE simulation approach affects professional stereotypes among student groups. Chapter 5, Results, is organized around the three research questions. Is there a difference in:

1. Autostereotypes of nursing students, as measured by the Student Stereotype Rating Questionnaire (SSRQ), after an IPE approach using simulation?

2. Heterostereotypes of student professional groups nursing, RT, and SLP, as measured by the SSRQ, after an IPE approach using simulation?

3. Perceived autostereotypes of nursing students, as measured by the SSRQ, after an IPE approach using simulation?

Research Question #1

Is there a difference in autostereotypes of nursing students, as measured by the Student Stereotype Rating Questionnaire (SSRQ), after an IPE approach using simulation?

Using the SSRQ, nursing students rated their autostereotypes on nine different characteristics; using a scale of 1-5 (5 being very high and 1 being very low) (see Appendix A for the SSRQ). The dependent variable, nursing autostereotypes, demonstrated statistical significance; at an alpha level of .05, there was a significant difference from pre-IPE simulation to post-IPE simulation in nursing autostereotype scores [t(88) = -2.025, p=.046]. There was an increase in the mean from 4.6044 (pre-IPE simulation) to 4.6887 (post-IPE simulation). Table 6 summarizes the paired samples statistics.
Table 6

**Summary of Paired Samples Statistics for Nursing Autostereotypes**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autostereotype Pre</td>
<td>4.6044</td>
<td>.47546</td>
<td>.05040</td>
<td>-2.025</td>
<td>88</td>
<td>.046</td>
</tr>
<tr>
<td>Autostereotype Post</td>
<td>4.6887</td>
<td>43058</td>
<td>.04564</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Research Question #2**

Is there a difference in heterostereotypes of student professional groups nursing, RT, and SLP, as measured by the SSRQ, after an IPE approach using simulation?

Using the SSRQ, each student group rated heterostereotypes of other student groups on nine different characteristics using a scale of 1-5 (5 being very high and 1 being very low) (see Appendix A for the SSRQ). The nursing student group was the only group that demonstrated significant difference of heterostereotypes from pre-IPE simulation to post-IPE simulation.

**Hetereostereotypes of Nursing Students.** The dependent variable, nursing heterostereotypes, demonstrated statistical significance. At an alpha level of .05, there was a significant difference from pre-IPE simulation to post-IPE simulation in nursing heterostereotype scores of RT students \[t(89) = -3.293, p = .001\] and nursing heterostereotype scores of SLP students \[t(89) = -4.515, p = .000\]. There was an increase in mean nursing heterostereotype RT scores from 4.2464 (pre-IPE simulation) to 4.4754 (post-IPE simulation) and in mean nursing heterostereotype SLP scores from 4.1663 (pre-IPE simulation) to 4.5188 (post-IPE simulation). Table 7 summarizes the paired samples statistics.
Table 7

Summary of Paired Samples Statistics for Nursing Heterostereotypes

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterostereotype RT Pre</td>
<td>4.2464</td>
<td>.53723</td>
<td>.05663</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterostereotype RT Post</td>
<td>4.4754</td>
<td>.59581</td>
<td>.06280</td>
<td>-3.293</td>
<td>89</td>
<td>.001</td>
</tr>
<tr>
<td>Heterostereotype SLP Pre</td>
<td>4.1663</td>
<td>.60733</td>
<td>.06402</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterostereotype SLP Post</td>
<td>4.5188</td>
<td>.56705</td>
<td>.05977</td>
<td>-4.515</td>
<td>89</td>
<td>.000</td>
</tr>
</tbody>
</table>

**Heterostereotypes of RT Students.** The dependent variable, RT heterostereotypes, did not demonstrate statistical significance. At an alpha level of .05, there was not a significant difference from pre-IPE simulation to post-IPE simulation in RT heterostereotype scores of RN students \([t(21) = .976, p = .340]\) and RT heterostereotype scores of SLP students \([t(21) = -1.004, p = .327]\). Table 8 summarizes the paired samples statistics.

Table 8

Summary of Paired Samples Statistics for Respiratory Therapy Heterostereotypes

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterostereotype RN Pre</td>
<td>4.4855</td>
<td>.51767</td>
<td>.11037</td>
<td>.976</td>
<td>21</td>
<td>.340</td>
</tr>
<tr>
<td>Heterostereotype RN Post</td>
<td>4.3486</td>
<td>.67145</td>
<td>.14315</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterostereotype SLP Pre</td>
<td>4.4391</td>
<td>.53840</td>
<td>.11479</td>
<td>-1.004</td>
<td>21</td>
<td>.327</td>
</tr>
<tr>
<td>Heterostereotype SLP Post</td>
<td>4.5659</td>
<td>.44523</td>
<td>.09492</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Heterostereotypes of SLP Students. The dependent variable, SLP heterostereotypes, did not demonstrate statistical significance. At an alpha level of .05, there was not a significant difference from pre-IPE simulation to post-IPE simulation in SLP heterostereotype scores of RN students [$t(19) = .814, p= .426$] and SLP heterostereotype scores of RT students [$t(19) = -.406, p=.689$]. Table 9 summarizes the paired samples statistics.

Table 9

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterostereotype RN Pre</td>
<td>4.4900</td>
<td>.38284</td>
<td>.08561</td>
<td>.814</td>
<td>19</td>
<td>.426</td>
</tr>
<tr>
<td>Heterostereotype RN Post</td>
<td>4.2665</td>
<td>1.13664</td>
<td>.25416</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterostereotype RT Pre</td>
<td>4.4780</td>
<td>.50143</td>
<td>.11212</td>
<td>-.406</td>
<td>19</td>
<td>.689</td>
</tr>
<tr>
<td>Heterostereotype RT Post</td>
<td>4.5350</td>
<td>.49564</td>
<td>.11083</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research Question #3

Is there a difference in perceived autostereotypes of nursing students, as measured by the SSRQ, after an IPE approach using simulation?

Using the SSRQ, nursing students rated their perceived autostereotypes on nine different characteristics; using a scale of 1-5 (5 being very high and 1 being very low) (see Appendix A for the SSRQ). The dependent variable, nursing perceived autostereotypes, demonstrated statistical significance; at an alpha level of .05, there was a significant difference from pre-IPE simulation to post-IPE simulation in nursing perceived autostereotype scores [$t(80) = -2.682, p= .009$]. There was an increase in the mean from 4.4614 (pre-IPE simulation) to 4.5968 (post-IPE simulation). Table 10 summarizes the paired samples statistics.
Table 10

Summary of Paired Samples Statistics for Nursing Perceived Autostereotypes

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Autostereotype Pre</td>
<td>4.4614</td>
<td>.52864</td>
<td>.05874</td>
<td>-2.682</td>
<td>80</td>
<td>.009</td>
</tr>
<tr>
<td>Perceived Autostereotype Post</td>
<td>4.5968</td>
<td>.45914</td>
<td>.05102</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Student Impressions

Participants were given a survey post-IPE simulation to examine impressions of the experience (see Appendix H for survey). Participants were asked to rate impressions through 7 questions on a scale of 1-5 (1 being strongly disagree and 5 being strongly agree). Table 11 summarizes results of the impressions survey by student group.

Table 11

Summary of Student Group Impressions

<table>
<thead>
<tr>
<th>Question</th>
<th>Nursing Mean</th>
<th>RT Mean</th>
<th>SLP Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>Std. Deviation</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>1) I feel better prepared to work with patients with tracheostomy/speaking valves.</td>
<td>4.3444</td>
<td>4.3636</td>
<td>4.1000</td>
</tr>
<tr>
<td></td>
<td>.63884</td>
<td>.72673</td>
<td>.44721</td>
</tr>
<tr>
<td>2) I feel better prepared to work with other members of the healthcare team in providing care for patients with speaking valves.</td>
<td>4.5444</td>
<td>4.5455</td>
<td>4.2500</td>
</tr>
<tr>
<td></td>
<td>.67310</td>
<td>.73855</td>
<td>.55012</td>
</tr>
<tr>
<td>3) I have a better understanding of healthcare team member roles.</td>
<td>4.5444</td>
<td>4.5000</td>
<td>4.2500</td>
</tr>
<tr>
<td></td>
<td>.65619</td>
<td>.74001</td>
<td>.63867</td>
</tr>
<tr>
<td>4) I feel more comfortable communicating with healthcare team members.</td>
<td>4.5444</td>
<td>4.5455</td>
<td>4.4000</td>
</tr>
<tr>
<td></td>
<td>.63884</td>
<td>.59580</td>
<td>.59824</td>
</tr>
<tr>
<td>5) The debriefing and group discussions were valuable.</td>
<td>4.1444</td>
<td>4.3182</td>
<td>4.2500</td>
</tr>
<tr>
<td></td>
<td>.89394</td>
<td>.89370</td>
<td>.85070</td>
</tr>
<tr>
<td>6) This interprofessional activity was more effective than a traditional lecture.</td>
<td>4.3667</td>
<td>4.6364</td>
<td>4.5000</td>
</tr>
<tr>
<td></td>
<td>.81351</td>
<td>.49237</td>
<td>1.14708</td>
</tr>
<tr>
<td>7) I would like to participate in another interprofessional simulation activity.</td>
<td>4.2778</td>
<td>4.5455</td>
<td>4.4000</td>
</tr>
<tr>
<td></td>
<td>.86151</td>
<td>.80043</td>
<td>.99472</td>
</tr>
</tbody>
</table>
Impression results were examined for the entire group (n=132). The average mean for the entire group of participants was 4.396. Standard Deviation for n=132 was .7405. Table 12 summarizes results of the impressions survey (questions 1 through 7) overall.

Table 12

Summary of Total Participant Impressions

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std.Dev</td>
<td>.63164</td>
<td>.67093</td>
<td>.67106</td>
<td>.62353</td>
<td>.88354</td>
<td>.83065</td>
<td>.87221</td>
</tr>
</tbody>
</table>

Two open-ended questions were asked on the participant impressions survey. They were:

1) Name one thing you learned from this experience, and 2) What would you like to see changed about this activity in the future? Participant comments as collected are listed in appendices I and J. In addition, the question “Would you want to participate in another interprofessional simulation activity if given the opportunity?” was asked of the participants. Table 13 summarizes the results.

Table 13

Participant Impressions Question: Would you want to participate in another interprofessional simulation activity if given the opportunity?

<table>
<thead>
<tr>
<th>Student Group</th>
<th>Yes Frequency (Percentage)</th>
<th>No Frequency (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing</td>
<td>87 (97%)</td>
<td>3 (3%)</td>
</tr>
<tr>
<td>Respiratory Therapy</td>
<td>20 (91%)</td>
<td>2 (9%)</td>
</tr>
<tr>
<td>SLP</td>
<td>19 (95%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Total</td>
<td>126 (95%)</td>
<td>6 (5%)</td>
</tr>
</tbody>
</table>
Demographics

The sample size was 132 participants. Three student groups were represented. Ninety students (68%) belonged to the nursing student group, 20 (15%) belonged to the SLP student group, and 22 (17%) belonged to the RT student group.

Information was requested from participants regarding gender, age, clinical experience, setting in which clinical experience occurred, and exposure to interprofessional collaboration (see Appendix C for demographic survey). Demographic information is summarized in Table 14.

Table 14

Demographics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Nursing frequency (percentage)</th>
<th>Respiratory frequency (percentage)</th>
<th>Speech frequency (percentage)</th>
<th>Total frequency (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8 (9%)</td>
<td>13 (59%)</td>
<td>0 (0%)</td>
<td>21 (16%)</td>
</tr>
<tr>
<td>Female</td>
<td>82 (91%)</td>
<td>9 (41%)</td>
<td>20 (100%)</td>
<td>111 (84%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-25</td>
<td>68 (75%)</td>
<td>9 (41%)</td>
<td>17 (85%)</td>
<td>94 (71%)</td>
</tr>
<tr>
<td>25-30</td>
<td>9 (10%)</td>
<td>6 (27%)</td>
<td>1 (5%)</td>
<td>16 (12%)</td>
</tr>
<tr>
<td>30-35</td>
<td>6 (7%)</td>
<td>7 (32%)</td>
<td>1 (5%)</td>
<td>14 (11%)</td>
</tr>
<tr>
<td>35-40</td>
<td>5 (6%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>5 (4%)</td>
</tr>
<tr>
<td>40-45</td>
<td>2 (2%)</td>
<td>0 (0%)</td>
<td>1 (5%)</td>
<td>3 (2%)</td>
</tr>
<tr>
<td>&gt;45</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>20 (22%)</td>
<td>9 (41%)</td>
<td>1 (5%)</td>
<td>30 (23%)</td>
</tr>
<tr>
<td>0-5 years</td>
<td>70 (78%)</td>
<td>7 (32%)</td>
<td>19 (95%)</td>
<td>96 (73%)</td>
</tr>
<tr>
<td>5-10 years</td>
<td>0 (0%)</td>
<td>5 (23%)</td>
<td>0 (0%)</td>
<td>5 (3%)</td>
</tr>
<tr>
<td>10-15 years</td>
<td>0 (0%)</td>
<td>1 (4%)</td>
<td>0 (0%)</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Setting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Care</td>
<td>6 (8%)</td>
<td>0 (0%)</td>
<td>11 (58%)</td>
<td>17 (16%)</td>
</tr>
<tr>
<td>Acute Care</td>
<td>60 (86%)</td>
<td>7 (54%)</td>
<td>3 (16%)</td>
<td>70 (69%)</td>
</tr>
<tr>
<td>Long-term Care</td>
<td>2 (3%)</td>
<td>2 (15%)</td>
<td>4 (21%)</td>
<td>8 (8%)</td>
</tr>
<tr>
<td>Home Health</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Research</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (3%)</td>
<td>4 (31%)</td>
<td>1 (5%)</td>
<td>7 (7%)</td>
</tr>
<tr>
<td>Experience with Interprofessional Collaboration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>1 (2%)</td>
<td>2 (15%)</td>
<td>2 (11%)</td>
<td>5 (5%)</td>
</tr>
<tr>
<td>Rarely</td>
<td>30 (43%)</td>
<td>2 (15%)</td>
<td>5 (26%)</td>
<td>37 (36%)</td>
</tr>
<tr>
<td>Often</td>
<td>31 (44%)</td>
<td>9 (70%)</td>
<td>8 (42%)</td>
<td>48 (47%)</td>
</tr>
<tr>
<td>Very Often</td>
<td>8 (11%)</td>
<td>0 (0%)</td>
<td>4 (21%)</td>
<td>12 (12%)</td>
</tr>
</tbody>
</table>
Gender. There were 111 females (84%) and 21 males (16%) who participated in the study. Eighty-two of the females (62%) were from the nursing student group. The SLP group had the second largest female representation with 20 female students (15%), and the RT student group had a total of 9 female students (7%). The RT student group had the highest number of male participants with a total of 13 (10%). Eight males (6%) were from the nursing student group. The SLP group had no male participants.

Age. There were five categories for participants to identify their age range. The categories included age (in years) 20-25, 25-30, 30-35, 35-40, 40-45, and over 45 years old. Ninety-four participants (71%) identified their age as 20-25 years old; 16 participants (12%) were 25-30 years old; 14 participants (11%) were 30-35 years old; 5 participants (4%) were 35-40 years old; and 3 participants (2%) were 40-45 years old. No participants identified their age as greater than 45 years old. In every student group, the majority of participants identified their age range as 20-25 years old; 75% in nursing, 41% in RT, and 85% in SLP.

Experience. There were 4 categories for clinical experience: none, 0-5 years, 5-10 years, and 10-15 years. There were 102 participants (77%) that acknowledged having clinical experience. Seventy (78%) of the nursing participants, 13 (59%) of the respiratory participants, and 19 (95%) of the SLP participants had clinical experience. Overall, 96 participants (73%) identified having 0-5 years clinical experience. The category was the most widely represented in the nursing and SLP student groups; 70 (78%) of nursing students identified having 0-5 years clinical experience, and 19 (95%) of SLP students identified having 0-5 years clinical experience. The RT student group was more widespread in terms of clinical experience. In the RT student group, 9 (41%) participants selected “none” for clinical experience, 7 (32%) participants selected 0-5 years, and 5 (23%) selected 5-10 years of clinical experience. One RT
participant identified having 10-15 years of clinical experience; no students in the nursing or SLP groups identified having 10-15 years of clinical experience.

**Setting.** The participants with clinical experience were asked to identify the setting in which most of their experience occurred. The options were primary care, acute care, long-term care, home health, research, and other. Overall, 17 (16%) participants had primary care experience, 8 (8%) had acute care experience, and 7 (7%) identified “other” as the setting in which their experience occurred. Acute care was the most widely identified, as 70 (69%) of students with clinical experience stated this was the setting in which their experience occurred.

**Experience with Interprofessional Collaboration.** Participants with clinical experience were also asked to identify how often they witnessed interprofessional collaboration. The options were never, rarely, often, and very often. Five participants (5%) indicated they had never witnessed, or participated in, interprofessional collaboration for patient care. Thirty-seven (36%) indicated they had rarely witnessed interprofessional collaboration. Forty-eight (47%) indicated often and 12 (12%) indicated very often.
CHAPTER V:
DISCUSSION, IMPLICATIONS, LIMITATIONS, AND RECOMMENDATIONS

The purpose of this study was to implement an interprofessional simulation with nursing, RT, and SLP students, and using the SSRQ, evaluate how an IPE approach may alter stereotypes that learners carry with them related to themselves and professions other than their own. A quasi-experimental pretest-posttest design was used and descriptive statistics were analyzed. Major findings, limitations, discussion of the findings, implications for HP education, conclusions, and recommendations for research are presented.

Major Findings

Research Question 1: Is there a difference in autostereotypes of nursing students, as measured by the Student Stereotype Rating Questionnaire (SSRQ), after an IPE approach using simulation?

Results showed that there was a significant difference from pre-IPE simulation to post-IPE simulation in nursing autostereotype scores. This study reflects that nursing students hold different perceptions of themselves before an IPE simulation than after an IPE simulation with RT and SLP students. Results show an increase in the sum mean score of nine characteristics in which nursing students rated themselves, including academic ability, professional competence, interpersonal skills, leadership abilities, the ability to work independently, the ability to be a team player, the ability to make decisions, and practical skills.
While most studies in the literature were related to heterostereotype ratings of HP students (Ateah et al., 2011; Barnes et al., 2000; Robben et al., 2012), a study by Hean (2006a) examined autostereotypes of health and social care students in a context of exploring distinctions students made of their own professional group (autostereotypes) when compared to the other professional groups (heterostereotype) as part of a baseline analysis. A study by Carpenter (1995) also examined autostereotypes in order to investigate inter-group differentiation, and found significant difference after IPE. Barnes et al. (2000) assessed autostereotypes of five HP student groups before and after an IPE program, and there was no significant difference.

**Research Question 2: Is there a difference in heterostereotypes of student professional groups nursing, RT, and SLP, as measured by the SSRQ, after an IPE approach using simulation?**

Results showed that there was a significant difference from pre-IPE simulation to post-IPE simulation in nursing heterostereotype scores. There was no significant difference in RT heterostereotypes. SLP heterostereotype scores were also not significantly different pre-IPE simulation, when compared to post-IPE simulation.

The study indicates that nursing students hold different perceptions of RT and SLP students, with a sum mean score increase from pre-IPE simulation to post-IPE simulation. The sum mean score increase reflects that nursing students’ perceptions of RT and SLP students were enhanced based on the nine previously stated characteristics.

Pre and post-IPE simulation heterostereotype scores of RT and SLP students were not found to be statistically significant. RT students demonstrated no change in perceptions of RN and SLP students, when scores were compared before and after the IPE simulation. Likewise,
SLP student perceptions of RT and nursing students showed no significant difference after the IPE simulation, when compared to before.

Similar findings to these are found in the literature. In a study by Ateah et al. (2011), there was a significant difference in heterostereotype summary mean scores between a baseline survey and a survey taken 2.5 days after an IPE session, however, there was no significant increase in mean scores on the third survey, which was administered four months later. After interprofessional practice rotations. In a study by Robben et al. (2012), participant heterostereotype scores changed significantly from before the launch of an IPE program to after. Barnes et al. (2000) reported no significant change in heterostereotype scores from the beginning of a two year IPE program to after.

**Research Question 3: Is there a difference in perceived autostereotypes of nursing students, as measured by the SSRQ, after an IPE approach using simulation?**

Results showed that there was a significant difference from pre-IPE simulation to post-IPE simulation in nursing perceived autostereotype scores. This study reflects that nursing students hold a different perception of their own profession as seen by others, before an IPE simulation than after an IPE simulation with RT and SLP students. Results show an increase in the sum mean score of the previously stated nine characteristics nursing students rated their own profession on (as seen by others).

One study in the literature by Barnes (2000) examined perceived autostereotype scores of five HP groups – social workers, nurses, occupational therapists, psychiatrists, and psychologists. Instead of using summary mean scores for data analysis, the researcher studied each of the nine characteristics individually. Participants gave the lowest ratings for professional competence to
their own profession as seen by others (autostereotype). There was no significant difference in autostereotypes, however, on any of the nine characteristics after a 2-year IPE program.

Discussion

Hall (2005) identifies the need for IPE in HP education because it enhances early socialization, subsequently affecting the accuracy of stereotypes among disciplines. One of the goals of the study was to implement an IPE simulation with nursing, SLP, and RT students that would provide a setting for early professional socialization among the three disciplines. Because coordination among nursing, RT, and SLP professionals is essential for safe care of patients with tracheostomies and speaking valves, utilization of IPE simulation scenarios such as these have the potential to directly impact, and improve, collaborative care and patient outcomes (de Mestral et al., 2011).

The research questions examined how an IPE simulation approach can affect autostereotypes, heterostereotypes, and perceived autostereotypes of nursing, RT, and SLP students. This information is useful for exploring student stereotypes, as well as examining if an IPE simulation changed those perceptions. The results showed that nursing stereotypes, both of themselves, others, and themselves as viewed by others, significantly changed with a sum increase in mean, from before to after an IPE simulation; while heterostereotypes of RT and SLP students remained unchanged.

The outcome that the nursing participant group was the only student group that demonstrated a significant difference in stereotypes is interpreted to indicate the value of the IPE initiative. Nursing students evidently carry with them certain attitudes and perceptions of themselves, other professional groups, and their own professional group as seen by others, and this interprofessional simulation-based approach served to improve those perceptions. It also
indicates that nursing participants felt more confident about their abilities, as identified through higher autostereotype and perceived autostereotype scores, after the IPE simulation. Overall, the nursing group finding is significant in that simulation-based IPE may help to improve perceptions held by nursing students of themselves and other professional groups.

Similar to the study by Barnes et al. (2000), the fact that RT and SLP heterostereotypes did not change may have two possible explanations: (1) interprofessional stereotypes are sustained and reinforced in daily contact with other HP students and faculty in class and clinic, and perhaps represent an accurate reality, or (2) the scenario and time allotted did not create an environment that allowed learners to accurately become acquainted with one another, thereby prohibiting any pre-conceived perceptions to be altered. Both possibilities are addressed in the limitations and recommendations portions of the paper.

Overall, student impressions were positive with an average mean above 4 on a 1-5 Likert scale. The statement rated highest was question four “I feel more comfortable communicating with healthcare team members (nursing, RTs, and SLPs).” This result supports the ability of IPE to socialize students, thereby improving communication among future caregivers. The statement rated the lowest was question five, “The debriefing and group discussions were valuable.” Future studies may serve to be better informed by asking participants more specifically “How can debriefing sessions be more valuable?” From the faculty perspective present in debriefing sessions, students were engaged and actively participated in group discussions. One possible explanation is that there may have been confusion related to the term debrief in question five. In the open-ended question, “What would you like to see changed about this activity?” some students referred to the time before the simulation as the “brief,” and commented that they would
have liked to have had more preparation before the simulation, or more time to meet with their team before entering the patient’s room.

Answers to open-ended questions held the following themes: 1) students liked learning about one another’s professional roles, 2) students appreciated learning about the Passy-Muir valve, along with its clinical indications, 3) students learned the importance of communication among caregivers, and 4) students would have liked more preparation material before the simulation, and more time with their team before entering the patient’s room. Without being directly asked, in all 10 debriefing sessions, students verbalized that they would like more IPE simulations. One nursing student commented, “I wish all of our simulations were like this one!”

The SSRQ is a tool that was developed in the United Kingdom by Dr. Sarah Hean (2006a, 2006b) which she adapted from work by Barnes et al. (2000). Studies cited in the literature using the tool were all from outside the United States, three in the United Kingdom and one in the Netherlands (Bell & Allain, 2011; Hean et al., 2006a, 2006b; Robben et al., 2012). It is important to consider the context of the SSRQ inside the culture of IPE in these countries. The European Interprofessional Practice and Education Network (EIPEN) was one of the first IPE networks to be formed on the international circuit (EIPEN, 2014). Many studies in the literature related to IPE in HP education generate from Europe and Canada. Students in countries that have used the SSRQ may be accustomed to engaging in open dialogue about dissimilarities of professional groups and the subsequent attitudes and perceptions that can be formed. Students in the United States, however, may be more reserved in their responses because the culture is not yet modeled around interprofessionalism and transparency.

Other factors to consider related to the SSRQ are its sensitivity and ability to reflect authentic opinions of the participants. It was obvious in data transcription that many students
chose a tranquil approach, giving the same score on all characteristics to all professional groups. The study may benefit from a participant orientation to the tool itself, or tool modification in the form of measurable criteria, or competency milestones for each score one through five. Sensitivity of the instrument may have been diluted if participants gave high scores in the pre-IPE simulation, experienced a positive interaction with participants, and then wanted to give higher scores in the post-simulation phase, but could not. This factor could have affected the ability for the RT and SLP heterostereotype measures to show statistical significance. Again, instrument modification may be valuable here, as it would give measurable objectives for each scale rating to participants.

IPEC (2011) centered one of its IPE competency domains on professional roles and responsibilities. In it, the process of learning how to be a professional is addressed, and student obligations are implied. For example, disciplines must recognize that they are categorically dissimilar from other groups, but that in those differences lie value. IPEC encourages realistic and meaningful learning opportunities that will aid learners to recognize, and appreciate their dissimilarities. The importance of this study is primarily manifested by the creation of such an interprofessional environment, as well as utilization of a tool to measure differences in stereotypes among interprofessional groups.

Implications

The findings of this research have several implications for nurse educators and health profession educators overall. First, that the use of simulation-based IPE in HP education has the ability to socialize students earlier, and enhance attitudes and perceptions, or stereotypes, among nursing students. Educators can use realistic models such as this one, bringing specific student groups together in the simulation lab, in order to help students get to know one another better,
and learn about professional roles. Not only will this serve to enrich the learning experience, it will heighten awareness of the dissimilarities among the disciplines and help students to identify value in diversity.

Specific to nursing education, this study demonstrated that nursing heterostereotypes of RT and SLP students, and nursing autostereotypes and perceived autostereotypes can be impacted by an IPE simulation approach. This has implications for nursing student professional role development. In addition, if autostereotypes and heterostereotypes are enhanced after an IPE simulation, then perhaps nursing student confidence and self-efficacy is improved. Nurse educators may find IPE initiatives like this and others beneficial for role development which is the first step in preparing one’s self to be an interprofessional team member.

Results of the study are reflective of students acquiring the knowledge, values, and beliefs of their own profession and other health professions that will enable them to move toward interprofessional healthcare delivery. Despite RT and SLP heterostereotype scores remaining unchanged, student participation in the simulation and debriefing provided an invaluable experience, as it began the attitude of teamwork needed to provide collaborative care. Student reflection on their own attitudes and beliefs offers a context of preparation, and preparation is the first step to building teamwork competencies (MUSC, 2007).

Finally, the study has implications for clinical practice. Because the collaboration of nurses, RTs, and SLPs is important for the care of patients with tracheostomies and speaking valves, this study generates an interprofessional model for other programs that will ultimately affect patient care in a positive way. Collaborative care has been shown to have positive effects in terms of patient care outcomes (IPEC, 2011). This IPE simulation experience, and others like it, can lead to healthcare practitioners working together more effectively for patient well-being.
Results Connected to Conceptual Framework

The MUSC conceptual framework for advancing IPE has been useful in building a comprehensive, systems-based IPE program at MUSC since 2007 (Blue et al., 2010). Through implementation of an IPE simulation with nursing, RT, and SLP students, and with significant differences in autostereotype, heterostereotype, and perceived autostereotype scores of nursing students, this study supports the relevance of using the MUSC model. Participants in this study are slowly beginning to advance through the first phase: self-preparation as team member. Results of this study, both quantitative and attitudinal, reflect that student stereotypes, toward themselves and others are developing.

The underlying premise of the MUSC framework is “prepare, think, practice, act” (IPEC, 2011, p.32). Participation in an IPE simulation by student groups nursing, RT, and SLP is helping to prepare students as future healthcare team members. The significant difference in nursing autostereotype, heterostereotype, and perceived autostereotype scores demonstrates self-reflection and possible understanding of others’ roles, as well as their own. For all students, participation in the study itself is helping learners to become more cognizant of the fact that they carry with them stereotypes, beliefs, and attitudes of other professions. Just as the MUSC model illustrates, this level of self-awareness and mindfulness is allowing HP students to prepare themselves to be members of an interprofessional healthcare team (Blue et al., 2010).

Limitations

There are limitations to the study which are important to disclose and consider for future research. The smaller sample size of RT and SLP participants, compared to the nursing participant group, may affect generalizability of results. Nursing class sizes are substantially larger than RT and SLP program sizes, and due to constraints on time and resources, this could
not be altered for the purposes of this study. In addition, subjects were recruited from a single university in the southeastern United States. There were significant differences in gender participation that could have affected results of the study. The RT group consisted primarily of male participants (13 out of 21), while the SLP was entirely female, and the nursing group primarily female (84%). The RT and nursing groups were made up of undergraduate students, while the SLP group was graduate-level students. There is a natural difference in academic and personal maturity in the graduate student, which may have affected difference in stereotypes scoring.

**Recommendations**

After considering the results, limitations, and recommendations of this study, the researcher makes the following recommendations:

1. Replicate the study with a larger sample size of RT and SLP students.

2. Replicate the study with an extended longitudinal design after a variety of interprofessional simulation-based education scenarios with the same student groups.

3. Share the methodology and results with other institutions with nursing, RT, and SLP programs and replicate the study there.

4. Expand the qualitative nature of the study by asking students specific questions about other student groups after the IPE simulation, such as “How did your perceptions of nurses change?”

5. Replicate the study, analyzing summary mean scores for each of the nine characteristics, and examining intergroup differentiation.

6. To decrease the opportunity for halo effect, expand the SSRQ to a more competency-based tool. List definitive criteria for each Likert scale on each characteristic.
7. Replicate the study and use a self-efficacy tool in order to examine if nursing student confidence improved from pre- to post-IPE simulation.

8. Consider the halo effect (Thorndike, 1920), the inability to disregard the affective impact of global evaluation on assigning specific attributes to a person or group, in a future study and its impact on heterostereotype scores.

Conclusion

If learning together enhances future working together, then IPE will continue to become increasingly valued in HP education (Thistlethwaite, 2012). More importantly, through its ability to improve teamwork, IPE is creating a safer environment for patient care (Nisbet et al., 2008). IPE also serves to help learners, specifically nursing students, develop more accurate impressions of caregivers, as the results of this study showed. Further, results of this study can inform and guide future IPE initiatives, in hopes of developing healthcare professionals that will provide high-quality, collaborative patient care.
REFERENCES


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interprofessional attitudes. Journal of Interprofessional Care, 19(3), 269-279.


Reeves, S., & Freeth, D. The London training ward: An innovative interprofessional learning initiative. Journal of Interprofessional Care, 16(1), 41-52.


attitudes, skills, and behavior among primary care professionals. *Journal of Continuing Education in the Health Professions, 32*(3), 196-204.


Appendix A

Student Stereotype Rating Questionnaire (SSRQ)

How would you rate Respiratory Therapists* on:

<table>
<thead>
<tr>
<th></th>
<th>Very High</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>Very Low</th>
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<tbody>
<tr>
<td>Academic ability</td>
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<td>Professional competence</td>
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<tr>
<td>Interpersonal skills (e.g. warmth, sympathy, communication)</td>
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<tr>
<td>Leadership abilities</td>
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<td>The ability to work independently</td>
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<tr>
<td>The ability to be a team player</td>
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<td>The ability to make decisions</td>
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<tr>
<td>Practical skills</td>
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<tr>
<td>Confidence</td>
<td></td>
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</tbody>
</table>

*Respiratory therapists are used as an example. Identical questions will be asked about all the other professional groups involved in the study.
Appendix B

Informed Consent

Examining Professional Stereotypes in an Interprofessional Education Simulation Experience

Alison B. Rudd, RN, MSN (Division of Health Sciences/Simulation)
Julie M. Estis, Ph.D., CCC-SLP (CAHP/Speech Pathology)
Bill Pruitt, RRT, CPFT, AE-C (CAHP/Cardiorespiratory Care)
Theresa Wright, RN, CCRC, DNP (CON/Adult Health)

You are invited to participate in a study titled “Examining Professional Stereotypes in an Interprofessional Education Simulation Experience” at the University of South Alabama. If you have questions, you may contact Mrs. Alison Rudd (251-445-9208, arudd@southalabama.edu).

The purpose of this study is to implement an interprofessional simulation with students from nursing, RT, and speech-language pathology (SLP) disciplines, and evaluate how the interprofessional education approach may enhance the accuracy of stereotypes that learners carry with them related to themselves, and professions other than their own.

The results of this study will be published and used to suggest training for healthcare providers. You were selected as a possible participant in this investigation because of your enrollment in one of the following academic programs at the University of South Alabama: Bachelor of Science in Cardiorespiratory Care, Bachelor of Science in Nursing, or Master of Science in SLP. If you agree to participate in this research, your participation is voluntary. You may decline participation in the demographic survey, pre-testing, post-testing, and impressions survey portions of this activity. Even if you agree now, you are free to say NO later, and walk away or withdraw from the study, at any time. Your decision will not affect your relationship with the University of South Alabama, or otherwise cause a loss of benefit to which you might be otherwise entitled.

This interprofessional simulation activity will be implemented in existing curriculum by faculty with experience utilizing simulation. This simulated, interprofessional education (IPE) experience will consist of three phases: training, simulation activity, and debriefing. For the training phase, each participant will view a 45-minute video training module created and presented by Passy-Muir, Inc., developer and manufacturer of tracheostomy speaking valves. Training will include anatomical structures and tracheostomy care, as well as indications, benefits, and application of speaking valves. For the simulation activity phase (30 minutes), students will be presented with a realistic acute care environment containing a high-fidelity simulator as the patient and standardized patient as the (SP) family member. Small groups comprised of students from each discipline will work together in an interactive simulation scenario that includes evaluation of patient, tracheostomy care, and speaking valve placement. All IPE sessions will be video recorded. For the debriefing phase (30 minutes), faculty will facilitate student group discussion of their simulation experience immediately after each IPE session. Audio/visual recordings will be used to replay the simulation scenario. Students will provide reflective evaluation of clinical performance and collaborative care.
To measure student stereotypes of their own role and professions other than their own, a pre- and post-test will be given. An attitudinal open-question survey will be used to measure students’ feelings and perceptions toward IPE and IPE using simulation. In addition, student discussion in the simulation debrief will be monitored by faculty and general comments related to student attitudes and perceptions will be noted.

If you decide to participate, you will receive information valuable to you as a future healthcare provider for tracheostomy patients. With this training, you will gain advanced knowledge of Passy-Muir valve placement and overall care of tracheostomy patients, as well as knowledge related to professional roles other than your own.

The researchers will take reasonable steps to protect your identity. While you will be asked to provide the last four digits of your student number in order to match your pretest and posttest answers, this information will be stored separately in password-coded file. Data will be stored in a password-coded file on a desktop computer. Only the principal investigator (Rudd) and co-principal investigators (Estis, Pruitt, and Wright) will have access to the study data. The results of this study may be used in reports, presentations, and publications; but researchers will not identify you. You may print a copy of this consent form for your records. Please contact the Institutional Review Board at the University of South Alabama at 251-460-6308 if you have questions about your rights as a research participant.

AGREEMENT TO PARTICIPATE IN RESEARCH:
Please select one of the following statements regarding audio/video taping:
____I agree to be audio/video taped
____I do not wish to be audio/video taped

You, __________________________, have reviewed the above information and have had the opportunity to ask questions which have all been answered to my satisfaction. You understand that my participation in this research study is voluntary, and that you may withdraw from the study at any time without consequence. You have been informed of the purpose of this investigation and tasks that may be associated with my participation, as well as any risks that may be associated with performing those tasks. You understand that identifiable information will not be used in any report of this study; however, findings from this study may be published in a professional journal and/or presented at a professional conference. By signing this form, you are voluntarily agreeing to participate in this research study as described.

Participant Signature __________________________ Date ______

Name of Participant (printed) __________________________ Date ______

Person obtaining consent __________________________ Date ______
Appendix C

Student Demographic Questionnaire

Last 4 digits of J number (University of South Alabama student ID number): ____________

Check all that apply:

Student Group: Nursing Speech Language Pathology Respiratory Therapy

Gender: Male Female

Age: 20-25 25-30 30-35 35-40 40-45 45 and above

Experience working in a clinical setting: none 0-5 years 5-10 years 10-15 years

If experienced, describe the setting:

- Primary care (doctor’s office or clinic)
- Acute care (hospital)
- Long-term care (nursing home or residence)
- Home health
- Research
- Other: ___________________________

If experienced, how often did you witness or participate in, interprofessional collaboration for patient care?

- Never
- Rarely
- Often
- Very Often
Appendix D

IPE Simulation Scenario

Scenario: A 65 y/o construction worker foreman for the past 35 years, Mr. Stanley Halstead has a history of COPD, 60 pack year smoker, HTN, IDDM, CAD, and has been admitted with COPD 5 times in the past 3 years. Home meds include Norvasc, Duoneb, Pulmicort, Brovana, and HCTZ. Mr. Halstead was admitted 3 weeks ago for emergent CABG. He has had difficulty weaning from the ventilator, had a tracheostomy 2 weeks ago, and is now being considered for speaking valve placement. Mr. Halstead is receiving aerosol therapy and supplemental oxygen. His family member is at the bedside.


<table>
<thead>
<tr>
<th>Time</th>
<th>Scenario Flow</th>
<th>Expected Learner Actions</th>
<th>Sim Tech &amp; SP Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 minutes</td>
<td><strong>Initial assessment:</strong> Nursing students (x 2) enter room</td>
<td>• Introduce to pt &amp; family</td>
<td>• If O2 increased, increase SpO2 to approx. 96%</td>
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<tr>
<td></td>
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<td>• Assess patient</td>
<td>• Answer phone “operator” and connect student to appropriate dept. State “they are on their way” if inquiring about RT or SLP</td>
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<td></td>
<td></td>
<td>• Assess vital signs</td>
<td>SP:</td>
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<tr>
<td></td>
<td></td>
<td>• Provide (increase) O2</td>
<td>• Ask who they are if no introduction</td>
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<tr>
<td></td>
<td></td>
<td>• Begin review of physician orders</td>
<td>• If students do not explain O2 application, ask questions</td>
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<td></td>
<td></td>
<td>• Place call for RT re: trach care &amp; suctioning</td>
<td>• Maintain frustration over inability to communicate w/ pt</td>
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<tr>
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<td>• Place call for SLP re: consult</td>
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<tr>
<td>5-10 minutes</td>
<td><strong>Case progression:</strong> Respiratory therapy student (x 1) enters room</td>
<td>• Introduce to pt &amp; family</td>
<td>• Decrease SpO2/increase RPM if improper technique is used for trach care &amp; suctioning</td>
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<tr>
<td></td>
<td></td>
<td>• Assess patient (RT)</td>
<td>SP:</td>
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<tr>
<td></td>
<td></td>
<td>• Assess vital signs</td>
<td>• Ask who they are if no introduction</td>
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<tr>
<td></td>
<td></td>
<td>• Review orders &amp; perform suction &amp; trach care with nursing students</td>
<td>If students do not explain, then ask questions, i.e. “Why are you suctioning his tube?”</td>
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<tr>
<td></td>
<td></td>
<td>• Teach pt &amp; family while performing suctioning &amp; trach care</td>
<td>• Maintain frustration over inability to communicate w/ pt</td>
</tr>
</tbody>
</table>

63
| **10-20 minutes** | **Case progression:** SLP student (x 1) enters room (with Pocket T.O.M. & speaking valve) | • Introduce to pt & family  
• Assess patient (SLP)  
• Assess vital signs  
• Review orders  
• Begin education & placement of speaking valve | • If cuff is not deflated then SpO2 should decrease, and RPM increase drastically!  
SP:  
• Ask who they are if no introduction  
• Maintain frustration over inability to communicate with pt, until education is done, express relief that pt will be able to “talk” |
| **20-25 minutes** | **Resolution** | • Patient re-assessed and vital signs re-evaluated  
• Ask patient & family if they have further questions | • Once speaking valve is placed, speak using hoarse voice words like “hey ______” and “thank you”  
SP:  
• Overjoyed that pt can communicate  
• Express relief and gratitude |
Appendix E

Student Group Rotation for IPE Simulation

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<tr>
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<th>0930</th>
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</table>

*denotes break (no group)

Each Student Group (A, B, C, etc.) divided into 4 rooms consists of:
4 Respiratory Therapy Students
4 Speech Language Pathology Students
8 Nursing Students

Each Sim Lab team consists of:
1 iStan manikin
1 Standardized Patient
1 technician
1 faculty observer

Each Debrief Room consists of:
1 Student Group
1 Nursing Faculty
1 Respiratory Therapy Faculty
1 Speech Language Pathology Faculty

Each Post Test Consists of:
1 Student Group
1 proctor to administer post test
Appendix F

PowerPoint Slides used in Simulation Debrief

<table>
<thead>
<tr>
<th>Slide</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide 1</td>
<td>IPE Simulation Debriefing</td>
</tr>
</tbody>
</table>
| Slide 2 | Debrief Instructions:  
- Sit down with your team  
- Take a moment to introduce yourselves (name, clinical/academic background and experience, future plans)  
- Describe your profession to your teammates |
| Slide 3 | Who lead your team?  
How did you decide who did what? |
| Slide 4 | With your team, discuss the biggest challenge you experienced as an individual. |
| Slide 5 | With your team, discuss the biggest challenge you experienced as a TEAM |
| Slide 6 | What do you think your team did BEST? |
| Slide 7 | If you had the opportunity for a “redo,” what would you change? |
| Slide 8 | On a scale of 1 (not well) to 5 (perfect), rate your interactions with the patient. |
| Slide 9 | On a scale of 1 (not well) to 5 (perfect), rate your interactions with the family member. |
| Slide 10 | Provide 3 ways in which optimal patient communication enhances overall patient care. |
| Slide 11 | Any questions about Passy-Muir Valve placement and clinical indications? |
Appendix G

Hi Alison
Good hearing from you.

The full reference is


Copy right issues meant only a pre edited version went up onto the website but the Jackson and Blateau book is in print at present 2009, and a cleaner version appears there.

These two attached papers have the scales we used in the research at the end of each after the references. I hope this will be useful. You are very welcome to use them.

Sarah

Dr Sarah Hean
Associate Professor
School of Health & Social Care (HSC)
Bournemouth University R118, Royal London House,
Christchurch Road Bournemouth, Dorset, BH1 3LT, UK
T: +44 (0) 1202 9 62201

From: Alison Rudd [mailto:arudd@southalabama.edu]
Sent: 28 March 2013 03:39
To: Sarah Hean
Subject: IPE chapter

Dr. Hean,

Hello from the Gulf Coast of Alabama, USA! I am interested in reading your chapter "The measurement of stereotypes in the evaluation of interprofessional education." I found a pdf online but the source is unclear. I am working on my dissertation for my EdD from the University of Alabama and am interested in IPE in the Simulation Lab, working with nursing, respiratory therapy, and speech language pathology students, particularly what barriers (stereotyping) can inhibit IPE, in order to improve outcomes - specifically communicative abilities - for patients with tracheotomies eligible for speaking valve placement.

Do you know when I can expect the book by Jackson and Plateau to be in print? Also, would you be willing to share your tool(s) with me?

Any help you can provide would be most appreciated. Thank you for your time,
## Appendix H

### Participant Impressions Survey

Participant ID: ________________________________       Dept: ___________

On a scale of 1 to 5, how would you rate the following?
1 = Strongly Disagree   2 = Disagree  3 = Neither agree nor disagree  4 = Agree  5 = Strongly Agree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel better prepared to work with patients with tracheostomy/speaking valves.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I feel better prepared to work with other members of the healthcare team (nurses, respiratory therapists, and speech language pathologists) in providing care for patients with speaking valves.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I have a better understanding healthcare team member roles (nurses, respiratory therapists, and speech language pathologists).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I feel more comfortable communicating with healthcare team members (nurses, respiratory therapists, and speech language pathologists).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>The debriefing and group discussions were valuable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This interprofessional simulation activity was more effective than a traditional lecture.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I would like to participate in another interprofessional simulation activity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Name one thing you learned from this experience.

What would you like to see changed about this activity in the future?

Would you want to participate in another interprofessional simulation activity if given the opportunity? Yes ________    No__________
Appendix I

Participant Impressions Survey: Name one thing you learned from this experience.

**Nursing:**

What is expected from SLP and their role on caring for patients with passy muir valves.
Increasing 02 liters does not increase Pt’s F102
Learned the roles of other departments and what their accountable for
Roles of other health care professionals
Importance of communication throughout different practices
The role speech pathologists play in patient care
Better communication
Learned the different roles of the rt and slp
Im so much more confident this time than last year being a RN makes me more “well rouded” than the other occupants
What speech therapy does in a clinical setting
Learned about Fi02 and where to change the setting
The mechanisms about the passy muir valve
The roles other healhy care team members have
The role of the SLP & RT & how to work with them
Information about speaking valves
Full process of placing a PMV
Communication is key when working with other health care team members
The differences between Fi02 devices
How to better define roles of other health care members
How different interventions can overlap between specialties (suctioning)
Importance of the communication with the patient and family members
Each member of the health care team can suction
Importance of communication with the patient
About different roles in the hospital
How each occupation worked with each other
How to collaborate with other health care professionals
When to deflate and inflate the cuff
Importance of team work
Learned more about tracheostomys and ventilation from the video and interacting with the family members.
Writing notes on pt’s physical changes
To deflate the cuff before placing the valve
The existence of a speaking valve for a trach
Have an extra pair of sterile gloves to assist RT in suctioning to speed up the process
The importance of collaboration
The roles of SLP how to coordinate tasks with other professionals. some of our skills overlap
The role of respiratory / speech patho
Better communication skills w/ patient family members and team members
Communication with other departments is very important
Confidence in what you're doing goes a long way. Communication is key.
The roles of speech pathologists and respiratory therapists
The role that each discipline plays in placing a passy-muir valve
Better communicate with other people
How your roles fall into place and how they affect care
What the roles of my fellow healthcare professionals were
How to work well with other professions and know what my role as a nurse is.
Working together with other fields
I learned that I need to be more confident in myself & my action
I learned more about trach care and the benefits of a speaking valve other than just allowing the patient to talk
How to work as a team with other departments
Collaborative care
How to work with other departments
Communication with team is key
More about what SLP do
I learned about passy muir valves, and how to communicate with other HCPs
I learned about passy muir valves
How to work with other healthcare members
How SLP & Rt work in a health care team
What SLPs do
Communication between team members
Roles of the different professions. I have never worked with a SLP
Improved teamwork
How the speaking valve works
RT, nursing, SLP rock in patient care
The jobs and responsibilities of other healthcare professionals
Communication & healthcare workers
Pay more attention to the patient than trying to read the monitor
What other departments in the healthcare field can do
That respiratory therapists are also able to suction patients
Learned how to better work with other departments and what they can really do
RT are allowed to suction trachs
Learned the role of the SLP
RT has a high understanding of patient care
Better communication
What other professional do
PMV and what it does
Learned that I need to work on communicating with other people
I had never with a PMV before so this experience has prepared me for when I do have a patient with one.
What each member of the team were responsible for doing
How to better collaborate with healthcare professionals of different fields
The importance of teamwork
How important collaborating with other health professionals is
The importance of team work and effective prep on each individual’s part
PMV and how it’s placed
Assess the patient not the monitor

**Respiratory Therapy:**

Closed a tracheostomy for the first time
Communication with other health care professionals and team members
How to work with other health care staff and as a team
Learned each team members role
Teamwork pays off
Better learned the role of SLP. Saw how useful the interprofessional relationships are.
Everyone has to do his/her jobs completely
Always assume there is a cuff until you know for sure.
Passy Muir value concept
Passy Muir Valve
How to install or put on the Passy Muir Valve
How to work with other team members
Working with other health care members
How to work with a group/team
How to work better as a team with nurses and communicate
The communication
Nothing, I liked the simulation
How to work as a team

**SLP:**

What not to do when placing PMV
Role of RT & Nursing with PMV
The need to improve on patient and family member education
How to place a PMV
The significant vital criteria to be met prior to placing the valve (oxygen levels)
How to interact with other care professionals
The roles of each professional in a hospital setting
How to work with all the health care professionals
How to be a team member
How to perform PMV placement
More about the role of RT’s
How to interact with family members
Role of the respiratory therapist
What respiratory therapists do
About nurses and RT’s role on how to place a PMV
How to place the valve
How to place a PMV valve

72
Appendix J

Participant Impressions Survey: What would you like to see changed about this activity?

Nursing:

Better preparation materials
Use Real people
Provide more information prior to the simulation would allow us to be more comfortable with the situation and perform better.
Pre-conference
Would like to have better knowledge of what I’m supposed to be doing.
Use only one RN unless there are more jobs
Nothing it went well
Preparation for the sim was appropriate
Very well run activity, no change needed
nothing
Make it a more difficult situation
More info provided about the patient
More time at the beginning to introduce ourselves
More time to communicate with your group before the simulation
The order sheet needs to be clearer
More information before the simulation
More information about activity before hand
Nothing, it was good
Nothing really- maybe a brief on the roles of the other healthcare teams
I would like to see a clinical week when all disciplines spend a 2 day clinical period working as a team in each area
Hands on demonstration of placing the passy muir before the simulation
More information about what is expected from us
More debriefing from simulation professor on how we performed and what we should do differently
I would like to have more of these situations, because even though we did not know what to expect, I think the surprise and the anxiety related to the situation helps prepare us for the future situations in the clinical setting
Better prepare students. The video wasn’t enough
Learning the roles of the other team before beginning the scenario
The nurses and SLP’s were seniors and the RT was only in the 1st or 2nd semester. Don’t put experienced with non-experienced.
More info given before hand
Nothing changed very beneficial
Nothing it was great
Nothing
More info ahead of time
Time to collaborate with the team before going in the room
Nothing
A hands on demonstration with the passy-muir and better education before hand
I would like to see more information about what is expected from us
None
Nothing
More preparation on the scenario
Learning prior to activity everyones roles are
Debriefing activity
Nothing really
A little more preparation materials beforehand
Nothing, liked working and getting to know other department
Nothing I enjoyed working with the other healthcare members
I think this activity is set up well the way it is
Maybe more time to prepare
Nothing thought it was great
The video was not very helpful
Real people vs. mannequins (don’t know if that’s possible though)
None interdisciplinary simulations
Little more organization
None
Better prep materials before simulation
Let the nurses go into the room first and then contact SLP and respiratory like in hospital setting
Nursing students need more knowledge about speaking valves
More time in simulation
Different debriefing questions more info about the PMV or subject matter
Nothing
Nothing
Better preparation material. It was good but not enough for me
Clearly defined expectations from each professor
More time to collaborate with one another
More simulations like this one
Overall, I really enjoyed this simulation & really enjoyed having a live family member during the simulation as well. I wouldn’t change anything
Longer sim and more frequent
Real patient interaction
This activity doesn’t need any changes
More opportunity for nursing students to participate
A shorter debriefing period
Nothing
More feedback
More of the pt and family interaction in their roles

Respiratory Therapy:

Give a brief about the procedure and what to expect before
Include a physician
Everyone know their role
This being more commonly used on all learning
More detailed scenarios with lots of stuff to do
Make it harder
It was perfect
All well done don’t change anything
More info beforehand and more interaction between departments
A better role for the nurses
Have a real patient not a fake one
Have a brief about what to expect
None, it was well done
No
Learned the roles of nursing and SLP better. This helps with team work.

**SLP:**

Learn how to place prior to sim lab
An example of the simulation prior to the activity
More preparation
Watch a video on the valve before hand
Do the educational part in a classroom, not online so if we have questions we have someone to help us
Better understanding of the Passy-Muir mechanics before the activity
More time for team consultation before hand
More knowledge of the professional roles before the simulation activity
Teaching before hand
More instructions before hand
More instructions beforehand- after debriefing everything made a lot more sense
More education to SLP about medical terminology
More info on that the expectations are for us in the simulation
Learn more about what happens in therapy after valve placement
More preparation for students who participate in the sim
More education prior to activity
Give more details direction on how to do this before we go in.
Appendix K

February 5, 2014

Alison Rudd
Department of ESPRMC
College of Education
Box 870231

Re: IRB#: 14-OR-035- ME “Examining Professional Stereotypes in an Interprofessional Education Simulation Experience”

Dear Ms. Rudd:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Your application will expire on February 4, 2015. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval.

When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

except when necessary to eliminate apparent immediate hazards to participants:

IM, CIP
Officer

Office of
The University

Signature blocked

358 Rose Administration Building
Box 870231
Tuscaloosa, Alabama 35487-0231
(205) 348-7189
IMX (205) 348-7189
TOLL FREE (877) 820-3068

76
Appendix L

UNIVERSITY OF SOUTH ALABAMA

Examining Professional Stereotypes in an Interprofessional Education Simulation Experience

Alison B. Rudd, RN, MSN (Division of Health Sciences/Simulation)
Julie M. Estis, Ph.D., CCC-SLP (CAHP/Speech Pathology)
Bill Pruitt, RRT, CPFT, AE-C (CAHP/Cardiorespiratory Care)
Theresa Wright, RN, CCRC, DNP (CON/Adult Health)

You are invited to participate in a study titled “Examining Professional Stereotypes in an Interprofessional Education Simulation Experience” at the University of South Alabama. If you have questions, you may contact Mrs. Alison Rudd (251-445-9208, arudd@southalabama.edu)

The purpose of this study is to implement an interprofessional simulation with students from nursing, respiratory therapy, and speech-language pathology (SLP) disciplines, and evaluate how the interprofessional education approach may enhance the accuracy of stereotypes that learners carry with them related to themselves, and professions other than their own.

The results of this study will be published and used to suggest training for health care providers. You were selected as a possible participant in this investigation because of your enrollment in one of the following academic programs at the University of South Alabama: Bachelor of Science in Cardiorespiratory Care, Bachelor of Science in Nursing, or Master of Science in Speech Language Pathology. If you agree to participate in this research, your participation is voluntary. You may decline participation in the demographic survey, pre-testing, post-testing, and impressions survey portions of this activity. Even if you agree now, you are free to say NO later, and walk away or withdraw from the study, at any time. Your decision will not affect your relationship with the University of South Alabama, or otherwise cause a loss of benefit to which you might be otherwise entitled.

This interprofessional simulation activity will be implemented in existing curriculum by faculty with experience utilizing simulation. This simulated, interprofessional education (IPE) experience will consist of three phases: training, simulation activity, and debriefing. For the training phase, each participant will view a 45-minute video training module created and presented by Passy-Muir, Inc., developer and manufacturer of tracheostomy speaking valves. Training will include anatomical structures and tracheostomy care, as well as indications, benefits, and application of speaking valves. For the simulation activity phase (30 minutes), students will be presented with a realistic acute care environment containing a high-fidelity simulator as the patient and standardized patient as the (SP) family member. Small groups comprised of students from each discipline will work together in an interactive simulation scenario that includes evaluation of patient, tracheostomy care, and speaking valve placement. All IPE sessions will be video recorded. For the debriefing phase (30 minutes), faculty will facilitate student group discussion of their simulation experience immediately after each IPE session. Audio/visual recordings will be used to replay the simulation scenario. Students will provide reflective evaluation of clinical performance and collaborative care.

To measure student stereotypes of their own role and professions other than their own, a pre- and post-test will be given. An attitudinal open-question survey will be used to measure students’ feelings and perceptions toward IPE and IPE using simulation. In addition, student discussion in the simulation debrief will be monitored by faculty and general comments related to student attitudes and perceptions will be noted.
If you decide to participate, you will receive information valuable to you as a future health care provider for tracheostomy patients. With this training, you will gain advanced knowledge of Passy-Muir valve placement and overall care of tracheostomy patients, as well as knowledge related to professional roles other than your own.

The researchers will take reasonable steps to protect your identity. While you will be asked to provide the last four digits of your student number in order to match your pretest and posttest answers, this information will be stored separately in password-coded file. Data will be stored in a password-coded file on a desktop computer. Only the principal investigator (Rudd) and co-principal investigators (Estis, Pruitt, and Wright) will have access to the study data. The results of this study may be used in reports, presentations, and publications; but researchers will not identify you. You may print a copy of this consent form for your records. Please contact the Institutional Review Board at the University of South Alabama at 251-460-6308 if you have questions about your rights as a research participant.

AGREEMENT TO PARTICIPATE IN RESEARCH:

Please select one of the following statements regarding audio/video taping:

___ I agree to be audio/video taped

___ I do not wish to be audio/video taped

You, , have reviewed the above information and have had the opportunity to ask questions which have all been answered to my satisfaction. You understand that my participation in this research study is voluntary, and that you may withdraw from the study at any time without consequence. You have been informed of the purpose of this investigation and tasks that may be associated with my participation, as well as any risks that may be associated with performing those tasks. You understand that identifiable information will not be used in any report of this study; however, findings from this study may be published in a professional journal and/or presented at a professional conference. By signing this form, you are voluntarily agreeing to participate in this research study as described.

Participant Signature

Date

Name of Participant (printed)

Date

Person obtaining consent

Date
Appendix M

UNIVERSITY OF SOUTH ALABAMA

INSTITUTIONAL REVIEW BOARD
December 19, 2013

Principal Investigator: Alison B. Rudd, RN MSN
IRB # and Title: IRB PROTOCOL: 13-332
[541509-2] Examining Professional Stereotypes in an Interprofessional Education Simulation Experience
Status: APPROVED Review Type: Expedited Review
Approval Date: 12/18/2013 Submission Type: New Project
Initial Approval: 12/18/2013 Expiration Date: December 17, 2014
Review Category: Category: 45 CFR 46.110 (6):
Collection of data from voice, video, digital, or image recordings made for research purposes.

This panel, operating under the authority of the DHHS Office for Human Research and Protection, assurance number FWA 00001602, has reviewed the submitted materials for the following:

1. Protection of the rights and the welfare of human subjects involved.
2. The methods used to secure and the appropriateness of informed consent.
3. The risk and potential benefits to the subject.

The regulations require that the investigator not initiate any changes in the research without prior IRB approval, except where necessary to eliminate immediate hazards to the human subjects, and that all problems involving risks and adverse events be reported to the IRB immediately!

Subsequent supporting documents that have been approved will be stamped with an IRB approval and expiration date (if applicable) on every page. Copies of the supporting documents must be utilized with the current IRB approval stamp unless consent has been waived.

Notes: