

The Standardized Patient Instructor
Conflict Resolution Program
at the
University of Michigan School of Dentistry:
Student Perceptions of Immediate and Continued
Value

By

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Dedication

“To the late Christine Klausner who inspired me to follow in her footsteps.”

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CHAPTER I

INTRODUCTION

Dr. Howard Barrows at the University of Southern California first implemented the Standardized Patient (SP) in education in 1963. His use of "programmed patients" would allow for future medical, nursing and dental school programs to successfully duplicate SP to increase students' success.¹ A standardized patient is a trained actor who takes on characteristics of real patients in order to provide a learning opportunity for students.²

The University of Michigan School of Dentistry (UMSOD) expanded upon the *Standardized Patient (SP)* concept to create a *Standardized Patient Instructor (SPI) Program*. The "Instructor" addition not only provides students with actors who portray patients, but who also serve as an advocate for patients and provide the students with immediate feedback.

The UMSOD implemented the SPI program in 2001 to facilitate the interaction of dental students (DS) and dental hygiene students (DH) with patients in a controlled setting. The SPI program runs throughout the course of the dental and dental hygiene curricula, focusing on all aspects of patient care. The majority of SPIs who work at the dental school have a health care background, and utilize this knowledge, along with additional training, to portray a patient in a specific scenario. The SPIs method of providing instant feedback allows students the opportunity to refine listening and communication skills when interacting with patients. Empathic, active and reflective listening skills can be acknowledged, critiqued and reaffirmed by the SPI "actor" patient. These simulations are also used to teach students the importance of communication skills

and the imperative connection between communication and clinical reasoning that is necessary for optimal patient care.³

In 2006, a Conflict Resolution (CR) component was added to the SPI Program. The addition was designed to strengthen communication and confidence during difficult patient conversations. For the conflict resolution session, SPIs are trained to portray either an angry patient or a patient in pain and are given guideline “Performance Keys for Listening and Interviewing Skills” to provide the students with guidance and feedback following the experience. After six years, the CR component has become an integral part of the UMSOD’s SPI Program; however, the effectiveness of this learning intervention to teach effective communication skills and enhance student confidence, and the continued perceived value of such skills has not been assessed to date. Immediate post-experience exit surveys (IP-CR) performed by the DH classes of 2008-2013 and the DS classes of 2010, 2012-2014 will be analyzed. In addition to this immediate evaluation, a survey was constructed to measure the student-reported retention of communication skills learned in the CR session and the same students were asked to complete this evaluation one, two and three years’ post CR session. The name of the survey is 1-3P-CR. Following the analysis of the immediate student evaluations and the 1-3P-CR evaluations of the SPI-CR component, the data can be archived in a database to be used for continuous assessment and quality improvement of the SPI Program.

The majority of research conducted on SP programs has been in medical education, with primarily positive reviews indicating an increase in medical students’ confidence and a validation of their knowledge and critical thinking skills.⁴ While the majority of SPI research has been in medical education literature, this study will

investigate the perceived value of a similar educational intervention in dental education, at the UMSOD. In addition to serving as an important element in the improvement of the UMSOD SPI Program, information gained from this study will also aid other dental schools in implementing a program.

CHAPTER II
REVIEW OF THE LITERATURE

History of the Standardized Patient in Education

The Standardized Patient (SP) was first implemented in the field of education by Dr. Howard Barrows at the University of Southern California in 1963. A SP is a person who has been trained to depict a clinical scenario with predetermined learning objectives in mind.¹ Barrows' use of "programmed patients" to teach third-year neurology clerks would be the guide for future medical, nursing and dental schools to successfully replicate in their programs to increase student learning.¹ In the early 1960's, many skeptics to Dr. Barrows approach concluded this method was "too touchy-feely" and expensive. Following his first published article on SPs, the University of Southern California (USC) received complaints from medical schools all over the country. Dr. Barrows, in an attempt to legitimize his work, individually responded to each of them insisting his method worked for students. Along with his colleague, Stephen Abrahamson at USC, Dr. Barrows created a four-minute film which taught a neurological examination. He hired an artists' model, Rose McWilliams, from the USC Art Department to portray the patient in this film which would be viewed by students and residents. Rose depicted the persona of Patty Dugger, a paraplegic woman with multiple sclerosis, based on a patient from the Los Angeles County Hospital. This was the first SP case created by Dr. Barrows. These simulations are used today to emphasize to students the importance of communication skills and the imperative connection between communication and clinical reasoning that is necessary for optimal patient care.³

Standardized Patients in the Medical Setting

The majority of research conducted on SP programs has been in medical education, with primarily positive results in regards to enhancing student confidence and validating knowledge and critical thinking skills.⁴ In a study performed at the University of Michigan Medical School (UMMS) in 1993, 96% of students reported their confidence in performing a genitorectal exam was increased by their Standardized Patient Instructor (SPI) experience. In this study, Robins et al. used SPIs to teach second-year medical students how to perform male genitorectal examinations.⁵ The authors examined the effect of an SPI experience on students' anxiety and competence levels. Students participated in a class session taught by a urologist and watched a tape on performing a male genitorectal examination. SPIs were recruited and trained in the proper technique of conducting this examination and on how to give constructive feedback to students on their performance. SPIs rehearsed the examination process with third-year medical students. Students were placed into groups of three, and each group was given forty-five minutes to perform the examination. Each student received immediate feedback post-examination from both the SPI actor and fellow students. All students completed a post-session evaluation including questions about the value of the session, student anxiety level pre and post-session, and their overall experience. The student responses were collected using a 5-point Likert scale (1= strongly disagree, 5= strongly agree). One hundred percent of the students responded. Overall, the students rated the experience highly, with 93% rating the SPI session "excellent" or "very good." Post-examination

anxiety was considerably lower than before the experience. Students reported increased confidence following the SPI experience and appreciated the immediate feedback.⁵

Additional support of SPs in the medical school setting was reported by Windfish et al.³ In a 2003 study performed at Johns Hopkins University, they conducted a randomized trial of this curricular intervention. An Integrated Medical Encounter (AIME) was created to teach the connection between communication and clinical reasoning to second-year medical students using the Three Function Model of the Medical Interview (emphasizing patient rapport, data gathering and patient education and counseling). Windfish et al. taught communication, clinical reasoning and the connection between them, using self-reflection, group discussion, videotaped encounters, role-play and feedback. A Communication Skills Observation Guide was developed with questions corresponding to the Three Function Model. The curriculum ran for six weeks with groups of six students facilitated by 1-2 faculty. Weekly three-hour sessions included a brief didactic presentation, a short video and role-play time. Sixty of the 121 second-year students were randomly assigned to AIME, while the remaining control students received identical instruction later in the year. AIME was introduced to the entire class in a lecture prior to the intervention. At that time, students rated their proficiency in communication and clinical reasoning on a 5 point scale (0=no exposure, 4=can teach to others) and reported their age, gender, college major, previous interviewing experience and prior health professional training. Videotaped medical encounters using patient and physician scripted roles were shown portraying positive and negative communication behaviors. Students then answered questions regarding the communication behaviors, created a problem list and completed the Diagnostic Thinking Inventory, a self-reported

questionnaire assessing clinical reasoning. This consists of forty-one questions rated on a 6-point scale, with higher scores representing greater diagnostic ability. All students participated in two 15-minute station SP interactions to assess clinical reasoning skills and communication. The SPs underwent eight hours of training per case, and were observed prior to and during the interactions to ensure accuracy of their presentations. SPs then completed a 30-item interpersonal checklist rating behaviors on a 5 point scale (1=poor 5=excellent), as well as a history item checklist to determine how much of the medical history was elicited. Questions were divided into the following categories: data gathering, establishing patient rapport and patient education and counseling. A curriculum assessment was completed by both students and faculty on the effectiveness of achieving curriculum objectives on a 4-point scale (1=very effective 4=very ineffective) and the importance of teaching the targeted skills on a 4-point Likert scale (1=strongly agree 4=strongly disagree). Feedback was also obtained using open-ended questions about the most and least useful parts of the curriculum, perceived changes in behavior and suggestions for change. All data were coded without personal identifiers and analyzed comparing baseline characteristics. The investigators analyzed differences in student self-rated proficiency in communication and clinical reasoning using the Wilcoxon rank sum test. The authors documented communication observations using Chi squared analyses using baseline abilities. One hundred twenty students completed the SP exercise. AIME students scored statistically significantly higher on establishing rapport but no difference in interpersonal scores compared to the controls. Fifty-six percent of AIME students provided feedback with 84% reporting AIME was “somewhat” to “very effective” in teaching techniques to establish rapport and elicit patient preferences. The

majority of students (95%) reported that the AIME provided benefit to help them learn communication and clinical reasoning in an integrated fashion. Results also showed that 98% of students rated self-reflection as a highly effective technique and 75% used techniques taught in AIME in other patient interactions. The authors concluded that successful use of communication skills is linked to important outcomes including improved diagnostic and clinical proficiency, decreased medical errors, reduced emotional distress and increased patient and physician satisfaction.³

Yedidia et al. also conducted a SP communications curriculum during the 2000-2001 school year at New York University (NYU), University of Massachusetts (UMass) and Case Western Reserve University (CWRU).⁶ In this study the investigators used a documented model for teaching communication skills that relied on experimental teaching modes and learner-centered educational approaches. The core communication skills targeted included: determining reasons for patient visits, eliciting and understanding the patient's perspective, sharing information and educating. Student interaction with SPs, individualized feedback and student self-reflection were used. Pre-test and post-test assessments both consisted of the identical 10-station objectively structured clinical examination (OSCE) that assessed communications skills known to affect patient outcomes. A checklist was developed for SPs to use to assess student performance. These skills have been associated with the following patient outcomes: increased satisfaction, decreased worry, improved adherence to treatment plans, reduction in symptoms and improved physiological outcomes. These skills have also been associated with the following student outcomes: completing more comprehensive medical histories, higher functional status and reduction in malpractice claims. Ten

clinical cases for repeated assessment of patient care tasks were also developed. Each school recruited and trained its own SPs using common protocols and videotapes for case portrayal and assessment. Written instructions were given to the SPs describing the clinical aspects of their case and directives on how to portray them. A central training coordinator provided feedback on each of the SP's presentations of the OSCE across the three schools. OSCE scores were calculated as percentages of items for which the SPs gave students full credit, and students were also assigned a global rating indicating whether the SP would recommend the student to a friend who was seeking a clinician with excellent communication skills (on a 4-point scale). Seven measures were analyzed: the overall OSCE score, scores for items assessing development and maintenance of the relationship and organization and time management of the visit, the average score for each subset of cases addressing patient education, patient assessment, negotiation and shared decision making, and the global recommendation. To establish SP consistency, the investigators developed measures of the level of emotional intensity and accuracy of content, and applied them to videotaped performances from the first OSCE. To assess intra-rater reliability for a subset of encounters, they compared SP's ratings of students during live interactions with their subsequent ratings of a videotape of that encounter, which occurred several months later. A high correlation ($p=.001$, $r=.83$) was found between these two sets of scores indicating that individual SPs were consistent in how they rated student performance over time. Results showed that 99% of all student participants across the three schools reported the OSCE stations were very or somewhat realistic and 89% reported their performance interacting with SPs was similar to how they behave with real patients. Although the communication skills of students in each

cohort improved during their third year, students who participated in the intervention showed greater improvement. Across all three schools, the intervention cohort improved an average of 8.2% from pre-test to post-test on the overall OSCE score, whereas the comparison cohort improved only 4.8%. Exposure to the intervention was associated with a higher global recommendation as well as superior performance in relationship development and maintenance, organization and management of the visit, assessment of the patient's problem, and negotiation and shared decision-making with patients. The data suggested that communication training significantly improved students' competence in performing skills known to affect outcomes of care.⁶

SPs have also been used to provide psychiatry residents with feedback following a psychotherapy session. In a study by Klamen and Yudkowsky, SPs were used in a 9-week Introduction to Psychodynamic Psychotherapy course for eleven first-year residents.⁷ A one-hour session between a SP and each resident was recorded and viewed in class. A written questionnaire completed by the SP immediately following the session was distributed to the residents. Residents admitted that although they were nervous for the session and recording, the SP encounter was valuable because it provided an experience before seeing a real patient. The recording also raised awareness of personal mannerisms of which they were not conscious. All residents were contacted six months following the SP session and still had positive comments about the encounter. Residents reaffirmed that the experience increased confidence and decreased stress prior to their work with real patients.⁷

Nursing schools also rely on SPs to train their students. Anderson et al. discussed The University of Texas School of Nursing's experience implementing SPs in both

undergraduate and graduate curricula.⁸ Their goal was to provide a treatment learning experience without risk to actual patients. The University of Texas was unique in that it was a hybrid simulation: phase one used manikins and phase two used SPs. They sought to enhance communication skills and to teach, practice and assess examination skills. This more realistic experience using SPs was implemented in 2006 and student response has been positive. Additional SP experiences have been requested by the students.⁸

Seren and Ustun set out to compare the conflict resolution (CR) skills of 176 nursing students enrolled in a Problem Based Learning (PBL) curriculum and 291 students in enrolled in a conventional curriculum.⁹ Students were selected from second through fourth-year classes to complete a self-reported questionnaire. Students completed the questionnaire in class at the start of the school year. Survey categories included anger management and listening skills. One hundred forty-one PBL students and 255 conventional program students responded to the survey. T-test analyses revealed differences in self-reported CR skills between the two groups. Higher scores indicated better CR performance. PBL students reported significantly higher total CR scores. The investigators recommended emphasis on teaching interpersonal skills, team communication and self-awareness.⁹

In a different approach for SPs, Hardee and Kasper used a more flexible, improvisational “care actor” to teach clinician-patient communication.¹ This version allowed for the student to choose the patient case, communication goal, and educational objectives. The approach consisted of three phases: setting the stage where goals are discussed, practicing skills while the interaction occurs and can be stopped and then modified, and providing feedback which includes a self-evaluation and care actor

feedback from the patient's perspective. The authors preferred this method based on its flexibility and student-centered approach. They concluded that communication skills and learning are enhanced when students are allowed to customize a relevant scenario.¹

Patient Instructors in the Dental Setting

In 2005, Broder and Janal assessed the effectiveness of Patient Instructor (PI) programs for improving communication skills among third and fourth-year dental students (DS) at the University of Medicine & Dentistry of New Jersey.¹⁰ One hundred forty-three students from two consecutive dental school classes participated in the clinical communications program. Students completed the course "Communication and Health Care" in the spring of their third year to prepare for the program. Their first PI rotation took place in the fall semester of their third year in dental school and the second occurred nine months later. PIs, mainly actors or retired teachers, received nine hours of training and were paid for their time and participation. All students participated in two clinical communications (CC) training sessions. Scenarios for their first rotation consisted of an anxious patient, a demanding patient, and a patient with financial concerns. Scenarios for the second rotation included more complex issues with diverse patients. Students completed an anonymous course evaluation after each session. Student-reported interpersonal communication skills increased following each session, and following the entire PI Program.¹⁰

In another study in the dental education setting, Wagner et al. implemented a Patient Instructor (PI) program to evaluate its ability to teach communication skills to dental students.¹¹ One-hundred-eighteen students completed two rotations in their junior

year, and 79 of them also participated in a third rotation during senior-year. Each rotation presented more complex cases than the previous rotation. Three PI scenarios were used in each rotation, and the PIs used a standardized rating scale to assess the student's performance. Results showed that students progressed as they went through the program, with their final rotation being their best performance. Improvements were found from the first to second encounter and from the second to third encounter in each rotation. Results showed that students improved greatest during their first rotation and least during their final rotation.¹¹

In another study from dental education, Standardized Patients (SP) were used for counseling sessions designed to change patient behavior practices, post-appointment. Koerber et al. realized the importance of training dental students in patient education and counseling, so communication and skills required for taking medical histories could be optimized.¹² They tested the use of SPs for training students in brief motivational interviewing (BMI). Twenty-two volunteer junior and senior students participated. The BMI model is designed for health care practitioners to implement in a five-to-ten minute intervention, to affect patient behavior after the appointment. This study explored using BMI to alter a simulated tobacco counseling session. Prior to the study, all twenty-two students attended a two-to-three hour seminar on the oral health effects of tobacco use and smoking cessation. Half of the students were randomly assigned to the experimental group, and attended twelve hours of BMI training to see whether or not training produced a better counselor. Students were supplied with patient background and clinical findings before SPs were brought in to practice an unscripted counseling session. SPs were blinded to whether students had been trained or not. The session was videotaped and both

the student and SP were given exit questionnaires. The five outcomes measured were specific use of BMI method, the SP's level of involvement in the session, rapport between student and SP, the perceived effectiveness in promoting patient change, and students' confidence. Koerber et al. found the trained students used the BMI method techniques more and were able to elicit more active patient involvement than students without training. Based on additional training however, there was no significant difference in rapport, perceived effectiveness, or confidence.¹²

Standardized Patient Instructors at the University of Michigan

Dr. Marilyn Lantz established the University of Michigan School of Dentistry (UMSOD) SPI program in 2001 in her role as Associate Dean for Academic Affairs. Its purpose was to facilitate the interaction of dental students (DS) and dental hygiene students (DH) with patients in a controlled setting. UMSOD expanded upon the Standardized Patient (SP) concept to create a Standardized Patient Instructor (SPI) Program. The "instructors" not only accurately portray patients, but also provide immediate feedback and serve as an advocate for patients. Currently, the SPI Program is integrated throughout the entire dental and dental hygiene curricula. The majority of SPI actors at UMSOD have a health care background, and utilize this knowledge, along with further training, to portray a patient in a specified scenario.

In 2006, a SPI Conflict Resolution (CR) component was added to strengthen student communication and confidence during difficult conversations within the clinic environment. CR facilitates communication between two or more parties and assists them to focus on the real issues of the dispute in order to resolve the conflict.¹³ For this

component, the SPIs are trained to portray either an angry patient or a patient in pain that cannot safely be treated without intervention. In addition to developing communication skills, CR reinforces key concepts in ethics and professionalism. The five ethical principles (beneficence, responsibility, integrity, justice, and respect) and guidelines for difficult conversations are reviewed with students before the session, and referred to during feedback with the students. The SPIs are trained and provided with guideline “performance keys” for listening and interviewing skills, to help them provide the students with feedback following the experience.¹⁴ The SPIs’ portrayal is standardized to a certain degree, but there is individual flexibility to the roles as long as the goals of the experience are met.

The Doctor of Dental Surgery (DDS) program at the UMSOD has integrated SPI experiences throughout the four year curriculum. There are two SPI experiences during the students’ first year (D1); health history review and handling difficult conversations. The students review the “Effective Listening Skills Performance Keys” and “Five Ethical Principles” and then participate in two simulations selected for a level of ethical complexity in patient-clinician conversation. These simulations are assessed by the actors and the students. In addition, students self-reflect on the experience in the session and its value. In the D2 year, students learn about communication and listening skills using the FOCUS model (Find out what the problem is, Obtain appropriate information relative to the chief concern, Communicate effectively with the patient during information gathering, Understand the needs of the patient and what is required for the moment, Summarize the findings for the patient and faculty). Students participate in a SPI interaction with a fellow student, rotating between roles of clinician and observer. In the

D3 year, SPIs coach and observe students during treatment plan negotiation with a new patient. DDS students are then assessed in an Objectively Structured Clinical Examination (OSCE) in D4 year, which includes an SPI station on patient communication.

The Baccalaureate Program in Dental Hygiene (DH) at the UMSOD teaches patient-centered communication skills, initially focusing on health history review during the DH2 year to prepare students for the first patient experience. Three class sessions focus on listening and interviewing skills, with videos portraying “bad” and “good” communication skills and then, students participate in a group health history interview with an actor patient during a class session. The SPI simulated interview follows the session, providing the students with immediate feedback. Third-year DH students participate in the CR session. This experience includes three simulated encounters: an angry patient, a patient seeking immediate treatment during an initial visit and a colleague demonstrating improper infection control procedures. In the DH4 year, a SPI experience is incorporated into the final summative assessment OSCE.

Survey Research

Survey research is one of the most common and important institutional research methods used to obtain direct responses from large segments of a population.¹⁵ Surveys are used in higher education planning to assess student satisfaction and to understand retention.¹⁶ There are two types of survey research: explanatory and exploratory. The objective of exploratory research is to become familiar with a topic. Explanatory

research on the other hand, is devoted to finding relationships between separate variables based on theories expecting a relationship between those variables.¹⁷

According to Malhotra and Grover, there are three characteristics of sound survey research.¹⁷ First, the data collection method must be determined. Mail, face-to-face, electronic and telephone interviews each come with advantages and disadvantages and it is up to the researcher to determine which is the most efficient and effective method. Advantages of these methods do not depend on the format of the survey, but on the social exchange theory: the perceived reward for participation, the cost of time to complete the survey and the trust that the reward will outweigh the cost over time.¹⁸ Second, variables must be defined in a standardized method to provide accurate quantitative data upon which conclusions can be based. Third, sample size and composition must be defined in such a way that one can confidently infer conclusions that reflect the overall population.

The two major types of study designs in survey research are cross-sectional and longitudinal, and both have distinct advantages and limitations which affect the strength of the inferences made about the relationships of the variables. In cross-sectional designs, data is collected at one point in time from a sample representing the population; but because of this, it is more difficult to make the case for cause and effect relationships. It does however offer the ability to test differences in population segments. In a longitudinal design, data is collected more than once over time, which leads to a stronger case for causality between variables.¹⁷

According to Malhotra and Grover, measurement error is one of the most common sources for error in survey research, stemming from ambiguous questions,

survey length, and bias.¹⁷ Content validation can reduce error by assessing the appropriateness of survey items through literature or a panel of experts on the subject.

An important aspect of survey distribution is providing a statement of confidentiality to prospective participants. Providing such a statement will increase participants trust in the researcher, which in turn will not only increase response rate, but also encourage truthful responses.¹⁹

An obstacle to overcome in survey research is how to increase response rates. Low response rates may result in unrepresentative data, which will negatively impact survey conclusions. The main reasons for low response rates are: difficulty in contacting people, refusal to participate due to frequent requests for surveys (burnout), and a change in cultural norms towards cooperation.¹⁶ Researchers can combat these obstacles using a variety of methods such as providing incentives for participation, multiple mailings, providing a cover letter, and follow-up with non-responders.¹⁶ Providing salience, the relevancy of the topic to the respondent, also increases the likelihood of survey participation. If the respondent understands the importance of the topic and feels linked to the subject matter it will justify the time required to take the survey and create a vested interest in the outcome of the research. Another method of increasing participation is through sponsorship, or to have an authoritative figure that is linked to the topic, issuing the survey.¹⁶

Study Objectives and Overview

The objective of this study was to analyze student-reported evaluation of the UMSOD's SPI-CR component conducted from 2006 to 2012, to determine its immediate

post-experience value to students, as well as the long-term retention of skills learned in this intervention, by performing a retrospective review of data collected at the time of the intervention, and prospectively from the same students one, two and three years later.

a. Specific Aims/Hypothesis:

Specific Aim 1: To assess the immediate impact of the SPI-CR component by retrospectively analyzing data obtained from the DS and DH exit evaluations.

Null Hypothesis (H_0): Student participation in the SPI-CR component was not reported as valuable to student learning. Students did not report that this strengthened communication skills nor increased confidence during difficult patient conversations.

Alternative Hypothesis (H_1): Student participation in the SPI-CR component was reported as valuable to student learning. Students reported that it strengthened communication skills and increased confidence during difficult patient conversations.

Specific Aim 2: To assess the long-term value and application of skills learned in the SPI-CR component, by analyzing data obtained from the same DS and DH students one, two and three years after the SPI-CR session.

Null Hypothesis (H_0): Over time, students completing the SPI-CR training do not apply and value techniques taught in the SPI-CR component.

Alternative Hypothesis (H_1): Over time, the majority of students completing the SPI-CR training continue to apply and value techniques taught in the SPI-CR component.

CHAPTER III
STUDY 1: IMMEDIATE POST
STANDARDIZED PATIENT INSTRUCTOR-CONFLICT RESOLUTION
EXPERIENCE SURVEY (IP-CR) STUDY

A. Material and Methods

a. Study Population

DH evaluations from the classes of 2008-2013 and DS evaluations from the classes of 2010, 2012-2014 were available since the SPI-CR component was initiated in 2006. Table 3.1 and 3.2 contain the number of immediate “exit” surveys analyzed by class. Nineteen were analyzed from the dental hygiene class of 2008, 25 from 2009, 27 from 2010, 27 from 2011, 24 from 2012, and 25 from 2013. One hundred and one were analyzed from the dental class of 2010, 105 from 2012, 99 from 2013, and 103 from 2014.

The SPI-CR component was mandatory for all students at the UMSOD as part of both the DS and DH curricula. Students used the principles of CR to address three scenarios: an angry patient, a patient who presented with a history of both hypertension and a joint replacement requesting immediate treatment for a painful tooth, and a colleague who was not observing proper infection control procedures. Each scenario lasted five-to-ten minutes in length and students completed the post-session survey in approximately ten minutes.

Prior to the study, the three versions of the IP-CR survey were submitted to the Health Sciences and Behavioral Sciences Institutional Review Board (IRB) and the study was deemed exempt on October 15, 2012 (Appendix C).

b. Design

Retrospectively, DS and DH data collected in the immediate post-experience evaluations for the SPI-CR component was analyzed. The purpose was to assess the student-reported immediate impact of the SPI-CR component on DS and DH students on improving communication skills and increasing student confidence during difficult patient conversations.

c. Timeline

Data collection ran from January, 2012 to October, 2012. Hardcopy data were retrieved from the UMSOD SPI office.

d. Materials and Procedures

Students completed evaluations immediately following the SPI-CR session. The evaluation used for the DS class of 2010 consisted of eleven questions ranked on a 5-point Likert scale (1=strongly disagree, 5=strongly agree), and space for open-ended comments. The evaluation used for the DS class of 2012, and the DH classes of 2007-10 consisted of four questions ranked on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). The evaluation used for the DS classes of 2013 and 2014 and the DH classes of 2011-13 consisted of ten questions ranked on a 5-point Likert scale (1=strongly

disagree, 5=strongly agree), and space for open-ended comments (Appendix A).

Questions relevant to the specific aim of the immediate survey study regarding the impact of the SPI-CR component on DS and DH students on strengthening communication skills and increasing student confidence were analyzed. Tables 3.3-3.5 contain the questions that were relevant to the study. Data was entered into Microsoft Excel into two separate documents so that all entries could be checked for accuracy using the “IF” function. Data was transferred into the Statistical Package for the Social Sciences (SPSS) Statistical Software program with assistance from the Center for Statistical Consultation and Research (CSCAR).

e. Statistical Analysis

Sample Size

Nineteen surveys were analyzed from the dental hygiene class of 2008, 25 from the class of 2009, 27 from the class of 2010, 27 from the class of 2011, 24 from the class of 2012, and 25 from the class of 2013. One hundred one were analyzed from the dental class of 2010, 105 from the class of 2012, 99 from the class of 2013, and 103 from the class of 2014.

Data Analysis

Data analysis was performed using SPSS. Descriptive statistics (mean, standard deviation) and percentages were calculated to measure the immediate impact of the SPI-CR component on DS and DH students.

DH responses were compared to DS responses using an independent sample t-test analysis for the three questions that appeared on every version of the survey; specifically,

“This exercise will help me make better use of my communication skills”, “Time devoted to participation in this session was well spent”, and “In future patient interviews, I am likely to use the techniques that we reviewed during today’s feedback”. A t-test analysis assesses the statistical significance of differences between the means of a continuous outcome variable across two or more samples.

To account for a cohort effect, a linear mixed effects model analysis was also performed for these three questions that were relevant to the study and can be found in Tables 3.3 through 3.5. A linear mixed effects model accounts for both fixed and random effects. Type of student (DS or DH) was used as a fixed variable and class was used as a random variable.

B. Results

a. Descriptive Statistics

Question 1, “This exercise will help me make better use of my clinical knowledge”, had positive agreement (“agree” or “strongly agree”) results ranging from 92% to 98.1% for the six classes that answered the question. Results displayed in Table 3.6.

Question 2, “This exercise will help me make better use of my communication skills”, had positive agreement (“agree” or “strongly agree”) results ranging from 79% to 100% for the ten classes that answered the question. Results displayed in Table 3.7.

Question 3, “Time devoted to participation in this session was well spent”, had positive agreement (“agree” or “strongly agree”) results ranging from 68.4% to 98% for the ten classes that answered the question. Results displayed in Table 3.8.

Question 4, “In future patient interviews, I am likely to use the techniques that we reviewed during today’s feedback”, had positive agreement (“agree” or “strongly agree”) results ranging from 78.9% to 100% for the ten classes that answered the question. Results displayed in Table 3.9.

Question 5, “This exercise is a valuable teaching tool for dental students”, had positive agreement (“agree” or “strongly agree”) results ranging from 73.6% to 96.2% for the five classes that answered the question. Results displayed in Table 3.10.

b. Independent Sample T-Test Analysis

A t-test was used to compare mean DS and DH responses (Table 3.11). For the question, “This exercise will help me make better use of my communication skills”, DS mean responses were scored 0.26 units higher than DH students ($p < 0.05$). For the question, “Time devoted to participation in this session was well spent”, DS mean responses were scored 0.25 units higher than DH students ($p < 0.05$). Results of the t-test comparing DS to DH responses on the question, “In future patient interviews, I am likely to use the techniques that we reviewed during today’s feedback” showed that DS mean responses were scored 0.2 units higher than DH students ($p = 0.003$)

c. Linear Mixed Effects Model Analysis

Linear mixed effects model analyses were conducted on the three questions that were relevant to the study to compare DS and DH responses to account for a cohort effect (Table 3.12). Results for the questions, “This exercise will help me make better use of my communication skills”, “Time devoted to participation in this session was well spent”,

and “In future patient interviews, I am likely to use the techniques that we reviewed during today’s feedback”, showed that there was no significant difference in DS and DH students’ responses ($p=0.094$, 0.134 , and 0.151 , respectively).

d. Conclusion

Results support the alternative hypothesis of Specific Aim 1 that student participation in the SPI-CR component was reported as valuable to student learning. Students reported that it strengthened communication skills and increased confidence during difficult patient conversations.

CHAPTER IV

STUDY 2: ONE TO THREE YEAR POST SPI CONFLICT RESOLUTION

EXPERIENCE SURVEY (1-3P-CR) STUDY

A. Material and Methods

a. Study Population

Current third- and fourth-year DS and fourth-year DH students enrolled in the dental and dental hygiene programs at the UMSOD who had previously participated in the SPI-CR component were eligible to participate in the survey.

Prior to the study, the study proposal and survey were submitted to the Health Sciences and Behavioral Sciences Institutional Review Board (IRB) and the study was deemed exempt on October 15, 2012 (HUM00068552).

b. Design

A prospectively administered, student self-report survey was administered to DS and DH students to assess the continued perceived value and self-reported application of skills learned in the SPI-CR component one, two, and three years' post-SPI-CR session.

c. Timeline

In the 2012 fall semester, a brief, five-minute presentation was made for both third- and fourth-year DS at the beginning of their regularly scheduled seminar course instructed by Dr. Mark Fitzgerald. The same five-minute presentation was made for the fourth-year DH students at the beginning of their senior seminar course instructed by

Mrs. Karen Ridley. Background information on the SPI-CR component was read to the students prior to administering the survey. Students were given approximately ten minutes to complete the survey.

In order to capture additional participants, a follow-up online survey was run. The Institutional Review Board was contacted on November 8, 2012 regarding this method modification and stated that no amendment was necessary. The survey was entered into Survey Monkey and distributed by the UMSOD class emails. Only students who had not completed the in-class survey were instructed to complete the survey online. Subsequent reminder requests were sent to students via class email. The survey was available online for fifteen days.

d. Materials and Procedures

Students from the DH class of 2013 and the DS classes of 2014 and 2013 were surveyed during the fall semester of the 2012-2013 academic school year.

An eleven-item survey was constructed with assistance from the thesis committee.

Questions used a 5-point Likert scale, similar to their initial evaluation of the SPI-CR component. Table 4.1 contains the survey's questions and their respective relevance to the study. The first question asked if students had received additional conflict resolution training since their participation in the Standardized Patient Instructor Program which might affect their responses and attitude towards the Conflict Resolution component. The second question inquired students whether or not the Standardized Patient Instructor Conflict Resolution scenarios were realistic. Questions three through six referenced individual goals of the Standardized Patient Instructor Program. The third question

inquired students whether or not they emphasize collaboration and take common ownership of the problem during conflict resolution. The fourth question inquired students whether or not they allow for complete disclosure by all parties during conflict resolution. The fifth question inquired students whether or not they look for win-win outcomes during conflict resolution. The sixth question inquired students whether or not they emphasize mutual respect and responsibility during conflict resolution. The seventh question inquired students whether or not they use listening skills such as paraphrasing, reflecting and summarizing during conflict resolution. The eighth question inquired students whether or not the Conflict Resolution session contributed to their ability to handle conflictive situations both in and out of clinic. The ninth question inquired students whether or not the Conflict Resolution session was a valuable experience. The tenth question inquired students whether or not the Conflict Resolution session should be continued. The eleventh question inquired students whether or not they would be interested in receiving additional conflict resolution training.

Data was entered into Microsoft Excel into two separate documents so that all entries could be checked for accuracy using the “IF” function. Data was transferred into the Statistical Package for the Social Sciences (SPSS) Statistical Software program and analyzed with assistance from the Center for Statistical Consultation and Research (CSCAR).

e. Statistical Analysis

Sample Size

After the initial survey distribution, 100% (n=25) were collected from the DH class of 2013, 32.6% (n=33) from the DS class of 2013, and 58.4% (n=62) from the DS class of 2014.

After the addition of the online survey, nine more surveys were completed by the DS class of 2013 and seventeen more were completed by the DS class of 2014.

Survey response totals were as follows: 100% (n=25) of the dental hygiene class of 2013, 41.5% (n=42) of the dental class of 2013, and 74.5% (n=79) of the dental class of 2014 (Table 4.2).

Data Analysis

Data analysis was performed using SPSS. Descriptive statistics (mean, standard deviation) and percentage calculations were used to reflect the impact of the CR component on DS and DH students one, two, and three years following their participation.

DS and DH responses were compared for each of the ten survey questions using a linear mixed effects model analysis. Type of student (DS or DH) was used as a fixed variable and class (DH13, D13, or D14) was used as a random variable to account for a cohort effect. Question 1, "I have received additional Conflict Resolution training since my initial SPI-CR session", did not have a significant effect on questions 3-8, which were based on knowledge of CR (p=0.179, 0.551, 0.882, 0.598, 0.939, and 0.985,

respectively). Therefore, question 1 did not have to be controlled when comparing the two groups.

Questions from the IP-CR surveys were also compared to questions from the 1-3P-CR surveys using independent samples t-tests. Specifically, responses to “This exercise will help me make better use of my clinical knowledge”, “This exercise will help me make better use of my communication skills”, and “In future patient interviews, I am likely to use the techniques that we reviewed during today’s feedback” were averaged and compiled into a composite score representing the likelihood the student would plan to use these skills in the future. These were compared to a composition score representing the students’ report of how often they applied these skills in practice, which was the average of six questions from the 1-3P-CR survey. Questions averaged were: “During conflict, I emphasize collaboration and take common ownership of the problem”, “During conflict, I allow for complete disclosure by all parties”, “During conflict, I look for win-win outcomes”, “During conflict, I emphasize mutual respect and responsibility”, “During conflict, I use listening skills such as paraphrasing, reflecting, and summarizing”, and “The SPI Conflict Resolution session contributed to my ability to handle conflictive situations both in and out of clinic”. Question 1, “I have received additional Conflict Resolution training since my initial SPI-CR session”, did not have a significant effect on the applied score ($p=0.976$). Therefore, it did not have to be controlled when comparing the two groups.

B. Results

a. Descriptive Statistics

In response to Question 1, 60% of DH students, 40.5% of the DS class of 2013, and 41.8% of the DS class of 2014 had received additional CR training since their SPI-CR session. Results displayed in Table 4.3.

When asked, following real patient experiences, whether or not the SPI-CR session was realistic, 76% of DH students “agreed” or “strongly agreed”, followed by a slightly lower level of agreement from the DS classes of 2013 and 2014, 42.9% and 63.3% respectively. Results displayed in Table 4.4.

An independent samples t-test analysis was used to determine whether or not having additional CR training since the SPI-CR session had a significant effect on the responses to Questions 3-8. Additional CR training did not have a statistically significant effect, so it was not controlled for during the comparison of the two groups ($p=0.976$).

When asked whether or not students emphasize collaboration and take common ownership of the problem during conflict, 88% of DH students “agreed” or “strongly agreed”, followed by a slightly lower level of agreement from the DS classes of 2013 and 2014, 80.9% and 76% respectively. Results displayed in Table 4.5.

When asked whether or not students allow for complete disclosure by all parties during conflict, 84% of DH students “agreed” or “strongly agreed”, followed by a slightly lower level of agreement from the DS classes of 2013 and 2014, 76.2% and 74.7% respectively. Results displayed in Table 4.6.

When asked whether or not students look for “win-win” outcomes during conflict, 92% of DH students “agreed” or “strongly agreed”, followed by a slightly lower level of

agreement from the DS classes of 2013 and 2014, 90.4% and 87.4% respectively. Results displayed in Table 4.7.

When asked whether or not students emphasize mutual respect and responsibility during conflict, 100% of DH students “agreed” or “strongly agreed”, followed by a slightly lower level of agreement from the DS classes of 2013 and 2014, 85.7% and 96.2% respectively. Results displayed in Table 4.8.

When asked whether or not students use listening skills such as paraphrasing, reflecting and summarizing during conflict, 88% of DH students “agreed” or “strongly agreed”, followed by a slightly lower level of agreement from the DS classes of 2013 and 2014, 88.1% and 84.9% respectively. Results displayed in Table 4.9.

When asked whether or not the SPI-CR session contributed to their ability to handle conflictive situations in and out of clinic, 60% of DH students “agreed” or “strongly agreed”, followed by a slightly lower level of agreement from the DS classes of 2013 and 2014, 52.4% and 58.2% respectively. Results displayed in Table 4.10.

When asked whether the SPI-CR session was a valuable experience, 44% of DH students “agreed” or “strongly agreed”, followed by a higher level of agreement from the DS classes of 2013 and 2014, 57.1% and 70.9% respectively. Results displayed in Table 4.11.

When asked whether students recommend the SPI-CR session be continued, 48% of DH students “agreed” or “strongly agreed”, followed by a higher level of agreement from the DS classes of 2013 and 2014, 64.2% and 78.5% respectively. Results displayed in Table 4.12.

When asked whether students would be interested in additional CR training, 28% of DH students “agreed” or “strongly agreed”, followed by a higher level of agreement from the DS classes of 2013 and 2014, 47.6% and 32.9% respectively. Results displayed in Table 4.13.

b. Linear Mixed Effects Model

DS responses on questions 2-11 were compared to DH responses using linear mixed effects model analyses in SPSS (Table 4.14).

The responses to question 2, “Based on my experience with patients, the three SP-CR scenarios were realistic”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.358$), with DH mean scores 0.167 units higher than DS.

The responses question 3, “During conflict, I emphasize collaboration and take common ownership of the problem”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.626$), with DH mean scores 0.069 units higher than DS.

The responses to question 4, “During conflict, I allow for complete disclosure by all parties”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.698$), with DH mean scores 0.06 units higher than DS.

The responses to question 5, “During conflict, I look for win-win outcomes”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.794$), with DH mean scores 0.036 units higher than DS.

The responses to question 6, “During conflict, I emphasize mutual respect and responsibility”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.751$), with DH mean scores 0.038 units higher than DS.

The responses to question 7, “During conflict, I use listening skills such as paraphrasing, reflecting and summarizing”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.309$), with DH mean scores 0.157 units higher than DS.

The responses to question 8, “The SPI Conflict Resolution session contributed to my ability to handle conflictive situations both in and out of clinic”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.855$), with DH mean scores 0.035 units higher than DS.

The responses to question 9, “The SPI Conflict Resolution session was a valuable experience”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.051$), with DH mean scores 0.37 units lower than DS.

The responses to question 10, “I would recommend the SPI Conflict Resolution session be continued”, showed that there was a statistically significant difference between DS and DH responses ($p=0.043$), with DH mean scores 0.39 units lower than DS.

The responses to question 11, “I would be interested in additional Conflict Resolution training”, showed that there was not a statistically significant difference between DS and DH responses ($p=0.139$), with DH mean scores 0.325 units lower than DS.

c. Comparison of IP-CR and 1-3P-CR Data

Immediate Post-Conflict Resolution experience (IP-CR) student responses were compared to 1-3 Year post-Conflict Resolution experience (1-3P-CR) survey responses using independent sample t-tests (Table 4.15, Figure 4.1).

The DH class of 2013's IP-CR mean planned score was 4.493 units. There was a 0.48 decrease in the 1-3P-CR mean applied scores one year following participation in the SPI-CR session (Figure 4.2).

The DS class of 2013's IP-CR mean planned score was 4.66 units. There was a 0.668 decrease in the 1-3P-CR mean applied scores three years following participation in the SPI-CR session (Figure 4.2).

The DS class of 2014's IP-CR mean planned score was 4.819 units. There was a 0.899 decrease in the 1-3P-CR mean applied scores two years following participation in the SPI-CR session (Figure 4.2).

d. Conclusion

Results reject the null hypothesis of Specific Aim 2 in support of the alternative hypothesis that the majority of students completing the SPI-CR training continue to apply and value techniques taught in the SPI-CR component.

CHAPTER V

DISCUSSION

The objective of this study was to analyze student-reported evaluation of the UMSOD's SPI-CR component conducted from 2006 to 2012, to determine its immediate post-experience value to students, and the long-term retention of skills learned in this intervention by performing a retrospective review of data collected at the time of the intervention, and prospectively from the same students one, two and three years later.

The University of Michigan expanded upon the *Standardized Patient (SP)* concept to create a *Standardized Patient Instructor (SPI) Program*. A SP is a person who has been trained to depict a clinical scenario with predetermined learning objectives in mind.¹ The University of Michigan "Instructor" addition not only provides students with actors who portray patients, but who also serve as an advocate for patients and provide the students with immediate feedback.

As previous studies have shown, this study aligns with overall positive responses from DS and DH students immediately following the SPI-CR training.^{5, 7, 8, 12} First impressions of the SPI-CR Program's ability to contribute to student communication skills and clinical knowledge were positively reported by 90% of those who participated. Many studies found students' communication skills increased following participation in a SP experience.^{6, 10, 11} The majority of UMSOD students agreed that time devoted to participation in the CR session was well spent and correspondingly agreed it was a valuable session. In a study by Klamen, students also reported that participation in the SP session was valuable and a good use of time.⁷ A high percentage of DS and DH student

participants also agreed that they were likely to use the CR techniques reviewed during their feedback session with the SPIs.

Overall, DH and DS responses for individual questions were not statistically significantly different. To our knowledge, no studies have previously compared dental students and dental hygiene students' value and perception of a SPI-CR Program. Future studies on this topic could provide greater insight on the similarities and differences between the two curricula in regard to SPI Programs. In this study, perhaps the similar trend in responses between dental and dental hygiene students is due to the similarity of students at the UMSOD, and a consistently high standard of performance by the SPI actors. This is important justification for the investment of time and money the School allocates to SPI training and the continued rationale for keeping the SPI-CR Program in dental and dental hygiene curricula.

The 1-3P-CR survey showed that obtaining what students believed to be "additional Conflict Resolution training" had no significant effect on their application of Conflict Resolution. Since this survey question did not contain an open-ended response element, there was no data collected on where additional training occurred. It is believed that those students who responded "yes" to this question were referring to additional training that occurred during the dental and dental hygiene programs; however we were unable to confirm this information. As a result, the impact of these different sources of training could not be tested on students' previous SPI-CR training.

The study also revealed that Conflict Resolution techniques were applied over time, but were used less as more patient experiences occurred throughout their education. Each class maintained a high regard for the SPI-CR Program and how it prepared them

for conflict situations. This is consistent with Klamen's study, which followed up with students' post-SP session and revealed they also continued feeling the experience was valuable and assisted in preparing them for real patients.⁷ This study's results indicate DS had a greater decrease in self-reported application of CR techniques than DH students, however the only DH data available was one year post-CR session. However, potential differences between DS and DH students could exist due to the placement of the SPI-CR Program in the dental and dental hygiene curricula. DS received the CR training during the first year of school before seeing patients, while DH students participated during the second year of patient care. Perhaps DS immediately valued the training more due to the fact they were novices in patient care as opposed to the experienced DH students. As years of patient experience increased for both DS and DH students, the perceived value of SPI-CR Program slightly diminished but remained high.

Limitations of the Study

DS response rate percentages were lower than expected for the 1-3P-CR survey. Availability of survey both in-person and online was implemented to try to increase response rate. However, DS response rates remained significantly lower than DH and were not increased by multiple methods of contact.

In regards to survey design, the UMSOD annually selected both consistent Core Value questions and class-specific questions for the IP-CR survey. When designing the 1-3P-CR survey, there were low opportunities to compare data from the IP-CR and 1-3P-CR surveys. Future recommendations to expand the number of Core Value questions on

the IP-CR exit surveys for both DS and DH classes annually will allow for stronger analysis over time.

Lack of student identification on surveys also prevented the use of a paired t-test to directly link and compare the same student's responses from the IP-CR survey to the 1-3P-CR survey. Student identification is discouraged when assessing an educational program due to the fact that it may influence their responses. Perhaps, blinding the investigator to participant identities would allow for longitudinal tracking of individual student responses.

The other components of the UMSOD SPI Program include Health History Review, Patient Education, and Treatment Plan Negotiations. These components should receive the same analysis to ensure quality training of DS and DH students and to ensure continued relevancy to students.

This study measured the students' perceived value of the SPI-CR component. It did not however, measure students' mastery of CR skills. Future studies should consider assessing students' performance over time following SPI training.

In addition, a coordinated analysis and comparison of the SPI programs at the School of Dentistry and the School of Medicine would provide additional valuable information for both programs and support interprofessional education and practice.

CHAPTER VI

CONCLUSIONS

This first aim of this study was to assess the immediate impact of the SPI-CR component by retrospectively analyzing data obtained from the DS and DH exit evaluations. Findings revealed both DS and DH students have high regard for the SPI-CR program and its ability to prepare them for difficult patient conversations.

The second aim of this study was to assess the long-term value and application of skills learned in the SPI-CR component, by analyzing data obtained from the same DS and DH students one, two and three years after the SPI-CR session. The study found students continued to value and apply techniques taught in the SPI-CR Program throughout their education with a slight decrease in self-reported use of techniques as they experienced more patient contact.

This study, using both immediate post-SPI-CR experience student surveys and 1-3 years post-SPI-CR experience student surveys found positive short-term and long-term effects of the SPI-CR Program.

The SPI-CR Program should continue being a part of both dental and dental hygiene curricula because it is both immediately valued by students and continuously applied throughout their education.

FIGURES

FIGURE 4.1

IP-CR Survey vs 1-3P-CR Survey

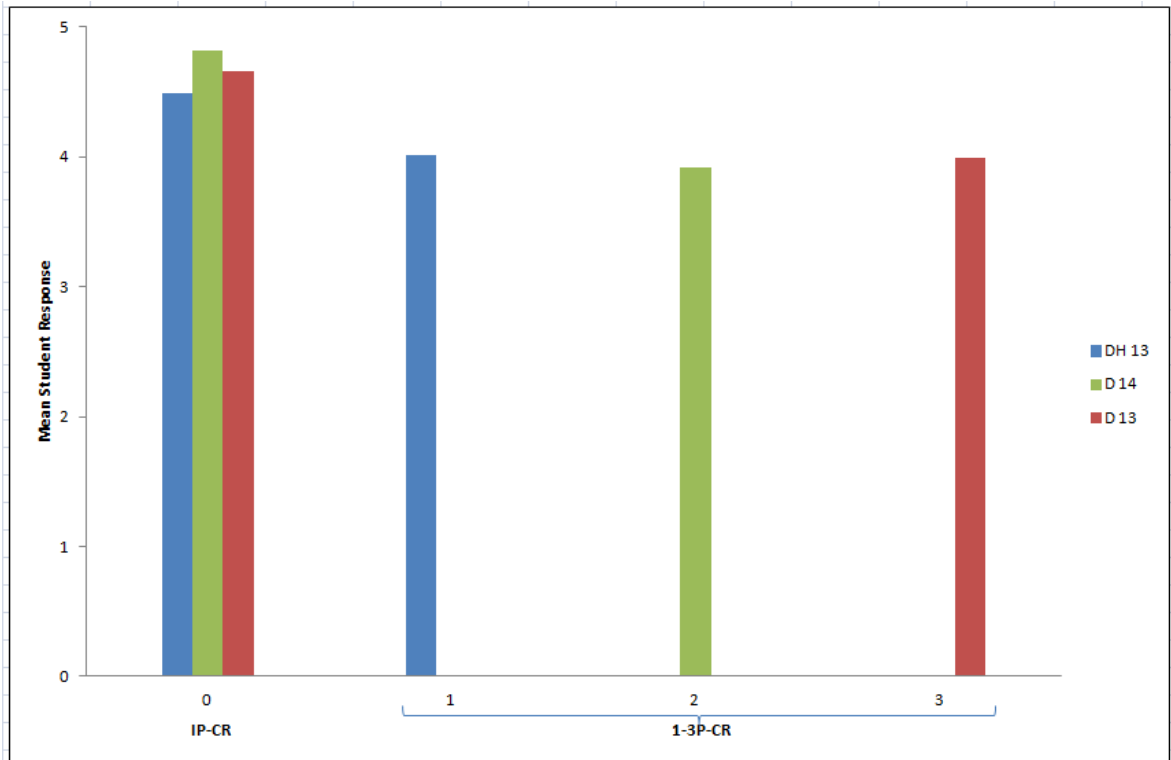


Figure 4.1: Mean Responses from IP-CR to 1-3P-CR by Class

FIGURE 4.2

Difference Between the Mean IP-CR Score and the Mean 1-3P-CR Score



Figure 4.2: Difference between the mean response scores from IP-CR and the 1-3P-CR surveys by Class

TABLES

TABLE 3.1

DH sample size for IP-CR study.

Dental Hygiene Class of	Number of Surveys
2008	19
2009	25
2010	27
2011	27
2012	24
2013	25
Total	147

TABLE 3.2

DS sample size for IP-CR study.

Dental Class of	Number of survey's
2010	101
2012	105
2013	99
2014	103
Total	408

TABLE 3.3

Questions Analyzed from the IP-CR Surveys Distributed to the Dental
Class of 2010

Questions selected from Conflict Resolution exit survey
This exercise will help me make better use of my clinical knowledge
This exercise will help me make better use of my communication skills
Time devoted to participation in this session was well spent
This exercise is a valuable teaching tool for dental students
In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback

TABLE 3.4

Questions Analyzed from the IP-CR Surveys Distributed to the Dental Class of 2012 and the Dental Hygiene Classes of 2008, 2009, and 2010

Questions selected from Conflict Resolution exit survey
This exercise will help me make better use of my communication skills
Time devoted to participation in this session was well spent
This exercise is a valuable teaching tool for dental students
In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback

TABLE 3.5

Questions Analyzed from the IP-CR Surveys Distributed to the Dental Classes of 2013 and 2014 and the Dental Hygiene Classes of 2011, 2012, and 2013

Questions selected from Conflict Resolution exit survey
This exercise will help me make better use of my clinical knowledge
This exercise will help me make better use of my communication skills
Time devoted to participation in this session was well spent
In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback

Table 3.6

IP-CR Survey Study Question 1:
This exercise will help me make better use of my clinical knowledge

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2008	-	-	-
Dental Hygiene class of 2009	-	-	-
Dental Hygiene class of 2010	-	-	-
Dental Hygiene class of 2011	27	92.6	4.48 , .643
Dental Hygiene class of 2012	24	95.8	4.54 , .588
Dental Hygiene class of 2013	25	92	4.48 , .653
Dental class of 2010	101	98	4.47 , .540
Dental class of 2012	-	-	-
Dental class of 2013	99	93.9	4.63 , .632
Dental class of 2014	103	98.1	4.79 , .457

Table 3.7

IP-CR Survey Study Question 2:
This exercise will help me make better use of my communication skills

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2008	19	79	3.95 , .780
Dental Hygiene class of 2009	25	100	4.36 , .490
Dental Hygiene class of 2010	27	92.6	4.11 , .801
Dental Hygiene class of 2011	27	92.6	4.56 , .641
Dental Hygiene class of 2012	24	95.8	4.67 , .565
Dental Hygiene class of 2013	25	96	4.52 , .586
Dental class of 2010	100	96	4.54 , .558
Dental class of 2012	105	94.2	4.52 , .637
Dental class of 2013	99	97	4.67 , .606
Dental class of 2014	103	100	4.82 , .390

Table 3.8

IP-CR Survey Study Question 3:
Time devoted to participation in this session was well spent

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2008	19	68.4	3.84 , 1.068
Dental Hygiene class of 2009	25	96	4.28 , .542
Dental Hygiene class of 2010	27	85.2	4.00 , .832
Dental Hygiene class of 2011	27	92.5	4.37 , .629
Dental Hygiene class of 2012	24	87.5	4.50 , .834
Dental Hygiene class of 2013	25	96	4.48 , .586
Dental class of 2010	101	91	4.26 , .643
Dental class of 2012	105	94.3	4.41 , .631
Dental class of 2013	99	97	4.62 , .584
Dental class of 2014	103	98	4.77 , .469

Table 3.9

IP-CR Survey Study Question 4:
In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2008	19	78.9	4.00 , 1.106
Dental Hygiene class of 2009	25	100	4.52 , .510
Dental Hygiene class of 2010	27	88.8	4.26 , .903
Dental Hygiene class of 2011	27	96.3	4.59 , .572
Dental Hygiene class of 2012	24	95.8	4.67 , .565
Dental Hygiene class of 2013	25	96	4.48 , .586
Dental class of 2010	101	98	4.50 , .541
Dental class of 2012	105	95.2	4.50 , .622
Dental class of 2013	99	96.9	4.69 , .565
Dental class of 2014	103	100	4.85 , .354

Table 3.10

IP-CR Survey Study Question 5:
This exercise is a valuable teaching tool for dental students

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2008	19	73.6	4.00 , 1.00
Dental Hygiene class of 2009	25	92	4.36 , .638
Dental Hygiene class of 2010	27	85.1	4.15 , .907
Dental Hygiene class of 2011	-	-	-
Dental Hygiene class of 2012	-	-	-
Dental Hygiene class of 2013	-	-	-
Dental class of 2010	101	95	4.42 , .588
Dental class of 2012	105	96.2	4.54 , .636
Dental class of 2013	-	-	-
Dental class of 2014	-	-	-

Table 3.11

IP-CR Survey Study T-Test Analysis on Mean Dental and Dental Hygiene Responses

Question	Mean Dental Student Response	Mean Dental Hygiene Student Response	Difference in Mean Responses	P-Value comparing D to DH Student Response
(#2) This exercise will help me make better use of my communication skills	4.64 , .566	4.37 , .685	0.27	<0.05
(#3) Time devoted to participation in this session was well spent	4.51 , .615	4.26 , .777	0.25	<0.05
(#4) In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback	4.64 , .548	4.44 , .741	0.20	0.003

Table 3.12

IP-CR Survey Study Mixed Effects Analysis on Mean Dental and Dental Hygiene Responses

Question	Mean Dental Student Response	Dental Mean Response Compared to Dental Hygiene Mean Response	P-Value comparing D to DH Student Response
(#2) This exercise will help me make better use of my communication skills	4.64	-0.27	0.094
(#3) Time devoted to participation in this session was well spent	4.51	-0.26	0.134
(#4) In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback	4.64	-0.21	0.151

TABLE 4.1

1-3P-CR Survey Study Questions and
Relevance

Survey question	Rationale for question
I have received additional Conflict Resolution training since my initial Standardized Patient – Conflict Resolution (SPI-CR) session.	Additional training may affect their responses and attitude towards the Conflict Resolution component.
Based on my experience with patients, the three SP-CR scenarios were realistic.	To measure the usefulness of using actors as patients.
During conflict, I emphasize collaboration and take common ownership of the problem.	To measure the success of this individual goal of the Standardized Patient Instructor Program.
During conflict, I allow for complete disclosure by all parties.	To measure the success of this individual goal of the Standardized Patient Instructor Program.
During conflict, I look for “win-win” outcomes.	To measure the success of this individual goal of the Standardized Patient Instructor Program.
During conflict, I emphasize mutual respect and responsibility.	To measure the success of this individual goal of the Standardized Patient Instructor Program.
During conflict, I use listening skills such as paraphrasing, reflecting and summarizing.	To measure the success of this individual goal of the Standardized Patient Instructor Program.
The SPI Conflict Resolution session contributed to my ability to handle conflictive situations both in and out of clinic.	To measure the ability of this program to enhance conflict resolution skills.
The SPI Conflict Resolution session was a valuable experience.	To discover if students find this component of the SPI Program relevant.
I would recommend the SPI Conflict Resolution session be continued.	As graduates of this program, they have first-hand knowledge of its applicability.
I would be interested in additional Conflict Resolution training.	To discover if time spent on this component was sufficient or not.

Table 4.2

Sample size of 1-3P-CR Surveys

Class	Number of Surveys
Dental Hygiene 2013	25 (100%)
Dental 2013	42 (41.5%)
Dental 2014	79 (74.5%)

Table 4.3

1-3P-CR Survey Question 1:
I have received additional Conflict Resolution training since my initial Standardized Patient – Conflict Resolution (SPI-CR) session

Class	N	Percent Who Had More Training
Dental Hygiene class of 2013	25	60
Dental class of 2013	40	40.5
Dental class of 2014	79	41.8

Table 4.4

1-3P-CR Survey Question 2:
Based on my experience with patients, the three SP-CR scenarios were realistic

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	76	3.68 , .945
Dental class of 2013	42	42.9	3.31 , .869
Dental class of 2014	75	63.3	3.63 , .731

Table 4.5

1-3P-CR Survey Question 3:
During conflict, I emphasize collaboration and take common ownership of the problem

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	88	3.92 , .400
Dental class of 2013	42	80.9	3.95 , .731
Dental class of 2014	79	76	3.8 , .648

Table 4.6

1-3P-CR Survey Question 4:
During conflict, I allow for complete disclosure by all parties

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	84	3.92 , .493
Dental class of 2013	42	76.2	3.95 , .795
Dental class of 2014	79	74.7	3.81 , .717

Table 4.7

1-3P-CR Survey Question 5:
During conflict, I look for “win-win” outcomes

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	92	4.16 , .688
Dental class of 2013	42	90.4	4.24 , .617
Dental class of 2014	79	87.4	4.06 , .606

Table 4.8

1-3P-CR Survey Question 6:
During conflict, I emphasize mutual respect and responsibility

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	100	4.28 , .458
Dental class of 2013	42	85.7	4.14 , .647
Dental class of 2014	78	96.2	4.29 , .512

Table 4.9

1-3P-CR Survey Question 7:
During conflict, I use listening skills such as paraphrasing, reflecting and summarizing

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	88	4.24 , .779
Dental class of 2013	42	88.1	4.21 , .813
Dental class of 2014	78	84.9	4.01 , .592

Table 4.10

1-3P-CR Survey Question 8:
The SPI Conflict Resolution session contributed to my ability to handle conflict situations
both in and out of clinic

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	60	3.56 , 1.261
Dental class of 2013	42	52.4	3.45 , .916
Dental class of 2014	78	58.2	3.56 , .676

Table 4.11

1-3P-CR Survey Question 9:
The SPI Conflict Resolution session was a valuable experience

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	44	3.28 , 1.10
Dental class of 2013	42	57.1	3.5 , .862
Dental class of 2014	78	70.9	3.73 , .750

Table 4.12

1-3P-CR Survey Question 10:
I would recommend the SPI Conflict Resolution session be continued

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	48	3.36 , 1.15
Dental class of 2013	42	64.2	3.52 , .969
Dental class of 2014	78	78.5	3.87 , .671

Table 4.13

1-3P-CR Survey Question 11:
I would be interested in additional Conflict Resolution training

Class	N	Percent Strongly Agree/Agree	Mean/ Standard Deviation
Dental Hygiene class of 2013	25	28	2.8 , 1.041
Dental class of 2013	42	47.6	3.24 , 1.122
Dental class of 2014	78	32.9	3.06 , .902

Table 4.14

1-3P-CR Survey Mixed Effects Analysis on Mean Dental and Dental Hygiene Responses

Question	Mean Dental Student Response	Dental Mean Response Compared to Dental Hygiene Mean Response	P-Value comparing D to DH Student Response
(#2) Based on my experience with patients, the three SPCR scenarios were realistic	3.51	0.167	0.358
(#3) During conflict, I emphasize collaboration and take common ownership of the problem	3.85	0.069	0.626
(#4) During conflict, I allow for complete disclosure by all parties	3.86	0.06	0.698
(#5) During conflict, I look for "Win-Win" outcomes	4.12	0.036	0.794
(#6) During conflict, I emphasize mutual respect and responsibility	4.24	0.038	0.751
(#7) During conflict, I use listening skills such as paraphrasing, reflecting, and summarizing	4.08	0.157	0.309
(#8) The SPI-CR session contributed to my ability to handle conflictive situations both in and out of clinic	3.53	0.035	0.855
(#9) The SPI-CR session was a valuable experience	3.65	-0.37	0.051
(#10) I would recommend the SPI-CR session be continued	3.75	-0.39	0.043
(#11) I would be interested in additional CR training	3.13	-0.325	0.139

Table 4.15

IP-CR Survey Compared to 1-3P-CR Survey
Independent Sample T-Test Analysis

Class	Planned Scale Mean	Applied Scale Mean	Mean Difference
Dental Hygiene Class of 2013	4.493	4.013	0.48
Dental Class of 2013	4.66	3.992	0.668
Dental Class of 2014	4.819	3.92	0.899

APPENDICES

APPENDIX A

Assessment. Mark the answer that best reflects your assessment.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The objectives and expectations for this session were clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website was helpful in preparing for this session.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Performance Keys were helpful in preparing for this session	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Preparation Assignment was helpful in preparing for this session.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Standardized Patient Instructor provided informative feedback.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Standardized Patient Instructor provided respectful feedback	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This exercise will help me make better use of my clinical knowledge.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This exercise will help me make better use of my communication skills.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time devoted to participation in this session was well spent.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This exercise is a valuable teaching tool for second-year dental students.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments: Please add comments on the back of this sheet.

Student Evaluation

Mark the answer that best reflects your assessment:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
This exercise will help me make better use of my communication skills.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time devoted to participation in this session was well spent.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This exercise is a valuable teaching tool for dental [REDACTED] students.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SPI #: _____

Student Evaluation of D1 Conflict Resolution Session

Evaluation

	Strongly agree	Agree	Neither	Disagree	Strongly disagree
The objectives and expectations for this session were clear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The website was helpful in preparing for this session.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Conflict Resolution Diagram was helpful.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Preparation Assignment was helpful in preparing for this session.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The SPI provided informative feedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The SPI provided respectful feedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This exercise will help me make better use of my clinical knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
This exercise will help me make better use of my communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time devoted to participation in this session was well-spent.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In future patient interviews, I am likely to use the techniques that we reviewed during today's feedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please add your comments:

APPENDIX B

I am currently a Dental Hygiene graduate student at the University of Michigan. For my thesis, I am conducting a retrospective and survey study titled "The Practicality and Longevity Effects of the Standardized Patient Instructor Conflict Resolution Program on the University of Michigan School of Dentistry Students." The retrospective study will include dental and dental hygiene students evaluations of the Standardized Patient Conflict Resolution (SP-CR) session from 2006-2012. The survey study will include current School of Dentistry students one, two and three years' post SP-CR session; specifically the dental hygiene class of 2013 and the dental classes of 2013 and 2014.

The SPI Program was implemented in 2001 at the University of Michigan School of Dentistry to acclimate future dentists and hygienists to dealing with patients in a controlled setting. In 2006, a Conflict Resolution component was added to the SPI Program. The addition was designed to strengthen communication and confidence during difficult patient conversations. After six years of students participating in the Conflict Resolution component, it is important to study its value and longevity to students and its effectiveness on preparing them for professional-patient relations. At the conclusion of this combined retrospective and survey study, the Dental School will have a database illustrating the benefits of the Conflict Resolution component of the program and how it prepares students for handling patient interactions.

Risks to participation: There are no anticipated risks to participation.

Benefits to participation: The School of Dentistry will benefit from the knowledge obtained in this study.

Costs to participation: There are no costs to participation in the study.

Anonymity: Your responses to the survey will be anonymous.

Voluntary nature of your participation: Your participation in this survey is voluntary and will be kept confidential. Data you provide will be stored in a database for future analysis of this project.

Contact information: If you would like more information about the study, you may contact the researcher: Bridget Beattie, RDH, BSDH (email: beattieb@umich.edu) or the research supervisor, Janet Kinney, RDH, MS (email: jkinney@umich.edu).

Consent of the subject: I have read the information provided here. I hereby consent to participate in the study.

You will be asked to complete an 11 question survey that will take approximately 10 minutes.

1. **I have received additional Conflict Resolution training since my initial Standardized Patient – Conflict Resolution (SPI-CR) session.**

Yes

No

2. The SPI-Conflict Resolution (SP-CR) scenarios were as follows:

1. Angry patient
2. Hypertensive patient in pain
3. Colleague with substandard infection control practices

Based on my experience with patients, the three SP-CR scenarios were realistic.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

The following questions ask about specific skills emphasized in the SPI-CR session. For questions 3-7, reflect on conflicts you have experienced after the SPI-CR session.

3. **During conflict, I emphasize collaboration and take common ownership of the problem.**

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

4. **During conflict, I allow for complete disclosure by all parties.**

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

5. **During conflict, I look for “win-win” outcomes.**

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

6. **During conflict, I emphasize mutual respect and responsibility.**

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

7. **During conflict, I use listening skills such as paraphrasing, reflecting and summarizing.**
- | | | | | |
|-------------------|-------|---------|----------|----------------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly
Agree | Agree | Neutral | Disagree | Strongly
Disagree |
8. **The SPI Conflict Resolution session contributed to my ability to handle conflictive situations both in and out of clinic.**
- | | | | | |
|-------------------|-------|---------|----------|----------------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly
Agree | Agree | Neutral | Disagree | Strongly
Disagree |
9. **The SPI Conflict Resolution session was a valuable experience.**
- | | | | | |
|-------------------|-------|---------|----------|----------------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly
Agree | Agree | Neutral | Disagree | Strongly
Disagree |
10. **I would recommend the SPI Conflict Resolution session be continued.**
- | | | | | |
|-------------------|-------|---------|----------|----------------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly
Agree | Agree | Neutral | Disagree | Strongly
Disagree |
11. **I would be interested in additional Conflict Resolution training.**
- | | | | | |
|-------------------|-------|---------|----------|----------------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly
Agree | Agree | Neutral | Disagree | Strongly
Disagree |

APPENDIX C



Health Sciences and Behavioral Sciences Institutional Review Board • 540 East Liberty Street, Suite 202, Ann Arbor, MI 48104-2210 • phone (734) 936-0933 • fax (734) 998-9171 • irbhsbs@umich.edu

To: Bridget Beattie

From: Richard Redman

Cc:

Mark	Fitzgerald
Karen	Ridley
Bridget	Beattie
Janet	Kinney

Subject: Notice of Exemption for [HUM00068552]

SUBMISSION INFORMATION:

Title: The Practicality and Longevity effects of the Standardized Patient Instructor Conflict Resolution Program on the University of Michigan School of Dentistry Students: A Retrospective and Survey Study

Full Study Title (if applicable): The Practicality and Longevity effects of the Standardized Patient Instructor Conflict Resolution Program on the University of Michigan School of Dentistry Students: A Retrospective and Survey Study

Study eResearch ID: [HUM00068552](#)

Date of this Notification from IRB: 10/15/2012

Date of IRB Exempt Determination: 10/15/2012

UM Federalwide Assurance: FWA00004969 expiring on 6/13/2014

OHRP IRB Registration Number(s): IRB00000246

IRB EXEMPTION STATUS:

The IRB HSBS has reviewed the study referenced above and determined that, as currently described, it is exempt from ongoing IRB review, per the following federal exemption category:

EXEMPTION #2 of the 45 CFR 46.101.(b):

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Note that the study is considered exempt as long as any changes to the use of human subjects (including their data) remain within the scope of the exemption category above. Any proposed changes that may exceed the scope of this category, or the approval conditions of any other non-IRB reviewing committees, must be submitted as an amendment through eResearch.

Although an exemption determination eliminates the need for ongoing IRB review and approval, you still have an obligation to understand and abide by generally accepted principles of responsible and ethical conduct of research. Examples of these principles can be found in the Belmont Report as well as in guidance from professional societies and scientific organizations.

SUBMITTING AMENDMENTS VIA eRESEARCH:

You can access the online forms for amendments in the eResearch workspace for this exempt study, referenced above.

ACCESSING EXEMPT STUDIES IN eRESEARCH:

Click the "Exempt and Not Regulated" tab in your eResearch home workspace to access this exempt study.

A handwritten signature in black ink that reads "Richard W. Redman". The signature is written in a cursive style with a large initial 'R'.

Richard Redman
Chair, IRB HSBS

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