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# Improving Attitudes Toward Interdisciplinary Collaboration Between Nursing and Medical Students in Simulation

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Improving Attitudes toward Interdisciplinary Collaboration between Nursing and  
Medical Students in Simulation

by

Kristy H. Williams

A capstone project submitted to the faculty of  
Gardner-Webb University Hunt School of Nursing  
in partial fulfillment of the requirements for the degree of  
Doctorate of Nursing Practice

Boiling Springs

2015

Submitted by:

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Kristy H. Williams

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Date

Approval Page

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## Abstract

This capstone project assessed whether a curriculum change for senior nursing students could have an impact on improving attitudes toward physician-nurse collaboration. A convenience sample of 60 senior level nursing students and eight residents were enrolled in the study. The nursing students and residents participated in a high-fidelity simulation scenario, and were given a pretest and posttest using the Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration. There was strong evidence ( $t = -1.971, p = .05$ ) that the attitudes of physician-nurse collaboration improved for nursing students through a simulation based scenario with residents. The confidence interval for the difference was (-0.22, 0.002). Although the resident's mean scores improved post simulation, there was no statistical significance ( $t = -1.251, p = .25$ ) that the attitudes of physician-nurse collaboration improved after participating in a simulation based scenario with nursing students.

*Keywords:* interdisciplinary collaboration, communication, simulation, Jefferson Scale of Attitudes toward Physician-Nurse Collaboration, interprofessional education, residents, nursing students

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## **CHAPTER I**

### **Introduction**

Collaboration is important in every aspect of our lives. In healthcare, collaboration is vital to positive patient outcomes. According to Krautscheid (2008), The Joint Commission has identified interdisciplinary collaboration errors as a primary cause of sentinel events. Without proper collaboration between nurses and physicians, patients may not receive the best quality care. Health care consumers are demanding quality health care at lower cost. In order to meet these demands, healthcare workers must be able to effectively communicate which can ultimately prevent errors and cut health cost (Flicek, 2012). Better attitudes toward interdisciplinary collaboration between nurses and physicians are needed. Evidence suggested that lack of interdisciplinary collaboration discourages healthcare workers, leading to conflicts, lack of knowledge of other disciplines, and decreased interdisciplinary interactions (Norgaard, Ammentorp, Kyvik, & Kofoed, 2012).

### **Problem Statement**

During the first two months of employment, new graduate nurses fear and avoid communicating with physicians (Manias, Aitken, & Dunning, 2005). While in nursing school, students have little to no exposure with physician collaboration. As equally lacking is the residents' opportunity to communicate with nursing students. Simulation is an acceptable way to evaluate the effectiveness of interdisciplinary collaboration in nursing students (Krautscheid, 2008). Studies suggested that changes toward more interdisciplinary collaboration between nurse and physicians are warranted (Ward et al., 2008). Interdisciplinary collaboration should be taught in health care education

programs, so when the students graduate it will not be a new concept for them to learn.

### **Justification of Project**

Without effective interdisciplinary collaboration between nurses and physicians, patient care may suffer. Many attempts have been made in health care to improve interdisciplinary collaboration between nurses and physicians, but there is still concern with the lack of collaboration. About 60% of medical errors are attributed to lack of interdisciplinary collaboration (Flicek, 2012). The Joint Commission has listed interdisciplinary collaboration as one of the top ten patient safety initiatives for the year 2013. According to the American Nurses Association, effective collaboration improves job satisfaction for the nurses (as cited in McCaffrey et al., 2011). Duchscher (2001) conducted a study of new graduate nurses revealing that during the first one to two months of employment nurses feared talking with physicians. This fear can result in omissions or in incomplete understanding that can negatively affect patient care. There have been some efforts to work on collaboration throughout health care, but there is no universal direction or correct way to teach interdisciplinary collaboration to health care students.

A review of the literature showed that there is a gap in educating associate degree nursing students in regards to communicating with the physician. Recent studies have only included students who were enrolled in a baccalaureate degree program. This study will bridge this gap in the literature, because it will use associate degree nursing students instead of baccalaureate degree nursing students to investigate whether attitudes of interdisciplinary collaboration change. This study will utilize a high-fidelity simulation scenario with residents and senior level nursing students. Over the last two years only

about 12 to 18 students of approximately 60 students per semester have had interactions with residents in a simulation scenario. In 2013 a survey was conducted by faculty at the current research site, to evaluate the students' reactions to interaction with residents, over the last two years. Forty-four students responded to the survey, and 86.36% stated that they had gained knowledge and skills that would be useful in clinical practice from the interdisciplinary simulation between nursing students and residents. A result of the survey stated that 93.18% of the students felt the interdisciplinary simulation was worth their time. An overwhelming majority of the nursing students, 89.80%, stated that training with physicians, residents, or medical students should be a part of clinical. In response to the survey, this project will implement a curriculum change to allow each student the opportunity to participate in an interdisciplinary simulation with a resident.

### **Purpose**

The purpose of this capstone project was to determine if the implementation of a curriculum change will affect attitudes towards interdisciplinary collaboration.

### **Project Question or Hypothesis**

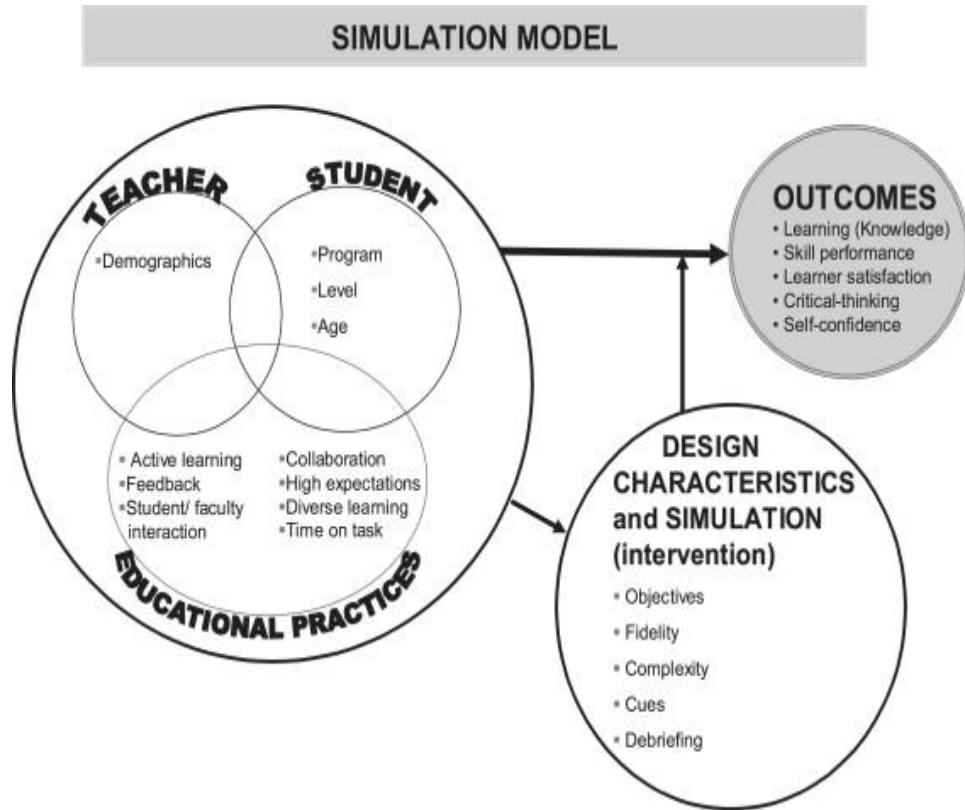
The following research question was asked:

Do the attitudes toward interdisciplinary collaboration between nursing students and residents improve after a high-fidelity simulation scenario?

### **Conceptual Framework**

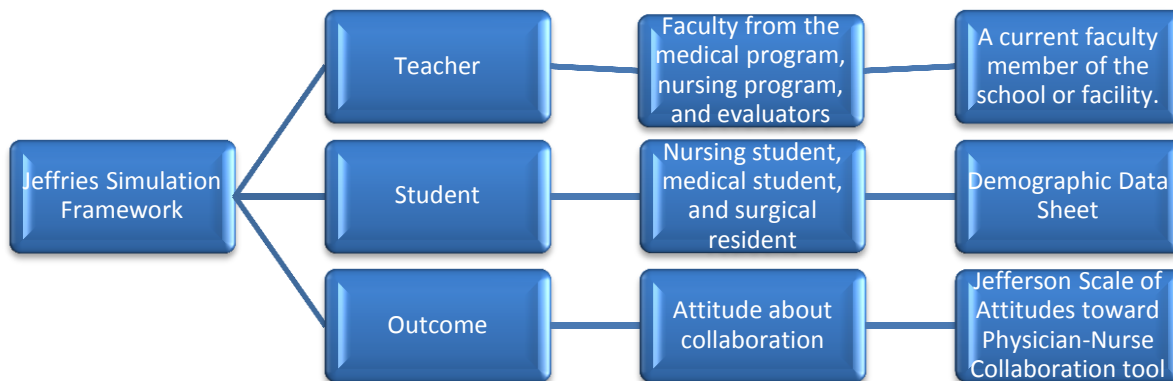
Pamela Jefferies' (2005) conceptual framework was used to guide this capstone project. Jefferies' Nursing Education Simulation Framework (NESF) was created to assist the nurse educator in creating, implementing, and evaluating simulation based learning activities with students (Jefferies, 2005; 2007). Jefferies' framework has five

concepts and each concept contains multiple variables (Jefferies, 2005). The five major concepts are teacher, students, education practices, simulation design, and expected student outcomes (Jefferies, 2005). Jefferies (2005) defined teacher as the person who provides the learners support throughout the simulation and debriefing. Students are defined by Jefferies' (2005) as participants who are self-directed and motivated throughout the simulation scenario. Within the student concept according to Jefferies' (2007) there are variables of program, student level and age that need to be considered. Educational practice is defined by Jefferies (2005) as research regarding teaching or educational principals. Jefferies (2007) list the following variables that need to be considered for education practice concept "active learning, high expectations, time on task, diverse learning, collaboration, feedback, and student/faculty interaction" (Jefferies, 2005, p. 98). Outcomes are defined as the product of the course or learning activity as defined by Jefferies (2005). In the outcomes concept under the NESF the variables are "learning, skill performance, learner satisfaction, critical thinking, and self-confidence" (Jefferies, 2005, p. 98). Simulation design is defined as using a teaching activity with a simulation mannequin to support the course goals, competencies, and learning objectives desired by the students according to Jefferies (2005). With the simulation design concept in NESF the variables that need to be looked at are "objectives, fidelity, problem solving, student support, and debriefing" (Jefferies, 2005, p. 98). Figure 1 illustrates how each of these five main elements are interrelated.



*Figure 1.* Jefferies' Simulation Model (Ironside, Jefferies, & Martin, 2009)

For the purpose of this capstone project, Jefferies' concepts of teacher, student, and outcomes were utilized. The teacher was defined as a faculty member for the medical program, nursing program, or evaluator and measured by their current role as a member of the school or facility. The student was defined as a nursing student or resident, and measured by recording their information on the demographic data form. Outcome was defined as the nursing student's and resident's attitude about interdisciplinary collaboration and was measured by the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool. The Conceptual, Theoretical, and Empirical (CTE) structure outline these concepts in Figure 2.



*Figure 2.* CTE Diagram Relating Jefferies' Framework to Capstone Project



### **Definition of Terms**

- Debriefing is performed post simulation, to allow the participants to discuss how the patient care and collaboration was performed during the simulation (Titzer, Swenty, & Hoehn, 2012a).
- High-fidelity simulation is defined as use of a computerized human mannequin that is life-sized and has the capabilities to have human heart sounds, lung sounds, and other human features to be the patient in a scenario based reenactment (Scavone et al., 2006).
- Interdisciplinary collaboration is defined as one or more disciplines communicating with each other in a professional manner.

### **Summary**

Over the last few years interdisciplinary collaboration in health care has become an essential focus (Norgaard et al., 2012). There is a need for improvement in the effectiveness of interdisciplinary collaboration between nurses and physicians. Interdisciplinary collaboration is necessary for health care curriculums according to the Institute of Medicine (Reising, Carr, Shea, & King, 2011). With the focus of health care shifting to quality care, all disciplines must be able to provide valuable input into conversations about the patient. Without effective collaboration between nurses and physicians patient outcomes will suffer. One way to improve the effectiveness of interdisciplinary collaboration between nurses and physicians is allowing them to experience the value of interdisciplinary collaboration on patient care early in their education. Using Jefferies' Simulation Model, a nonthreatening way to allow the interdisciplinary collaboration process to begin in health care educational intuitions is

through a simulation experience with other disciplines. Allowing the interactions with other disciplines before graduating will allow students to improve their attitudes in interdisciplinary collaboration, resulting in effective nurse/physician collaboration.

## **CHAPTER II**

### **Research Based Evidence**

A literature review was performed using an array of databases, search engines, and key search terms. Cumulative Index to Nursing and Allied Health Literature (CINAHL), Area Health Education (AHEC), Google Scholar and Nursing Reference Center databases were utilized. Simulation, collaboration, physician-nurse communication, Pamela Jefferies and student communication were the key search terms that were examined.

### **Review of Literature**

#### **Nurse and Physician Collaboration**

Dillon, Noble, & Kaplan (2009) used a mixed method study to address interdisciplinary collaboration before and after a mock code. The study used a pretest/posttest design using the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool, which has 15 Likert scale questions used to collect quantitative data. Qualitative data was also collected using four open-ended questions. The study used nine medical students and 29 nursing students. The results showed that both nursing students and medical students posttest scores increased, which showed that the students view of interdisciplinary collaboration improved through simulation. The qualitative data found that both nursing and medical students thought simulation was a great experience and it should continue in the curriculum.

Sterchi (2007) conducted a non-experimental cross-sectional study to examine nurses and physicians attitudes toward interdisciplinary collaboration among 72 physicians and 65 nurses. Participants were given the Jefferson Scale of Attitudes toward

Collaboration tool anonymously. Surveys were placed in departmental mailboxes of one hospital. The results revealed that physicians with less than ten years' experience rated interdisciplinary collaboration lower than physicians with more than ten years with a mean score of 49.62, compared to a mean score of 50.61. Nurses rated their attitudes toward interdisciplinary collaboration higher than physicians. Nurse with less than ten years' experience had a mean score of 54.33, compared to nurses with more than ten years 53.91.

McCaffrey et al. (2012) conducted a quasi-experimental study to evaluate the effectiveness of an educational program on collaboration and communication among physicians and nurses. Forty-seven residents and 68 nurses participated in the study and completed the Jefferson Scale of Attitudes Toward Collaboration tool before and after the educational program to evaluate the progress. Results showed that both residents and the nurse's attitudes toward collaboration significantly improved.

Thomason (2007) conducted a descriptive prospective study to determine if there are any differences in attitudes between the nurses and physicians on a medical surgical unit in regards to attitudes of nurse-physician collaboration. Sixty-five nurses and 37 physicians were asked to complete the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool. Results showed that there were slightly higher positive attitudes toward collaboration between the nurses compared to the physicians. The results of the study showed no statistical significance between the nurses with a total mean score of 52.7 and the physicians with a score of 47.6 (Thomason, 2007).

Ward et al. (2008) used a mix method study to measure the reliability of the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration among nursing

students and to assess empathy among nursing students. Three hundred and thirty-three nursing students from Jefferson School of Nursing completed the two instruments that were used in the study, the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration and the Jefferson Scale of Empathy. The Jefferson Scale of Physician Empathy was used to “measure the empathy among nursing students” (Ward et al., 2008, p. 378). Results indicated that the items of the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration “were all positive and statistically significant ( $p < 0.05$ )” (Ward et al., 2008, p. 383). Internal consistency and reliability is an alpha reliability coefficient of 0.77. The results of study indicated that the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration is valid and reliable for nursing students to utilize.

### **Effects of Simulation**

Bambini, Washburn, & Perkins (2009) used an integrated quasi-experimental study to determine the self-efficacy of 112 baccalaureate nursing students using simulation. The nursing students were asked to complete three surveys created by the researchers: a pretest, posttest, and follow-up survey. Only 20 students completed the follow-up survey. The study found that the nursing students experienced an increase in self-efficacy after the simulation ( $p < .01$ ). In the qualitative data, results showed that students learned the importance of communication and improved their confidence.

Leonard, Shuhaibar, & Chen (2010) used a mix methods study to determine nursing students’ competence. Forty-two baccalaureate nursing students from all four academic years were asked to participate in acute pediatric and adult simulation scenarios where their performance was scored by the faculty. Each student was placed in one scenario, with a max of five total students that lasted 15 to 30 minutes long with

debriefing afterwards. Each nursing student was asked to complete a questionnaire that consisted of “ten open-ended differentiation, adaptation to team environment, and professional solidarity” (Leonard et al., 2010, p. 629).

Baker et al. (2008) conducted a mix methods study to determine interdisciplinary education perceptions. One hundred-one nursing students, 42 medical students, and 70 junior residents were asked to complete a questionnaire, which extracted questions from the Interdisciplinary Education Perception Scale. The participants were also asked to complete open-ended questions on the questionnaires and participate in a focus group. The study found that many participants valued the educational experience and would like more simulation experiences with other disciplines earlier in their educational experiences. The study found participants also perceived they had more understanding of their individual and team roles. The nursing students valued the interprofessional component of the interdisciplinary simulation experience the most with a mean score of 4.85 on a five point scale, compared to the medical students mean score of 4.64 and junior students mean score of 4.69. Junior residents valued the simulation component the most at a mean score of 4.96, compared to the nursing students at 4.89, and the medical students at 4.85. Nursing students' scored the highest understanding of the team roles with a mean score of 4.76 compared to the junior students at 4.67, and the medical students at 4.66.

Kameg, Howard, Clochesy, Mitchell, & Suresky (2010) used a quasi-experimental design to evaluate two different teaching styles including a traditional lecture and a high-fidelity simulation style of teaching. Thirty-eight nursing students from a western Pennsylvania university were divided into two groups (a simulation group

and a traditional teaching group) and asked to complete the General Self-Efficacy Scale. The simulation group had 21 students and participated in a simulation activity. The traditional teaching group had 17 students that were placed in a traditional classroom. The study found that the students participating in the simulation experience reported a higher level of self-efficacy compared to students participating in the traditional teaching session.

Krautscheid (2008) performed a quality improvement project to improve students' interdisciplinary collaboration and assessment of the patient. Two hundred eighty-five baccalaureate nursing students were asked to complete a simulation scenario while faculty observed and collected data using the Clinical Assessment Simulation tool. Faculty observed while assessing the nursing students' cognitive level and psychomotor skills throughout the simulation scenario. An objective of the Clinical Assessment Simulation tool was for the faculty to observe the students' interdisciplinary collaboration and assessment of patients. The study found that nursing students appeared timid, insecure, and had some hesitation when asking the charge nurse to call the physician during the scenario. Other signs noticed by the faculty observers were that students' hands were shaking before calling the physician on the phone. The study looked at different cohorts of students from 2005 through 2007. The students from the class of 2005 did not achieve the communication skill criteria that were evaluated. The class in 2006 and 2007 achieved the communication skills that were being evaluated.

Ker, Mole, & Bradley (2003) used a mix methods study to determine collaboration, teamwork, effective leadership, ability to prioritize, and clinical competence. Ninety-two medical students and 59 nursing students from the University in

Scotland were involved in a simulation scenario about an acute medical issue and asked to fill out a semi-structured questionnaire. Observers assessed four criteria to evaluate the evidence during the simulation collaboration, teamwork, effective leadership, ability to prioritize, and clinical competence using the objective structured clinical examination (OSCE) checklist. The study found limited interdisciplinary collaboration in some groups that were thought to be due to lack of organization, and there was no evidence shown that the two different disciplines had conflict or tension. Leadership was observed within both medical students and nursing students. Ability to prioritize the workload and adequate communication between the two disciplines were linked between by the observers. Observers noted that neither the medical nor the nursing students used universal precautions. The study found that the participants perceived the simulation as a positive experience by both medical students and nursing students.

### **Communication**

Boswell, Lowry, & Wilboit (2004) used a quasi-experimental study to determine new nurse graduates struggles within the first 12 months of employment. Sixty-seven new nurses graduates were asked to fill out a questionnaire, which had 17 questions with two open-ended questions. The study found that 58% of the new nurse graduates indicated that they were uncomfortable with communication with physicians. Also, 16% of the study population noted that they were uncomfortable communicating with physicians and avoided calling the doctors. All of the participants indicated that their decision to become a nurse was a positive decision. Almost half of the new nurses indicated the switch in roles from student to nurse was difficult.

Ryan et al. (2010) used an observational study to evaluate medical and nursing



students' communication and attitudes. Forty-six medical students and 64 baccalaureate nursing students were asked to complete simulation scenarios using standardized patients, while trained evaluators from the faculty used the communication and consultation skills (CCS) to evaluate the students' performance. The study found that 72% of medical and 81% of nursing students passed the CCS assessment in both communication and attitudes categories (Ryan et al., 2010).

Manias et al. (2005) used a qualitative exploratory research design to study the readiness of new graduate nurses (nurses with less than 12 months experience) to collaborate with physicians. Twelve nurses were observed and asked to complete a semi-structured questionnaire during an interview. The study found that the 12 new graduate nurses were prepared for the interaction with the physicians. The nurses in the study communicated the necessary information appropriately.

### **Theoretical Literature Review**

A theoretical literature review was conducted using a variety of databases and search terms. The databases utilized were CINAHL, AHEC, and the search engine Google Scholar. Pamela Jefferies and simulation were the two search terms used. Four studies were noted to apply Pamela Jefferies' nursing simulation based framework: Ironside et al. (2009), Reese, Jeffries, & Engum (2010), Gore, Hunt, Parker, & Raines (2011), and Reising et al. (2011). Each used the conceptual model of Pamela Jefferies to conduct their studies.

Ironside et al. (2009) used a mixed method study to evaluate patient safety competencies of 67 nursing students. Outcomes for the study were measured using the Multiple Stimulus Types Ambiguity Tolerance Scale-I (MSTAT-I), which measured the

student's cognitive level toward making judgments without having all the desired simulation information. The study results found that having students perform in multiple simulation scenarios increases the attainment and application of patient safety competencies.

Ironside et al. (2009) study used all five main concepts of Jefferies' model. Teacher factors were managed by detailed simulation scenarios with strict guidelines on how to conduct the scenarios by the researchers. In the study, the student was identified by program, level, and age. Jefferies' Educational Practices Concept was used in the study with high expectations, and active learning using multiple patient simulations. Jefferies Concept of Simulation Design was demonstrated by providing multiple simulation scenarios with the objective to improve clinical judgments and patient safety competencies. Jefferies' Outcome Concept was measured during the study using the MSTAT-I tool.

Reese et al. (2010) performed a mix methods study using simulation to develop collaborative interdisciplinary interactions between nursing and medical students. Fifteen medical students and 13 nursing students were asked to complete a simulation scenario and several questionnaires including the Simulation Design Scale (SDS), the Self-Confidence Scale which is a 14-item scale based on Kirkpatrick's evaluation framework, and a 12 item collaboration scale that was designed by the researcher. Three open-end qualitative questions were also used in the study. There were no significant differences with the results between the medical students and the nursing students. Both felt that this was a positive experience and the collaborative scores were high with a mean for all questions 4.54 to 4.7 on a 5.0 scale.

Pamela Jefferies' Nursing Education Simulation Framework (NESF) was the model that guided Reese et al.(2010) research. Jefferies' concept of student was defined in the study as 13 senior-level baccalaureate nursing students and 15 medical students in their third year from one university in the Midwestern United States. Another concept from Jefferies' model that was used in the study was simulation design which followed Jefferies' lay-out of objectives, fidelity, complexity, cues, and debriefing. Objectives were defined in the study as collaborative care with the medical and nursing students. Fidelity was defined as high-fidelity with the simulation room set up as a hospital room with resuscitation equipment. Complexity was defined as the expectations of the students. Cues were the verbal and physiological cues given by the simulator. Debriefing was a 20-minute session held immediately after each simulation scenario, which was comprised of 11 standard questions. According to the study the SDS, Self-Confidence Scale, and a collaboration scale measured Jefferies' concept of outcomes.

Gore et al. (2011) performed a quasi-experimental study to determine if the use of simulation can reduce clinical anxiety. Seventy junior nursing students in a baccalaureate program were divided into two groups, a control group of 23 students and an experimental group of 47 students, and asked to complete the State-Trait Anxiety Inventory (STAI) tool. The control group began clinical in an inpatient setting, and the experimental group began their first four hour shift in the simulated hospital with the manikin. In the experimental group the students scored significantly lower on the STAI with the mean score of 11.0 verses 13.0 with the controlled group. The experimental group reported less anxiety than the control group.

Jefferies' NSEF was the guiding conceptual framework for Gore et al. (2011). In

the study, Jeffries concept of student was defined as a junior student at one university in the nursing baccalaureate program. Simulation was defined as a low-fidelity manikin to whom the nursing students were to provide total nursing care. The concept of outcomes was measured by the State-Trait Anxiety Inventory (STAI) tool, which used a four point Likert scale to measure 20 self-reported items pertaining to anxiety.

Reising et al. (2011) used a mixed method study to compare a roundtable method versus high-fidelity simulation method to teach interdisciplinary collaboration (Reising et al., 2011). Forty-one baccalaureate nursing students and 19 second-year medical students were asked to complete two questionnaires developed by the researchers, which collected both quantitative and qualitative data. The study found that using both the roundtable and the simulation methods of teaching scored positively in relation to having a better understanding of their role on the clinical team. The simulation method scored slightly higher in all the quantitative data than the round table method. Also, the qualitative data for both groups demonstrated that both the nursing and medical students felt they had a better sense of their part in interdisciplinary communication. The round-table setting participants stated it would have been helpful to have a more interactive scenario.

Pamela Jefferies' NSEF was the model used to guide the research performed by Reising et al. (2011). In the study, students were defined as senior baccalaureate nursing students and second-year medical students from one university. The study noted that students and faculty bring characteristics that need to be accounted for according to Jefferies' model. Simulation design was identified as a high-fidelity simulation with problem solving and debriefing, which consists with Jefferies' model. Educational practices are to evolve through the student and educator according to the study, which

was taken from Jefferies' model. Outcomes concept from Jefferies' model was defined in the study as merging interprofessional communication.

### **Gaps in Literature**

The gap in the literature is that sample groups evaluating interdisciplinary collaboration appear to include baccalaureate degree nursing students. There is little to no research on this subject that utilizes associate degree nursing students.

### **Strengths and Limitations of Literature**

Research has shown that simulation can improve collaboration simulation (Bambini et al., 2009; Reising et al., 2011; Ryan et al., 2010). Another strength is that the literature on communication and collaboration are well defined (Manias et al., 2005; Ryan et al., 2010; Sterchi, 2007). The Jefferson Scale of Attitudes toward Collaboration tool was well established in several research articles (Dillion et al., 2009; Strechi, 2007).

There were several limitations throughout the literature. One limitation of the literature is that most studies were only performed at one facility, and several with a small sample size. Although there were multiple studies performed using simulation and collaboration, the studies were limited to one or very few small facilities in only one area. With very limited facilities used and using a convenience sample from these limited sites poses a limitation to global assumptions. Another limitation in the literature indicated that the nursing students who participated were baccalaureate nursing students, and associate nursing students were not studied.

## **Summary**

In summary, there is ample literature that supports communication and collaboration between the nurse and the physician. The Jefferson Scale of Attitudes toward Physician-Nurse Collaboration has been used in several studies and has been proven to be a reliable tool to measure physician-nurse collaboration. Pamela Jefferies NSEF was a model that has been reviewed in the literature to meet the needs of the capstone project.

## **CHAPTER III**

### **Project Description**

The purpose of this capstone project was to implement a curriculum change with senior nursing students to determine if participation in a high-fidelity simulation with residents would promote a change in attitude toward physician-nurse collaboration. The following chapter presents the design, setting, sample, methods, ethical considerations to protect human subjects, instrument, data collection procedure, and data analysis procedure used in this project.

### **Project Design**

This project used a pretest posttest design with inferential analysis to determine if a curriculum change allowing all senior nursing students to participate in a high-fidelity simulation with residents would promote a change in attitude toward physician-nurse collaboration.

### **Setting**

This capstone project took place in a simulation center located in a two-year college in the southeast region of the United States. The simulation center was established by a health care hospital system to meet the needs of the organization and the college that is joined to the health care system. The simulation center is dually accredited by the American College of Surgeons and the Society for Simulation in Healthcare. There are several high-fidelity, medium-fidelity, and low-fidelity manikins of various sizes including infant, child, and adult. For the purposes of this capstone project the adult high-fidelity manikin was used.

### **Sample**

This study consisted of a convenience sample of 61 senior level associate degree nursing students and 13 residents. All but one resident participated in two to four scenarios. The residents were either in their first, second, third, or fourth year of study with a focus on surgery or emergency medicine. While the nursing students were required to participate in the simulation for their course, they were able to opt out of the survey and the study. To be included in the study, the nursing student had to be in their senior year and willing to complete the surveys. All nursing students repeating the course were omitted from the study. For the residents to be included in the study they must be willing to participate on a voluntary basis.

### **Protection of Human Subjects**

Internal Review Board (IRB) approval was obtained from the research setting and the University prior to the project's implementation. The subjects were selected based on their curriculum and had the option to refuse to participate in the pretest/posttest, and the study at any time. Subjects were given a consent form before the pretest was administered (Appendix A). If the participants opted out of the research, no more data was to be collected from the participants. Due to the pretest being unidentifiable if the participants opted out after completing the pretest, the pretest data was used, but no posttest data was collected. No identifying information was collected, keeping the data anonymous. The data was kept confidential in a double-locked location selected by the project administrator, with only the project administrator having access to the data. In the event the participant experienced stress during the simulation they were to be referred to the employee assistance program for assistance.



## **Instruments**

The Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool (Appendix B) was used to collect pretest and posttest data for this capstone project. The tool contained 15 questions related to physician-nurse collaboration. Each question was based on a four point Likert scale. Permission was obtained to use the tool (Appendix C). According to Dougherty and Larson (2005) the Jefferson Scale of Attitudes toward Physician–Nurse Collaboration has a “content validity greater than one and a Cronbach’s alpha of .84 for medical students and .85 for nursing students” (p. 250). The combined reliability of nursing and medical students, “ranged from 0.65 to .40 with a median correlation of 0.61” (Dougherty & Larson, p. 2005).

Demographic data was collected for nursing students and residents (Appendix D). The demographic data included age, gender, race, course of study, and level. The demographic data may be used to later see trends in gender, race, and age of the student. Demographic data allowed the results to compare courses of study and levels with perception of physician-nurse collaboration.

## **Project Implementation**

A curriculum change allowed 61 senior level associate degree nursing students to participate in a high-fidelity simulation scenario with 13 residents. The Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool was administered at the beginning of the semester to the nursing students and then again after the nursing students had completed their simulation session and debriefing with the residents. The residents received the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool to fill out before the simulation and after debriefing.

In the scenario, three to four nursing students assessed the high-fidelity mannequin and communicated the findings to one resident. If the resident needed additional assistance they were able to call in a higher-level resident to help manage the medical portion of the scenario. Throughout the scenario, the nursing students were to assume the role of the nurse and the residents were to perform the role of the physicians. The simulation scenario focused on teamwork, and lasted 15 minutes. Immediately after the scenario, debriefing took place in a different room involving all the scenario participants with medical and nursing faculty. The debriefing focused on the participants' perception of teamwork and collaboration followed by the medical management of the simulation scenario. Each debriefing lasted approximately 25 minutes.

There were 20 scenarios that took place within in an eight week time period between August and October 2014. Two to three scenarios were performed each week. No more than two scenarios a day were performed with both the nursing students and the residents involved. Interdisciplinary collaboration was the main topic of debriefing. The Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool used in the form of a pretest/posttest was rendered to collect quantitative data to be analyzed.

### **Data Analysis**

Data was analyzed using the Statistical Packages for the Social Sciences 22.0 © (SPSS). Descriptive statistics and a paired sample *t* test were used to analyze the data.

### **Summary**

Sixty-one senior nursing students were paired with a resident for a simulation scenario. Both the residents and the nursing students were surveyed using the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool before and after the simulation experiences to see if their attitudes toward collaboration had changed. The data was analyzed using a paired sample *t*-test by way of Statistical Packages for the Social Sciences 22.0 © (SPSS).

## **CHAPTER IV**

### **Results**

The purpose of this project was to implement a curriculum change to allow all the senior nursing students to participate in a high-fidelity simulation with residents, and to establish if that would promote a change in attitude toward physician-nurse collaboration. The following chapter presents the statistical analysis of the results if attitudes toward physician-nurse collaboration would change if senior nursing students to participate in a high-fidelity simulation with residents.

#### **Sample Characteristics**

Sixty-one senior level nursing students participated in a simulation with a resident. Only 60 (98%) agreed to be in the study by filling out the initial survey. The return rate of the final survey was 51 (85%). The nursing students' age ranges include: 12 students (20%) were 18-24 years old, 36 students (60%) were 25-34 years old, seven students (12%) were 35-44 years old, and five students (8%) were 45-54 years old. The ethnic backgrounds of the students were analyzed. Fifty-two (86%) of the nursing students who were surveyed were white, one Hispanic or Latino (2%), four (7%) Black or African American, two (3%) were Asian, one (2%) other, and no Native Americans or American Indians and Asian/ Pacific Islander were identified. There were six (10%) male nursing students surveyed and 54 (90%) female nursing students surveyed. Demographic variables are displayed in Table 1.

Table 1

*Frequency Distribution of Demographic Variables of All Nursing Students*

Demographic Variable	<i>n</i>	%
Gender		
Male	6	10
Female	54	90
Age		
18-24	12	20
25-34	36	60
35-44	7	11.67
45-54	5	8.33
> 55	0	0
Ethnicity		
White	52	86.67
Black or African American	4	6.67
Hispanic or Latino	1	1.67
Native American or American Indian	0	0
Asian/Pacific Islander	2	3.33
Other	1	1.67

Thirteen residents participated in the simulation; however, only eight (62%) residents completed the pretest surveys, only seven (88%) of the eight filled out the post survey. Of the residents who participated in the study all were surgical residents. Two (25%) were female and six (75%) were male. Seven (88%) of the residents ranged in age from 25-34 years old and one (12%) resident ranged in age from 35-44 years old. The residents' ethnic background included six (75%) white and two (25%) Black or African American. No one was identified as Hispanic or Latino, Native American or American Indian, Asian/ Pacific Islander, and other. Of the surgical residents in the study two (25%) were first year residents, three (38%) were second year residents, two (25%) were third year residents, and one (12%) was a fourth year resident. Demographic variables are

displayed in Table 2.

Table 2

*Frequency Distribution of Demographic Variables of All Residents*

Demographic Variable	<i>n</i>	%
<b>Gender</b>		
Male	6	75
Female	2	25
<b>Age</b>		
18-24	0	0
25-34	7	87.5
35-44	1	12.5
45-54	0	0
> 55	0	0
<b>Ethnicity</b>		
White	6	75
Black or African American	2	25
Hispanic or Latino	0	0
Native American or American Indian	0	0
Asian/Pacific Islander	0	0
Other	0	0
<b>Year of Residency</b>		
First	2	25
Second	3	37.5
Third	2	25
Fourth	1	12.5

### **Major Findings**

A paired-samples *t* test was conducted to compare physician-nurse collaboration scores in nursing students and residents before and after simulation. Prior to conducting statistical analysis, data were screened for outliers and assumptions of normal distribution were satisfied. The summed mean results from questions number 1, 3, 6, 9, 12, 14, and 15 on the Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration tool were

analyzed for comparison. On average, there was a significant difference in the physician-nurse collaboration scores for nursing students comparing pre-simulation scores ( $M = 3.70$ ,  $SD = .393$ ) to the post-simulation scores ( $M = 3.82$ ,  $SD = .224$ ,  $t(60) = -1.971$ ,  $p = .05$ ,  $r = .30$ ). When comparing resident scores, there was not a significant difference in the physician-nurse collaboration scores comparing pre-simulation scores ( $M = 3.57$ ,  $SD = .296$ ) to the post-simulation scores ( $M = 3.69$ ,  $SD = .222$ ,  $t(7) = -1.251$ ,  $p = .25$ ). However, there was a positive correlation for the resident scores indicating that scores, though not significantly different, did show an improvement in physician-nurse collaboration attitudes.

The results of data analysis indicated there was strong evidence that attitudes of physician-nurse collaboration improve for nursing students through a simulation-based scenario with medical residents, 95% CI [-0.22, 0.002]. However, residents did not demonstrate strong evidence that the attitudes of physician-nurse collaboration improve through a simulation-based scenario with nursing students, 95% CI [-0.353, 0.109]. Although both groups demonstrated increased scores after the simulation-based experience, nursing students demonstrated significantly increased scores of physician-nurse collaboration after the experience, whereas residents did not demonstrate significantly higher scores after the experience.

### **Summary**

Evaluating the attitudes of physician-nurse collaboration with senior nursing students and residents by way of a pretest/posttest survey before and after a simulation scenario, where both the senior nursing students and the residents had to perform in a high-fidelity simulation scenario together, revealed that nursing students improved their attitudes significantly toward physician-nurse collaboration. The residents' attitudes did improve by comparing the mean scores although the results did not reveal a significant change in perception of physician-nurse collaboration among the residents.



## **CHAPTER V**

### **Discussion**

This capstone project implemented a curriculum change to allow all the senior nursing students to participate in a high-fidelity simulation with a resident to see if this will improve attitudes towards nurse-physician collaboration. This chapter portrays the results of this capstone project and how the finding can impact nursing education.

### **Implication of Findings**

Sixty-one nursing students, 12 surgical residents, and one emergency department resident participated in the high-fidelity simulation scenarios. Of these students 60 nursing students and eight surgical residents agreed to fill out the initial survey. Of those students only 51 nursing students and seven surgical residents agreed to fill out the post survey. The nursing students and the surgical residents were required to participate in the high-fidelity simulations based on their curriculum, but they were not required to fill out the surveys.

The results revealed that nursing students' attitudes toward physician-nurse collaboration improved significantly after the high-fidelity simulation scenario with the residents. Although the residents' attitudes toward physician-nurse collaboration improved, it was not significant. One reason that it may have not been significant is that six of the eight residents who filled out the survey had already went through interdisciplinary training with senior nursing students in previous semesters. The results of this project concluded, that high-fidelity simulation scenario with the residents offers a way to improve attitudes toward physician-nurse collaboration for senior nursing students, and that this curriculum change should be maintained to improve collaboration.

### **Application to Theoretical Framework**

Pamela Jefferies' Nursing Education Simulation Framework (NESF) was the guiding conceptual framework for this project. Jefferies' concepts of teacher, student, and outcomes were utilized for this project. A faculty member for both the medical program and nursing program were utilized as the teacher concept. The student concept was defined as a nursing student or resident, and measured by recording their information on the demographic data form. Attitudes toward physician-nurse collaboration were the outcome concept which was measured by the nursing students and residents filling out the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration tool. Jefferies' NESF allowed the project a simulation based conceptual framework that was needed to guide the project.

### **Limitations**

There were several limitations to this capstone project. The limitations were as follows: sample size, some residents who have already been through similar training, timing, and self-reporting.

The small sample of residents and their lack of filling out the surveys was a limitation. Of the 13 residents who participated in the high-fidelity simulation only eight filled out the pretest and only seven filled out the posttest. Sixty-one nursing students participated in the high-fidelity simulation based training, 60 of those nursing students filled out the pretest and only 51 filled out the posttest. With a limited sample it is challenging to make global assumptions among nursing student and residents populations.

Over half, six of eight residents, had been through similar training experiences in

previous semesters of their education. This may have skewed the pretest data. So it is hard to define if the data from the residents is accurate.

Due to the time of the simulations and debriefing, some residents stated that they had engagements immediately after and prior to simulation so they would not be able to fill out the surveys. More time should have been given to the residents before and after the scenarios to fill out the surveys.

Self-reporting is the fourth limitation. Students may have not reported accurate attitudes toward collaboration due to the self-reporting, and the debriefing focusing on the need to collaborate and have proper communication between the nursing student and the resident. Since both the nursing students and the residents had a pre-existing relationship with the instructor this could have influenced the self-reporting of the survey results.

Setting was another limitation of the project. This capstone project was implemented in one setting in the southeast. It is difficult to presume that all colleges globally will have the same results, since this capstone project was limited to one college and only one area of the country.

### **Implications for Nursing**

With The Joint Commission (2013) safety initiatives addressing the need for proper interdisciplinary communication between the nurse and physician, it is vital that nursing students receive proper communication and collaboration skills during their education. While this capstone project served as a curriculum change for the nursing students, it revealed the potential impact that it can have on nursing students' attitudes toward physician-nurse collaboration. Nursing schools are faced with graduating

students who understand the importance of physician-nurse collaboration. This capstone project disclosed that through a curriculum change allowing all senior nursing students to participate in a high-fidelity simulation scenario with a resident could impact positively on the nursing students' attitudes toward physician-nurse collaboration. This capstone project also added more research to the current literature that demonstrates how interdisciplinary education is impactful to students.

### **Recommendations**

This project did support a curriculum change for nursing students allowing all senior level nursing students to participate in an interdisciplinary simulation with residents, to improve their attitudes toward physician-nurse collaboration. Further research needs to be performed regarding residents attitudes toward physician-nurse collaboration. Utilizing a small sample size can prevent results from being generalized to all nursing degree programs. Also, further research at more educational institutions utilizing larger sample sizes needs to be performed using residents and nursing students to examine attitudes of physician-nurse collaboration. Colleges and universities with nursing programs should try to implement changes to their curriculum to support nursing-physician collaboration throughout their nursing programs.

### **Conclusion**

With interdisciplinary collaboration being a focus for patient safety and effective patient care, nursing programs should implement interdisciplinary education into their nursing programs. Using a simulation based platform is an acceptable way to deliver interdisciplinary education. More studies need to be conducted on interdisciplinary education between nursing students and residents.

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## Appendices

APPENDIX A  
Consent Form

Study Title: Improving Attitudes toward Interdisciplinary Collaboration between Nursing and Medical Students in Simulation

Investigator: Kristy Williams MSN/MHA

Dear Students,

As part of the requirements for the Doctorate of Nursing Practice, I am conducting a study about improving nursing students' collaboration and attitudes toward collaboration with physicians. You are being invited to take part in this research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please take the time to read the following information carefully.

The purpose of this study is to determine whether a simulation between nursing students and medical students/residents will affect your attitudes about collaboration. The project will investigate attitudes towards collaboration.

- Your expected time commitment for this study is approximately 2.5 hours and will occur during your scheduled simulation days. You will be asked to complete two assessment surveys; with one demographic survey. One prior to starting simulation and one at the end of simulation and debriefing session the fall semester. Each set of surveys will take approximately 5 to 10 minutes to complete.
- Breach of confidentiality is a theoretical risk but we will make every effort to minimize this risk by locking up the results in a locked office and a locked file cabinet.
- The study has minimal risks. Physical stress will be minimal. Training sessions will be interrupted in case of fatigue or you wish to stop at any time. Psychological stress will be no greater than what you have experienced in past trying to learn a new difficult skill set. All efforts will be made to minimize the stress associated with participation in the study.
- There will be no direct benefit to you for your participation in this study. However, we hope the information obtained from this study may link academic and clinical preparation for communication readiness. There is no monetary compensation to you for your participation in this study.
- If you do not want to be in the study, you may choose not to participate. Your participation in this study is voluntary. If you decide to take part in this study, you are still free to withdraw at any time. You are free to not answer any

question or questions if you choose. This will not affect your standing as a student or the relationship you have with the faculty.

- You will participate in the simulation as part of the curriculum but may choose not to participate in the research aspect of the simulation.

Your personal data will be kept confidential. Should you have any questions about the research or any related matters, please contact the researcher [kwilliams17@gardner-webb.edu](mailto:kwilliams17@gardner-webb.edu) or my professor (the principle investigator), Tracy Arnold at [tarnold@gardner-webb.edu](mailto:tarnold@gardner-webb.edu). The CHS Institutional Review Board can be reached at (704) 355-3158.

**By completing the initial survey, I confirm that I have read and understood the information. I understand that my participation is voluntary and that I am free to withdraw at any time.**

**Please keep this copy for your records. Thank you for your time.**

## APPENDIX B Tool

### JEFFERSON SCALE OF ATTITUDES TOWARD PHYSICIAN-NURSE COLLABORATION

**INSTRUCTIONS:** Please indicate the extent of your *agreement* or *disagreement* with each of the following statements by circling the appropriate number. For the purposes of this survey, a nurse is defined as “a registered nurse (RN) who is engaged in providing or directly supervising the care of hospitalized patients.”

**Gender:** [1] Male. [2] Female.      **Age** (in years): \_\_\_\_

You are a: [1] **Nurse** (Please specify your degree: \_\_\_\_\_ Your specialization: \_\_\_\_\_ ).  
[2] **Physician** (Please specify your primary specialty: \_\_\_\_\_ ).

		Strongly Agree	Tend to Agree	Tend to Disagree	Strongly Disagree
1. A nurse should be viewed as a collaborator and colleague with a physician rather than his/her assistant....	4	3	2	1	
2. Nurses are qualified to assess and respond to psychological aspects of patients' needs.....	4	3	2	1	
3. During their education, medical and nursing students should be involved in teamwork in order to understand their respective roles.....	4	3	2	1	
4. Nurses should be involved in making policy decisions affecting their working conditions.....	4	3	2	1	
5. Nurses should be accountable to patients for the nursing care they provide.....	4	3	2	1	
6. There are many overlapping areas of responsibility between physicians and nurses.....	4	3	2	1	
7. Nurses have special expertise in patient education and psychological counseling.....	4	3	2	1	
8. Doctors should be the dominant authority in all health care matters.....	4	3	2	1	
9. Physicians and nurses should contribute to decisions regarding the hospital discharge of patients.....	4	3	2	1	
10. The primary function of the nurse is to carry out the physician's orders.....	4	3	2	1	
11. Nurses should be involved in making policy decisions concerning the hospital support services upon which their work depends.....	4	3	2	1	
12. Nurses should also have responsibility for monitoring the effects of medical treatment.....	4	3	2	1	
13. Nurses should clarify a physician's order when they feel that it might have the potential for detrimental effects on the patient.....	4	3	2	1	
14. Physicians should be educated to establish collaborative relationships with nurses.....	4	3	2	1	
15. Interprofessional relationships between physicians and nurses should be included in their educational programs.....	4	3	2	1	

## APPENDIX C

### Permission to Use Tool

Dear Kristy:

In response to your request, I am sending you a copy of the Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration in the attached file. You have our permission to use the scale in your non-for-profit research, given that the Jefferson copyright sign, printed at the bottom of the scale, appears in any copy that you will be using in your project, and proper credit is given to the original source(s) in your reports.

#### Scoring Algorithm

A respondent must answer at least 12 items (80%) of the 15 items; otherwise, the form should be regarded as incomplete and excluded from the data analyses. In the case of a respondent with 3 or fewer unanswered items, missing values should be replaced with the mean score calculated from items completed by the respondent.

To score the scale, items 8 and 10 are reverse scored items (Strongly agree=1... Strongly disagree=4). Other items are directly scored based on their Likert weights (Strongly agree=4... Strongly disagree=1). Total score is the sum of all item scores. The higher the score, the more positive attitudes toward physician-nurse collaboration.

Attached I am sending copies of a few articles that might be of your interest.

I wish you good luck with your project, and please inform me of your research progress.

(-:

Hojat

- Mohammadreza Hojat, Ph.D.
- Research Professor of Psychiatry and Human Behavior • Director of Jefferson Longitudinal Study • Center for Research in Medical Education and Health Care • Jefferson Medical College • 1025 Walnut Street, Suite 119 • Philadelphia, PA 19107, USA • • Voice-mail: (215) 955-9459 • Fax: (215) 923-6939 • E-mail: [Mohammadreza.Hojat@Jefferson.edu](mailto:Mohammadreza.Hojat@Jefferson.edu) • Website: [www.tju.edu/jmc/crmehc](http://www.tju.edu/jmc/crmehc)

Webpage:<http://www.jefferson.edu/jmc/crmehc/faculty/faculty/hojat.html>

To be understood is a basic human need that can be fulfilled when an empathic relationship is formed.

Information about the book "Empathy in Patient Care" and experts' comments are posted at : [www.springer.com/0-387-33607-9](http://www.springer.com/0-387-33607-9) (publisher) and [www.tju.edu/jmc/crmehc/medu/patientempathy.cfm](http://www.tju.edu/jmc/crmehc/medu/patientempathy.cfm) (Jefferson Medical College).

**CONFIDENTIALITY NOTE:** The document(s) accompanying this transmission may contain confidential information. This information is intended for the use of the individuals named above. If you have received this information in error, please notify me immediately and arranged for the return or destruction of the document(s).

APPENDIX D  
Demographic Sheet

1. Age: What is your age?

18-24 years old

25-34 years old

35-44 years old

45-54 years old

Greater than 55 years old

2. Ethnicity origin (or Race): Please specify your ethnicity.

White

Hispanic or Latino

Black or African American

Native American or American Indian

Asian / Pacific Islander

Other

3. What is your gender?

Male

Female

4. Please circle what program are you in?

Nursing

Medical student

ED resident

Surgical resident

5. What year are you in your program? \_\_\_\_\_