HIPAA APPLIED TO JIGSAW: A COLLABORATIVE COMMUNICATION IMPROVEMENT PROJECT

A Thesis Presented to the Faculty of Regis College, Weston, Massachusetts

BY

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ABSTRACT

Purpose: To translate the Jigsaw Method of Cooperative Learning into a strategy to improve collaboration in healthcare education through formal online discussions. The Jigsaw Method concept will be utilized to identify any enhancements in collaborative communication among healthcare professionals. *Significance:* Communication failures lead to increased healthcare costs, patient care errors, and greater inefficiency in healthcare delivery. This project can improve collaborative communication that can help to eliminate these failures. *Design:* The design is a mixed method, using quantitative and qualitative strategies for data collection and analysis. *Method:* Online discussions were reformatted into constructive segments using the Jigsaw Technique and implemented to deliver an annual competency training over nine days. A standardize collaboration rubric was used to measure collaboration, with a pre and post testing to measure content retention, closed-ended survey and an open-ended questionnaire to measure perceptions of the participants. *Sample:* The recruitment sample were eight behavioral healthcare professionals with master's degree in psychotherapy. *Results:* The open-ended questionnaire had significant difference between the positive to negative themes with an 8:2 ratio. The post implementation survey percentages were 25% in the neutral category and 75% and higher in the agree and strongly agree categories. The pretest and posttest result were significant based on an alpha value of 0.05, t (7) = -3.87, p = .006, indicating the null hypothesis can be rejected.

Keywords: collaboration, communication, healthcare, Jigsaw, teambuilding

HIPAA APPLIED TO JIGSAW: A COLLABORATIVE COMMUNICATION IMPROVEMENT PROJECT

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BY

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Signature Page

This scholarly practice project of Margaret P Smallwood, entitled HIPAA Applied to Jigsaw: A Collaborative Communication Improvement Project. Directed and approved by the faculty advisor, has been accepted by the Nursing Faculty of Regis College in fulfillment of the requirements for the Doctor of Nursing Practice.

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Preface or Acknowledgments

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Chapter I: Introduction

Healthcare professionals would benefit from exposure to collaborative communication through educational training in partnership with interprofessional healthcare teams for the sole commitment of improving patient care outcomes (The American Association of Colleges of Nursing [AANC], 2018). The AANC (2018), reported that communication and collaboration are essential in professional education for the benefits of quality interactions among the interdisciplinary healthcare team. This Doctor of Nursing Practice Scholarly Project will apply the Jigsaw Method to enhance collaborative communication among professional patient care providers during an annual in-service training.

The AACN provides supported evidence in collaborative communication and this chapter will reflect on DNP Essential VI: Interprofessional Communication and Collaboration for Improving Patient Health Outcomes (AACN, 2018). Chapter I will provide the problem statement, which reflects current issues in the lack of collaboration and communication among the interprofessional patient care teams. The background will provide information of methods previously used to improve the problem and possible solutions to correct this issue for future interprofessional patient care collaboration. This discussion will also identify barriers that should be addressed for this improvement to be effective and sustainable.

The significance to healthcare and improved patient care outcomes will be identified through the essentials from the AACN-VI in the improvement of communication and collaboration among patient care teams. The research question and

the project objectives will also be included in Chapter I scholarly project. The evidence-based practice model used to guide this project is Rosswurm-Larrabee Model for Change to Evidence-Based Practice. The philosophical assumptions will be provided through the use of Rosswurm and Larrabee's theoretical framework chosen for this scholarly project.

Statement of the Problem

Working in healthcare, several areas of need are identified. One issue is the lack of collaboration and communication between interprofessional patient care teams. With the lack of professionals working together, the communication and collaboration can be non-existent. Several problems arise from this issue: a delay in patient care, a decrease in patient satisfaction, a decrease in nursing satisfaction, a decrease in the continuity of patient care, medical errors, a decrease in nurse retention and an increase in financial costs due to unnecessary lengths of stay in the hospital (Parks, & Boyle; 2018). According to Choi, Goh, Adam, and Tan (2016), the lack of teamwork and communication among healthcare professionals can affect the financial stability within the organization through delays in patient care, satisfaction scores, and nurse retention rates. According to Duffield and Roche (2016), costs ranging from $10,000 to $88,000 per nurse if the employee leaves within two years of employment. This can cost the hospital millions of dollars per year.

This problem is important to nursing because it is the healthcare provider's responsibility to deliver safe, effective, and efficient care to the patient population. The nurse must be ethically responsible and accountable in providing quality communication and collaboration between the interprofessional healthcare teams, for delivery of the most competent level of high standards in patient care. The American Nurses Association

(2018) discussed that the standards of excellence should be provided in all patient care through ethics, effectiveness and accountability. Healthcare professionals must rise to meet these high standards.

The decrease in collaborative communication among professionals needs to be addressed through healthcare education. Implementing cooperative learning methods of teambuilding strategies in nursing curricula and annual training education can provide long term improvements through strengthening the collaboration among participants. If provided in early education, teamwork, communication and collaboration can be instilled within healthcare education and carried throughout their professional career. Gordon et al. (2013) discussed there is growing evidence that educational cooperative learning strategies directed at interprofessional care groups have a positive outcome in teamwork and collaboration among professionals. Teamwork assessment is the key to any curricula. Incorporating team-building strategies into professional education is important to improve these standards of patient care.

With today's technology progression, many healthcare organizations are seeking online education programs to complete their annual in-services. According to Russell (2018) that 61% of higher education distant learning academics stated that online learning was critical to their advancement in education, this is because of work and family obligations. The development of online cooperative learning strategies can be implemented in online education discussions to provide the same successful outcomes, as the traditional classroom method.

One way of promoting teamwork and cooperative learning among healthcare professionals is a conceptual model called the Jigsaw Method of cooperative learning.

Within the structure of Jigsaw, each participant becomes a piece of a puzzle and contributes to the project by working collectively to create the complete concept outcome. The results lie within the team's ability to provide the completed project through each individual contribution and then collaborating as a team to form the results. Amador and Mederer (2013) discussed the Jigsaw process gives participants practice in negotiation; communication; and teamwork in a face-to-face setting. Nolan, Hanley, DiVietri and Harvey (2018) discussed Jigsaw as being a form of collaboration that eliminates prejudices among its participants and creates a teambuilding environment. With the advancement in technology, an online application needs to be developed to produce the same responses in collaborative communication and teambuilding effectiveness as face to face learning.

Background

Collaborative communication has a huge impact on healthcare. Teambuilding and cooperative learning strategies are being incorporated into healthcare educational programs to improve their impact. The American Association of Colleges of Nurses (2018) state that collaborative communication strategies should be incorporated in teaching and learning methods that prepare and sustain through the healthcare workforce. These teaching strategies can be implemented into an online discussion that creates an annual interactive educational training module of healthcare compliances.

Another addition is the participants working together as interprofessional patient care teams on projects that encourage critical thinking and clinical judgement skills. Engagement during the collaborative communication project is considered an effective tool that can be evaluated through observation. The participants must interact with their

peers to be more confident in communicating within groups. This will benefit these healthcare professionals when they reach the clinical setting.

Amedu and Gudi (2017) discussed that poor performance in the healthcare arena may not be the lack of teaching but its ineffectiveness of the method in teaching. Although there are many strategies used to improve teamwork and collaboration, the number of strategies and how they are used is an important factor for. Using several different teambuilding strategies in an escalating performance design can contribute to knowledge retention and application among participants. In education, the application of concepts is important in understanding why evidence-based practices are used in patient care settings. It is important to understand the concept as well as the application. An important part of cooperative learning is interpersonal group skills that apply the cooperative concept in task-oriented environments. This interaction and quality communication among these participants can improve clinical skills and provide peer support that empowers a teambuilding mindset. This also builds clinical confidence and the necessary collaboration among peers.

The Jigsaw Method of Cooperative Learning was used in the 1970's to desegregate the public-school systems in Austin, Texas (Nolan, Hanley, DiVietri, & Harvey, 2018). Although Jigsaw was created by the Chinese for collective thinking, it had a profound effect on the desegregation in the Texas school systems. Nolan, Hanley, DiVietri and Harvey (2018) discussed that four decades of research shows that Jigsaw still helps to accomplish its primary goals of teambuilding environments and reducing prejudices among its participants. This cooperative learning strategy provides a collaborative working environment that uses collective thinking and team work to

accomplish common goals. Within the Jigsaw environment, each student or participant becomes the teacher.

The group has a specific main concept which is divided into sub-concepts. Each student must work individually on their assigned sub-concept to present to the team. When all the sub-concepts are completed and presented to their peers as teaching plans, the leader than combines the sub-concept to create the main concept goal for each group. The leaders of each group then come together as an expert group and compile the main concepts into the master concept. When the master concept is created, the leaders then return to all groups to provide the entire master concept project for a complete teaching and learning plan of the topic. According to Kang, and Seomun (2018) any content can transfer to the Jigsaw structure.

As an online instructional design discussion, each member of each group will then respond in three parts: the first part is with their individual contribution: the second part is in response to the main concept shared by that group, and the third part is about the master concept that is shared by all groups combined. Goodyear (2017) discussed that the Jigsaw method was used successfully to create interdependence among the participants with individual creativity and can prepare the participant for a collaborative partnership in a professional healthcare career by improving collaborative communication.

The American Nurses Association (2018) states healthcare professionals should stride toward excellence in patient care outcomes. Healthcare organizations depend on these standards for excellence to continue through the educational latter and into the professional realm of healthcare. To support these standards, teambuilding,

communication and collaboration should be part of any educational training that is a required annual compliance for healthcare providers. Park and Boyle (2015) discussed job satisfaction can be measured by the employee's commitment to work and by achieving accomplishments. To support this environment, team building strategies play a major role in employee performance and commitment in the workplace. This also transcribes into annual compliance education and the commitment of the participants academic success.

By introducing the Jigsaw Cooperative Leaning Method, teambuilding strategies can be implemented to support and enhance communication and collaboration among professionals' in the healthcare field. Azmin (2015) discussed using the Jigsaw Cooperative Learning Strategy, the participants work in an interactive environment that helps each peer learn from each other. This is also defined as student-centered teaching which has been proven to advance the participants performance by increase collaboration among the groups. It is important to incorporate these cooperative learning strategies in annual compliance education. Buhr, Heflin, White and Pinheiro (2014) discussed how the Jigsaw Method of Cooperative Learning is like a puzzle and each player is essential in the completion and full understanding of the mutual goal achievement. The studies over the last decade have provided significant results of this cooperative learning strategy in the improvement of communication and collaboration among the interprofessional care teams in the clinical environment.

Because of the advancement in technology, many of our annual compliance education is through online programs. Although the Jigsaw Method is in the beginning stages of application to online education, studies have proven it to be successful in

communication and collaboration that transfers into clinical practice with online application. Amador and Mederer (2013) discussed that the conceptual theory of Jigsaw can be developed into a structural framework that provides the same results in online learning as they do in face-to-face learning. There is a need to provide an online presence and a collaborative, communicative environment with any online healthcare education. Russell (2018) discussed that qualitative and quantitative studies done over the past decade have provided substantial evidence that cooperative learning strategies such as Jigsaw, have improved the communication and collaboration in online educational platforms.

It is apparent that healthcare education embraces online teaching and learning and integrates the use in annual training compliances. With the implementation of cooperative online learning strategies, this can be used to the fullest potential in online learning education. Buhse and Ratta (2017) discussed that cooperative learning strategies improve collaboration among interprofessional patient care groups. This team-based active learning strategy should be started in healthcare education and should be sustained in annual training requirements. Jigsaw Method of Cooperative Learning is one of the successful integrated cooperative learning techniques that motivates participants to get involved with course materials and collaborate with others to achieve course goals (Leyva-Moral, & Riu Camps, 2016).

Significance

According to the Quality, Safety Education for Nurses (2019), educational strategies for collaborative communication can have an impact on the unique attributes that members bring to the discussion. This can solicit input from others that can improve

individual, as well as team performance, and appreciate the importance of interprofessional collaborative communication.

Interprofessional collaborative communication is a necessary element in providing safe and effective patient care and provides tools for healthcare professionals the tools needed to meet the high standards of care. The implementation of collaboration and communication strategies alongside healthcare concepts produces a generation of professionals who are interdependent upon each other and recognize the strength in reliance. These are the reasons why cooperative learning methods should incorporate into the online annual compliance educational arena.

Project Objectives

By providing Jigsaw Cooperative Learning Method to online education, the participant will:

- Have an increase in interprofessional communication skills.
- Have the ability to collaborate with other professionals.
- Have the confidence they need in performance among peers.
- Be empowered with the tools needed to become part of an interprofessional healthcare team.
- Identify the unique individual strengths that each member brings to the team.

Research Question

Does applying the Jigsaw Method to a formal online discussion improve collaborative communication among behavioral healthcare professionals?

Evidence-Based Practice Model

The purpose of evidence-based practice (EBP) is to provide the best evidence available to making care decisions within the patient population. The EBP model will provide a conceptual framework of the theoretical application that can be applied to quality improvements and changes in policies. The EBP model that was chosen for this project is Rosswurm and Larrabee's (1999) Model for Change to Evidence-Based Practice. Within this EBP Model for Change, we can use the application of change to guide the project through the assessment, planning, implementation and evaluation phases. There are six stages of the EBP Change Model: the first step is to assess the need for change, the second step is to link the interventions and the outcomes, the third step is to synthesis best evidence, the fourth step is to design the practice change, the fifth step is to implement and evaluate and the sixth step is to integrate and maintain.

Philosophical Assumptions

The first stage assumption: The need for change which is supported by research that there is a decrease in communication and collaboration among the interprofessional patient care teams. The second stage assumption: The problem needs to be corrected by team building and cooperative learning strategies that can improve the interprofessional collaboration in healthcare. The third stage assumption: By synthesizing the evidence and the review of literature, clinical judgement is supported by the qualitative and quantitative research that delivers evidence to the project. The fourth stage assumption: A design in change of practice, by providing communication and collaboration strategies continuously in education and annual compliance requirements. The fifth stage assumption: Implementing this change in an annual HIPAA compliance training and applying this to the online Jigsaw design provides data that can be observed and

measured by pretest and post-test scores, post implementation survey and an open-ended questionnaire. These data collection tools will gather information for qualitative and quantitative data analysis. The sixth assumption: Would be the integration and maintenance through the continuance of using this online discussion Jigsaw design and applying HIPAA, Patient Safety, Bloodborne Pathogens and Infection Control with PPE use in annual compliance training for behavioral healthcare professionals.

By providing an instructional online framework of the Jigsaw design to the annual compliance training, the project can maintain its integrity and can be re-evaluated for continuous reliability. Once the participants are familiar with this unique structural concept, the Jigsaw online method of cooperative learning will be a valuable tool for any educational training to improve collaborative communication among interprofessional patient care teams. According to Dubovi (2018), using online Jigsaw instructional design, flexibility and accessibility to online training can take any educational content to actively train healthcare professionals in content topic and collaborative communication skills.

Chapter II: Literature Review

Introduction

This chapter will identify the literature search related to this project. By the use of Regis College Library data bases several search engines were found. CINHAL, Sage, EBSCO and Cochrane were successful in establishing a wide range of research studies, systematic reviews and peer journal reviews on selected topics. In each database search engine, specific terms such as annual HIPAA training education AND cooperative learning strategies were entered. Jigsaw Cooperative Learning in education AND Jigsaw Cooperative Learning in online education were also used in the search. Several other variables were entered into the search engine such as, teambuilding teaching strategies, collaborative communication tools, and healthcare employee retention programs. A total of 84 studies were found, but only 52 were chosen for this project. From the 52 chosen, only 20 studies were referenced in Chapter I and Chapter II.

Inclusion Criteria

The inclusion criteria were scholarly journals, peer review, published within the last five years and access to full article. Nursing education, methods in teaching and learning, teambuilding strategies, cooperative learning, Jigsaw Method of instructional design, annual training competencies, collaborative communication among healthcare providers were also inclusion criteria, professional organization training criteria.

Exclusion Criteria

The exclusion criteria were, published later than five years, press articles, articles that did not match the topic and were weak or inconclusive studies. By providing a search for inclusion and exclusion criteria, quality articles were revealed specific to the

topic. This literature search was conducted through September 2018 to November in the winter of 2019. Over several months when this literature search took place, scholarly, peer review and research journals were selected that supported the scientific question and specific variables in the project.

Empirical Literature

Through the literature obtained from this review, identification of supporting research that related to this scholarly practice project was achieved. The first variable was to identify the need for improvement in communication and collaboration among healthcare workers through educational techniques. Several research studies provided cooperative learning methods that would improve this area of need. Among these studies chosen were quantitative, qualitative, mixed-methods and systematic reviews on the topic. The second variable was to identify articles related to the improvement of collaborative communication among participants in annual training for healthcare providers. The HIPAA Privacy Rule was chosen as an annual training requirement for healthcare professionals. The studies chosen were quantitative, qualitative, mixed-methods and systematic reviews to support the variable.

In the interprofessional collaboration, the supporting literature provided teambuilding strategies among healthcare providers that have improve collaborative communication, and tools utilized for patient reporting. Through these team building techniques, the healthcare professional's satisfaction scores increased, the patient satisfaction scores increased, there was an increase in employee retention and increase in the continuity of patient care (AHRQ; 2019). This was directly related to the increase of

the institute's financial stability. Supporting quantitative, qualitative, mixed-methods and systematic reviews were chosen to provide evidence.

The literature provided additional cooperative learning techniques that can be applied in any annual training education to improve collaboration among its participants. Specifically, the Jigsaw Method was used and highly effective in teaching and learning among behavioral healthcare providers. This interactive learning strategy provided the group of participants with a main concept. Each participant had a sub-concept of the main concept to prepare and teach back to the group. When each sub-concept was achieved, compiles and edited, the complete main concept was revealed. The master concept or overall content utilized was HIPAA and how different professional organizations use this content as an annual training competency.

This cooperative learning method with HIPAA content applied can improved collaborative communication in course work as well as the clinical environment. The quantitative, qualitative, mixed-methods and systematic reviews provided evidence that Jigsaw is significantly effective in nursing education that provides supportive research in the increase of collaborative communication among behavioral healthcare providers. This supports the scientific question outcome of improving collaborative communication of the nursing students in the clinical setting.

Several studies were chosen to apply Jigsaw to online nursing education. These studies provided support through quantitative, qualitative, mixed-methods and systematic reviews. By applying the Jigsaw Method of Cooperative Learning to online education, the creation of an instructional design or structural framework of online discussions was needed to provide the same results of communication and collaboration as in face-to-face

learning. By creating an online Jigsaw instructional framework, the concepts or content can be plugged into the formula and can result in a large amount of information coverage at any level of education. This improves collaboration, communication and decreases prejudice among students in an online learning platform (Leyva-Moral, & Riu Camps; 2016).

Supporting research of quantitative, qualitative, mixed-methods and systematic reviews were used to identify the need for this instructional design improvement.

Table 2.1: Literature Review Search Flow

Type of Study-Variables	**Quantitative**	**Qualitative**	**Mixed-Methods**	**Systematic Reviews**
Behavioral Healthcare Professionals	**5**	**6**	**4**	**3**
Jigsaw Online Method	**7**	**3**	**5**	**4**
HIPAA	**6**	**4**	**4**	**3**
Communication Collaboration	**8**	**4**	**5**	**6**
Clinical Settings	**5**	**7**	**4**	**3**
Professional Organizations	**4**	**2**	**3**	**2**

Supporting Non-Empirical Literature

The Jigsaw Method of cooperative learning has been recognized by the Department of Education (2018) for being a very successful tool in developing critical thinking skills and teamwork among students from 1st to 12th grades. The Department of Education recommended that the cooperative learning strategy be implemented in early education to provide the students with effective communication and collaboration skills.

The National Forum of Educational Statistics (2018) has endorsed cooperative learning techniques that can be designed and utilized in all levels of education. This provides critical strides for the improvement of communication and collaboration in course, continuing education and annual training work that carries into the workforce.

The American Association of Colleges of Nursing (2017) recommended that communication and collaboration among the inter-professional patient care team is essential in every level of education and clinical practice. Online learning programs in education can prioritize these factors when developing concept topics. Cooperative learning techniques can provide the integrated vision for continuing education and lifelong learning.

Theoretical Framework

King's Middle Range Theory of Goal Attainment

The middle range nursing theory that was chosen to provide the philosophical structure to this project was Emogene M. King's Conceptual System and Middle Range Theory of Goal Attainment. Alligood and Tomey (2016) discussed that King identifies four logical concepts that center on this theory, the first is health, the second is interpersonal relationships, the third is perceptions and the fourth is social systems. Bvumbwe and Mtshali (2018) discussed that King's middle range theory was used by the World Health Organization (WHO) to provide participants with a higher level of education and the tools needed to achieve advanced standards in professional patient care in many counties throughout the world. The conceptual structure used by WHO mentioned in this project not only supports the successful transition of the project, but also provides a step-by-step instruction on the theoretical use. By applying King's

Theory of Goal Attainment, philosophical assumptions were relevant to obtain higher education standards.

Assumption 1. Provider education should be responsive to healthcare needs. Will the provider collaborate and communicate the needs of the patient population in response the current environmental surroundings?

Assumption 2. Preparing the provider for the relationship of professional communication and collaboration. Will the provider be an interactive part of the professional healthcare solution in relation to the patient populations needs?

Assumption 3. The perceptions of leadership commitment that provides a partnership approach among patients and interprofessional care teams. Will the provider have the perceived commitment to provide a partnership among themselves and other healthcare members with quality leadership to assume the excellence in patient care standards?

Assumption 4. The socialization of quality communication and collaboration with the inter-professional patient care team. Will the provider become a part of the socialized patient-care team and achieve the highest quality in communication and collaboration that benefits the patient population?

Rosswurm & Larrabee's Model of Change in Evidence-based Practice

The EBP model, which was also used to support this project, is Rosswurm and Larrabee's (2009) Model for Change to Evidence-Based Practice. This change model has six steps that can be applied to structure the theoretical framework for this project. The American Stroke Association used Rosswurm and Larrabee's Model of Change in Evidence-based Practice as a theoretical framework for action to improve care outcomes

for patients diagnosed with strokes (Kavanagh, Connolly, & Cohen, 2016). This was implemented as a quality improvement plan among hospitals throughout the country. The use of this theoretical framework that contributed in creating the guidelines in the national stroke protocol, can also support, correlate and describe certain relationships to the variables in this project.

Step 1: Assess the need for change. In the healthcare industry there is research that supports the need to improve communication and collaboration among providers. This lack of collaboration between interprofessional care teams can pose many risks to patient care. A delay in patient care is one of these risks and increase in hospital costs is related to the delay. Patient satisfaction is decreased because of patient's frustration with their care. Medication errors can increase because of dis-satisfaction and frustration can result in lack of collaboration among healthcare professionals. Healthcare organizations loose professional employees because of these risks and delays, so employee retention declines. Professionals who enter a clinical setting with these risk factors take on the persona of these healthcare providers by observing negative behaviors that can be carried over into their healthcare profession. It is obvious that there is a need to educate our healthcare members with communication and collaboration techniques and continue this education annually.

Step 2: Link problem with interventions and outcomes. Because of these risks to patient safe and effective care, annual training is needed at the early stage of employment. By incorporating cooperative learning strategies, participants can improve their communication and collaboration in clinical practice. The improvement of collaborative methods during education can provide the participants with a baseline of

teamwork and connectivity among the healthcare team. In today's society, many annual training modules are online learning courses. This connectivity is even more needed because of technological advances in educational programs. An online cooperative learning instructional design needs to be implemented that can improve the nursing student's communication and collaboration in distant learning courses. Cooperative learning strategies can provide the resources needed to achieve this goal.

Step 3: Synthesize the best evidence. Cooperative learning research has been proven to be very effective in education. In Xu (2016) study, the author discussed when participants interact in strategies that create a collaborative achievement, they provide quality communication and become more confident in their role as a healthcare professional with peers. Buhse and Ratta (2017) discussed that cooperative learning strategies can be beneficial to online education and provide the participants with the collaboration skills that are sometimes lacking in online learning programs. Nolan, DiVietri and Harvey (2018) discussed in a quantitative cohort study that one cooperative learning strategy that is highly effective is the Jigsaw Cooperative Learning Method. A mixed-model ANOVA was conducted and show high significant improvements in collaboration and communication among healthcare participants.

Step 4: Design practice change. The change in practice will start with an instructional design of a modified online Jigsaw Method. This Jigsaw strategy will be used as a structured framework of an online annual training competency. The content chosen for this study is HIPPA Privacy Rule. The instructional design will take shape as a conceptual structured discussion. The master concept, HIPAA Privacy Rule, will be broken down into two main concepts, Patient Privacy Rights and Healthcare

Professional's Responsibilities. Using the Jigsaw online instructional design, the content is entered into the Jigsaw structure. The concept can be as complexed or simplistic to perform the tasks needed to meet criteria standard requirements. The behavioral professional participants will be divided into two equal groups with one leader. Group one will be provided with a main concept of Patient Privacy Rights. Group two will be provided with the main concept of Healthcare Professional Responsibilities. From the main concepts, each group will have sub-concepts for each participant to answer (see Appendix A).

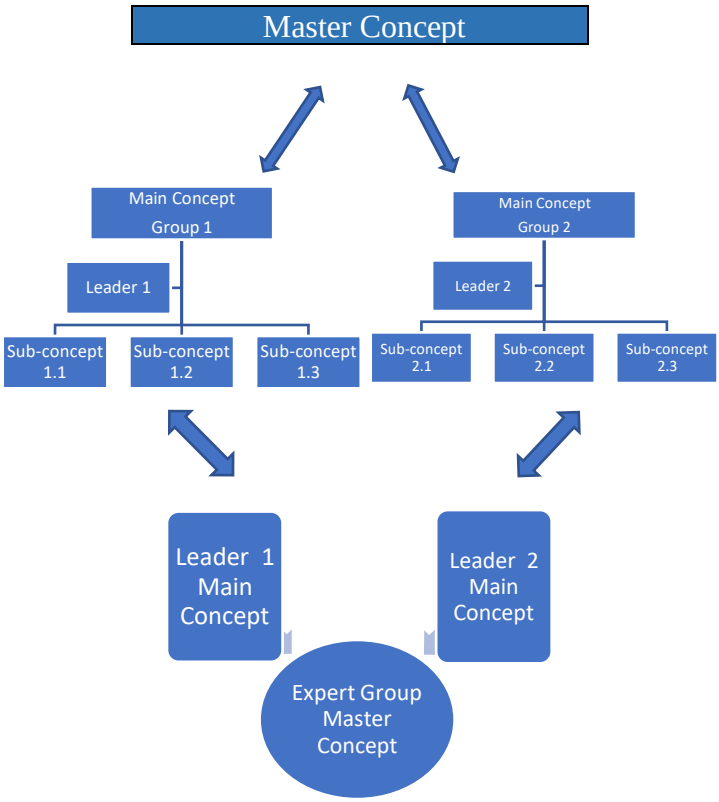


Diagram 2.1: Jigsaw Method Online Structural Framework

The participants will work individually to prepare their sub-concept for presentation to the other group members. After each group has presented their sub-concepts and responded to other sub-concepts, the leader will then combine all the sub-

concepts to present the main concept to both groups. All members from both groups will respond to both main concepts. After all participant responses, the two leaders will come together to form an expert group. This expert group compiles and edits both main concepts to create the single master concept. When this is completed, the expert group will post this master concept for all participants to review and respond. This step is the completion of the Jigsaw implementation project. When the Jigsaw online framework of discussion is created, the facilitator will only need to plug in the any master concept, main concepts and sub-concepts content to recreate this collaborative communication strategy. It will become a working wheel of detailed topic information.

Step 5: Implement and evaluate. The implementation of this project will take place with behavioral healthcare professionals during May/June 2020 and last for nine days. There will be approximately 8 participants enrolled in the project. The participants will be given a project number. The discussion board will contain the conceptual structure of the Online Jigsaw Design. The master content concept will be HIPAA annual training competency. A pre and post quiz will be provided to each participant to compare data of before and after content retention implementation. This will provide data collection for the quantitative segment of the study. A post project implementation survey will also be used for quantitative data collection of the Jigsaw design and retention. The final data collection will be an open-ended questionnaire content analysis will be used to evaluate the quality of discussion in a qualitative design. Quality of discussion will be focused on any improvements of collaborative communication among participants. The questionnaire will measure concepts in the change to EBP.

Step 6: Integrate and maintain. To integrate and maintain this cooperative learning method of Jigsaw, the facilitator needs to be trained for proper implementation. A completed discussion board concept structure was created and will be presented to the facilitators. The most recent evidence-based practice will be provided in the teaching of Jigsaw. The online Jigsaw framework will be used to provide annual training competency courses to the behavioral healthcare professionals in each required standards of patient care. The required topics are HIPAA, Patient Safety, Bloodborne Pathogens and Personal Protective Equipment. Each will be plugged into the Jigsaw design for annual education training. The Jigsaw showed significant results and improvements in communication and collaboration among participants within the design and within their clinical settings.

Summary

The use of quality communication and collaboration can eliminate delays in patient care, increase patient satisfaction scores, decrease medication errors, increase employee satisfaction and employee retention can be achieved. This also has a direct relationship to financial stability within the organization. It is important to instill this behavior in our healthcare professionals to provide them with the quality tools that are needed to effectively communicate and collaborate with the interprofessional patient care teams.

Through the application of Mid-Range Goal Theory of Attainment and Model of Change to Evidence-Based Practice, we can provide a theoretical framework to organize step by step levels of achievement when using the Jigsaw Cooperative Learning Method. These theoretical concepts cannot only provide step by step instruction but can also

maintain the structure and integrity of the project for long term evaluation and use. To guarantee the successful transition and maintain Jigsaw, the facilitators and the participants adequate instructions on this design application.

This project will observe and evaluation improvements among behavioral healthcare professionals during their annual HIPAA competency training. By the use of a cooperative learning tool such as the Jigsaw Method in online education, the participants can be prepared through this instructional design, with an effective and operational technique of collaborative communication. Implementing Jigsaw with a pre and posttest quantitative data analysis, and a post implementation survey will identify the effect on participants. The qualitative data collection with be a content analysis of open-ended questionnaire. A second expert will all provide feedback on the content analysis.

By improving online instructional design and implementing the Jigsaw Method of Cooperative Learning, we can provide safe and effective patient care by improving communication and collaboration among healthcare professionals and the inter-professional patient care teams. The Jigsaw Method strategy in annual education can adapt to any content of training. This conceptual cooperative learning model can be a reliable endowment to the future of healthcare by improving collaborative communication.

Chapter III: Methodology

Introduction

The components in Chapter III will include the project methods, project design, research question, variables to be measured, hypothesis, null hypothesis, sample, recruitment, inclusion, exclusion criteria, the setting, ethical considerations, measurement, plans, procedures, quantitative and qualitative data analysis, time table, limitations and generalizability. Each component will be clearly explained under each section of this chapter. The research question is: Does applying the Jigsaw Method to a formal online discussion improve collaborative communication among behavioral healthcare professionals?

Project Methods

The theoretical framework used to describe this project will be Rosswurm and Larrabee (2009) Model for Evidence Based Practice Change. Using the six steps provided by the change model, the researcher can systematically use the conceptual framework to identify each step as the study progresses. By assessing the need for change in the improvement of collaborative communication, the researcher was able to identify educational strategies that enhance interaction in a mutually cooperative environment. After the review of supporting evidence-based practice, peer reviews and scholarly journals, internal and external data, the change in using cooperative learning strategies were identified. To locate the best evidence for this project, the researcher created an evidence matrix to support the change in educational practice.

By identifying several types of evidence, research studies and systematic reviews, the researcher critically appraised the best evidence to support the project change to

Jigsaw method of instructional design and applying HIPAA annual training as the content. After the project was defined and identified, the researcher designed the practice change. An online method of Jigsaw cooperative learning strategy was designed as a formula to plug-in HIPAA Regulations content. By implementing this online discussion in the behavioral healthcare professionals, the project will be integrated and maintained the change in practice by the continuous use during annual trainings. According to Azmin (2016), the Jigsaw Method of cooperative learning will increase the participants team building and collaboration by eliminating prejudices and working toward mutual goals. This conceptual design in evidence-based practice change will be discussed in more depth under plans and procedures section of this proposal.

Research Design

The researcher conducting this project used a quantitative and qualitative mixed methods approach with a post implementation survey, a pretest and post-test on HIPAA content and an open-ended questionnaire. According to Polit and Beck (2016), a pretest and post-test on the same content will measure prior knowledge and compare after project knowledge for changes in data. This supported the reliability of the collection tool. The post implementation survey had six questions about the use of online discussion in annual training and the five open-ended questions about the use of Jigsaw instructional design. The open-ended questions about the discussions were analyzed through NVivo content analysis for emerging themes about the project. The Demographic survey and the pre-test multiple choice quiz was administered on Day 1. The HIPAA to Jigsaw discussion implementation was completed from Day 2 to Day 8. On the 9th Day, the post test, post implementation survey and the open-ended

questionnaire was completed. A standardize Jigsaw Method Cooperative Collaboration Rubric was used to support the data.

The recruitment of the participants will be professional behavioral specialists in a private practice setting in Scottsdale, Arizona. An email was sent for recruitment. The persons who volunteer received a second email with directions, times, dates, position number in the implementation and an informed consent. A descriptive analysis was used for the demographic survey. A 2-tailed t-test was used for the pre-test and post-test. A content analysis was used for the subject content responses and t-test was used for the survey responses. According to Moshi, Kibusi, and Fabian (2018), by using a 2 tailed t-test for pre and post-test quiz, the results can be compared and show reliability of the data being analyzed.

The independent variable was the Jigsaw instructional design and the confounding variable was the HIPAA content and their effects on the dependent variable, collaborative communication. With the online Jigsaw Method of cooperative learning, Goodyear (2017) discussed that this method was used successfully to create an intellectual conversation among the participants and prepare them for an improved collaborative career in healthcare and patient outcomes.

The 8 participants were divided into 2 groups of 4 participants, one leader and 3 members in each group. Each group were provided a main concept, Group 1 main concept is, HIPAA: Patient's Privacy Rights and Group 2 main concept is, HIPPA: Healthcare Professional's Responsibilities. Each member in each group answered a specific question or sub-concept question about their main concept and post to discussion. The group members responded to each other's answers. When all responses

were completed, the leader of each group edited and compiled all the group's sub-concepts into a complete answer to that groups main concept. All members of both groups responded to the 2 main concept answers. Once the responses were completed, the leaders of each group formed an expert group of the 2, compiled and edited both main concepts and created a master concept of the overall HIPAA Regulations. This master concept was the teaching plan with all members contributions. Finally, all member responded to the master teaching concept to prepare for the post-test.

This project created an interactive, mutual goal environment of collaborative communication among its participants. The HIPAA content was taken from three reputable professional websites, Medline Plus, Centers for Disease Control and Prevention and the Medicare Learning Network. The questions were taken from each website training program and no approval was needed for their use. The website links were provided in the Google resource folder to be accessed by participants.

Research Question

Does applying the Jigsaw Method to a formal online discussion improve collaborative communication among behavioral healthcare professionals?

Variables to be Measured

Independent Variables

- Jigsaw method of online discussion
- Formal Online Discussion

Dependent Variable

- Collaborative Communication

Hypothesis

Collaborative communication is improved by using the Jigsaw Method of online discussion in an annual competency training among behavioral healthcare professionals.

Null Hypothesis

There is no change in collaborative communication by using Jigsaw online discussion.

Sample

The sample is a sampling of convenience. The participants that were chosen for this project are behavioral health professionals. The online discussion project was implemented through Google Classroom Educational Management System. The sample of participants were eight psychotherapists from a private practice setting. The participants were divided into two groups with three members and one leader. To identify the smallest sample size of only 4 participants were to continue in this study, a G-power statistical tool was used. To eliminate a Type II Errors, the G-Power statistical tool was used to determine the power of the one tailed t-test, effect size was 0.9, a err probability was 0.50, the 1-B err probability was 0.9, the allegation was 1 and the Actual Power was 0.9017313 which shows a decreased possibility in a type II error among the sample size. This G-Power tool was developed by Faul, Erdfelder, Lang, and Buchner (2007).

Recruitment: The recruitment was a generalized email to behavioral healthcare professionals explaining the project.

Inclusion and exclusion criteria: *Inclusion* criteria are participants over the age of 18 years old and working in the patient care field. The participants need annual competency training for employment and were willing to complete the nine-day study. *Exclusion*

criteria are anyone under the age of 18 years old, who are mentally challenged and/or are pregnant.

Setting

The setting was an online discussion environment of eight behavioral healthcare professionals. The program used for this setting is Google Classroom. The area of use in Google Classroom was the discussion forums set up with Jigsaw instructional design and HIPAA annual competency training content plugged into the design. A twelve-question pretest and post-test was presented to each participant to complete at the beginning and the end of the project. According to Buhse and Ratta (2017), pretest and post-test is a strategy to collect and evaluate data with more accuracy of the data analysis results. The researcher did not visually see or hear the participants due to online discussion, only the data collection tools, and the discussion were seen. To maintain confidentiality, no names were used, and the pre and post tests were anonymous. A demographics survey was taken on the first day of this study. A six item, post implantation survey was taken by participants on the ninth day of the study along with a five item, open-ended questionnaire about Jigsaw to gather qualitative data. All the data collected and analyzed will be kept in a locked computer file for 12 months and then deleted.

Informed Consent

The researcher has received approval through the Regis College Institutional Review Board. An exempt from IRB, letter of approval has been obtained from the Behavioral Health private practice setting. The Social Behavior Research Certification was completed, date 29-Sep-2018 and the expiration date is 28-Sep-2021. The record ID number is 28813972. Faculty consulted advisors and participant's

signature page are part of the IRB application. A copy of the pre-test and post-test survey is included in this application. The protection of participants rights was reviewed, but there were no participants under the age of 18 years old. A copy of the informed consents was submitted (see Appendix B). The type of IRB the researcher was granted is an expedited review. This type of review was selected due to minimal physical and phycological risks to study participants.

The identification of specific ethical issues during this project was completely described in the Informed Consent (see Appendix B). All ethical considerations and privacy of the results were fully disclosed, and numbers were assign to each participant, so the data collection and analysis were all anonymous. The master number key is locked in a file and will be destroyed in 12 months.

All data was gathered and stored in a password secure document folder on a computer system. The researcher is the only person with access to that password. The document will then be deleted after 12 months. The minimal ethical issues with this study could include misunderstanding the directions or possible lack of commitment in the online discussion interactions. There was an information page with full instructions that described the discussion structure fully and the benefits to participate in this project.

Ethical Considerations

According to Polit and Beck (2016), guidelines for critiquing the ethical aspects of a study should be provided in Informed Consent, with specific information to answer all of the questions below.

Step 1. This study was an educational exempt study and only required the approval from two members of the Institutional Review Board. The study was the results

of implementing the Jigsaw cooperative learning strategy and using annual competency training as content. This study was reviewed for any ethical considerations to the participants. The researchers followed the study ethical standards.

Step 2. There were no physical or psychological discomfort or distress during this study by any participant. The researcher took measures to ensure that adequate instructional information was understood by all participants and reinforced as needed throughout the duration of the project. According to Keteian (2015), the underpinnings of research are the ethical principles of respect, beneficence and justice are the procedures used in the protection of rights for the participants.

Step3. The Jigsaw Method proved to be very effective in its design and provided sufficient amount of benefits among communication and collaboration improvement among healthcare professionals (Keteian, 2015). The data shows that this type of teaching design improves collaborative interactions. According to Nolen, Hanley, DiVietri and Harvey (2018), the purpose of this research was to explore the benefits that the Jigsaw Cooperative learning method had on the participants. There were no extra costs for this study, only time. The researchers did not get reimburse for any time and there were no costs attached to this study in any form.

Step 4. There were no coercion or undue influences to join the study. Each participant had the right to refuse being part of this study without penalties or judgements against them.

Step 5. All participants were fully aware what the study consisted of and were never deceived in any way before, during or after the study. There were instructions, questions and answers sessions to introduce the cooperative learning strategy and

participants who were willing, signed up. They understood the full nature of the research.

Step 6. There were eight informed consent documents that were signed by participants with full disclosure. This study shows no injury in any way to the participants.

Step 7. The study was evaluated by pre and posttests, questionnaire and surveys that were anonymous. These tests were in a secure locked cabinet. No names or any other identifiable traces were attached to the data. The researcher had the only access. The entire project was subject to healthcare, research ethics and HIPAA privacy standards.

Step 8. There were no vulnerable groups within this study. The ages were 18 to 60 years of age and the participants were licensed behavioral health professionals. No special needs were identified.

Step 9. No unjustifiable omitting groups were held from this study. The study accepted these groups as benefits to the research. Only participants under the age of 18, mentally challenged and/or pregnant were omitted.

Measurement

The statistical analysis of the study titled; HIPAA applied to Jigsaw: A collaborative communication improvement project, was a mixed methods study. A pre and post-test multiple choice used a two tailed sample t-test for data collection and analysis of the participants' knowledge before and after implementation. A post implementation survey was given to identify the perception and attitudes about the independent variable, the Jigsaw Method and how it affect the dependent variable,

collaborative communication. The results from the survey and the t-test were analyzed through Intellectus Statistics program. The post implementation survey represents 1. Strongly Disagree, 3 is neutral and 5 Strongly Agree. (See Appendix E) for the survey. The content analysis of the open-ended questionnaire was analyzed through NVivo. (See Appendix G).

The researcher gathered the data to enter into the statistical program for analysis. The central tendency, the mean, the median, and percentage and frequency was used to report the data. A nominal level of measurement was used to represent the data from the independent and dependent variables. According to Manikandan (2011), the mean is considered the best measure of central tendency, but the median is preferred when data is presented in an ordinal scale. A nominal level of measurement was used to represent the demographics of each participant. Both was entered into a table for display. Cronbach's alpha determined the reliability of the scale and measured internal consistency. The variance measured how the data set is spread out. This measured the validity of the scale.

Diagram 3.1: Post Implementation Survey Responses

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

Table 3.1: Research Variables

Research Variable	Variable	Conceptual Definition	Operational Definition	Level of Measurement	Statistical Analysis
Independent	Jigsaw Cooperative Learning Method	Use of a puzzle method in online discussion design	Will implement Jigsaw cooperative learning into an	Ordinal	Descriptive

			annual competency training.		
Independent	HIPAA Privacy Rule	Use of annual training as project content	Completion of annual training through Jigsaw	Ordinal	Descriptive
Dependent	Collaborative Communication	Improving collaborative communication	The effects of each independent variable on the dependent variable	Ordinal	Descriptive

Table 3.2: Demographic Variables

Demographic Variable	Conceptual Definition	Operational Definition	Level of Measurement	Statistical Analysis
Age	Age group	Factors used to describe sample	nominal	Descriptive Non-Parametric
Marital Status	Married/Partner Divorced Never- married Widowed	Factors used to describe sample	nominal	Descriptive Non-Parametric
Level of Education	Degrees in education	Factors used to describe sample	nominal	Descriptive Non-Parametric
Race/Ethnicity	Ethnic background	Factors used to describe sample	nominal	Descriptive Non-Parametric
Gender	Male/Female	Factors used to describe sample	nominal	Descriptive

Plans and Procedures

The Rosswurm and Larrabee Model for Evidence-Based Practice Change was used to guide the implementation of this scholarly project (Rosswurm, & Larrabee, 1999). As presented previously in this chapter, the model uses a six-step schematic to

guide the implementation of EBP projects. This section applies the operational translation to the conceptual concepts.

Step 1. Assess the need for change in practice. In the healthcare system, there is a need for improvement in collaboration among the interprofessional patient care team. The lack of interaction among physicians, nurses, pharmacy, and other patient related departments, sometimes causes a delay in treatments, medications, discharges, home health and other services the patient may need to function independently. These delays cause decreases in patient satisfaction, nursing satisfaction, prolong hospital stays, decreases the continuity of care, decreased nurse retention rates and costs the healthcare systems millions of dollars a year. According to Park and Boyle (2015), the national quality healthcare professional satisfaction indicators identify the lack of teamwork and collaboration is one of the principal issues in nurse retention rates and patient dissatisfaction that results in high costs to the healthcare industry. According to Rosswurm and Larrabee (2009), a change in practice can be encouraged through patient's preferences and dissatisfactions.

Step 2. Link problem with interventions and outcomes. According to Nolan, Hanley, DiVietri, and Harvey (2018), issues are identified among nurse educators, when the healthcare professional begins clinical rotation in a patient care setting, bad habits can be introduced into the student's environment due to the lack of collaboration and team building among the healthcare staff. These negative learning behaviors can impact the student's development in meeting standards of professional patient care. According to Rossler, Buelow, Thompson and Knofczynski (2017), bad habits are sometimes bestowed on professionals in a clinical setting, especially if the hospital staff lacks collaboration,

communication and teamwork environments. Strategies to improve these situations must be developed and implemented in healthcare education. It is important to incorporate learning strategies in early any training and education to carry over into the workforce to improve patient care outcomes.

Healthcare organizations have a mandatory internal and external benchmark, which uses quality indicators from the Joint Commission and Accreditation of Healthcare Organizations (2016) (JCAHO) that identifies setbacks within the healthcare organization. The stakeholders include the administrative members, nurse managers and private sector. These benchmarks measure the quality and performances of processes within the system and competitors outside of the system. This evaluation of the performance levels of healthcare systems identifies team building as one of the most important factors that positively impacts financial stability. Patient and healthcare professional satisfaction scores are also included and evaluates the collaboration among the interprofessional patient care team as being highly regarded to improve successful of the advantages in operational performance.

If a lack of collaboration is identified within this functional system, these internal and external benchmarks will decline, and performance rates will suffer. It is important that collaborative strategies be implemented into annual competency education to improve this dilemma in the healthcare work force. According to Li, Donghua, Hanzhu, and Siyuan (2018), research supports the utilization of collaborative strategies such as Jigsaw, in educational training. This educational strategy can be incorporated into annual competency requirements for healthcare professionals to improve collaborative communication among them for the sole purpose of improved patient care outcomes.

Step 3. Synthesize the best evidence. When identifying the best evidence in the improvement of collaboration among healthcare professionals, a cooperative learning strategy has a reliable and abundance of research support. The cooperative learning strategy such as, the Jigsaw Method of Cooperative learning, has been used for training medical students for the past two decades. According to Azmin (2016), a mixed-methods study was done at local medical college. The Jigsaw strategy was implemented into a face to face educational program. The teams of students were each given a specific item they needed to research and report back to their team with the results. Each member taught back their lesson plan to the group and when the entire project was compiled by the leader of the team, the lesson plan was a combination and collaboration of the entire team's work. This study identified teamwork and collaboration had significantly higher results by using the Jigsaw Method.

According to Goodyear (2017), the impact of cooperative learning strategies has sustained professional development by the influence of collaboration among educators and students. If implemented into early training and education, this strategy can provide a stronger foundation among interprofessional patient care teams and becomes part of the healthcare work force. When implementing this strategy into annual competency training sustains and maintains the concept. According to Bushe and Ratta, (2017), when improving collaboration, team building strategies need to be implemented into educational training. By the use of cooperative learning techniques, collaboration is improved, prejudices decline, and the group works together to achieve success in reaching a common goal. This builds bonds of support, reliability and promotes individual creativity among participants. The Jigsaw Method has proven to be a reliable

strategy for improving collaboration and is used in a clinical setting with evidence supported results.

Step 4. Design the practice change. The Jigsaw strategy has been used in face to face classroom settings. With modern technology and online education, an online Jigsaw design was formed to generate the same results as face to face learning. According to Dubovi (2018), when designing online instructional approaches, group projects have proven to produce an increase of interactive activity among participants. The downfall with group projects is that all members of each group share the grades. With the cooperative method of learning, each participant is graded individually and eliminates the anxiety of group projects yet enhances collaboration and individual creativity.

A conceptual model for this project was a structured online discussion and have HIPAA Privacy Rule as the master concept. From that master topic concept, two main concepts were generated. The first main concept is Patient Privacy Rights and the second main concept is Healthcare Professional Responsibilities. The two groups of three members and one leader were assigned one main concept. Group 1 had Patient Privacy Rights and Groups 2 had Healthcare Professional's Responsibilities. From these main concepts, sub-concepts were generated. Each member in both groups was assigned one question or sub-concept to develop an answer into a teach back plan. When the teach back answers are posted to the discussion board, all members responded to the other members answers. The leaders then compiled and edited their groups sub-concepts to create a teach back plan of that group's main concepts and post to discussion. All members from both groups responded to both main concepts.

After both main concepts were responded, the two leaders became the expert group and compiled, edited and post the completed master concept to the discussion board for review and comment by all participants. The project produced a master concept of the complete description of HIPAA Privacy Rule annual competency requirement through an online interactive structured discussion. This created an environment of teamwork, respect and achievement through mutual goals. According to Russell (2015), cooperative learning techniques such as Jigsaw Method, should be designed into online education to improve communication, collaboration and decrease prejudices among students. This strategy of learning has proven through extensive research, that bridging the gap between theory and application in online education can result in a much-needed collaborative environment among healthcare professionals and interprofessional patient care teams.

Step 5. Implement and evaluate. The application of the Jigsaw cooperative online learning strategy was implemented into annual training competencies. The content chosen for this project is HIPAA Privacy Rule. A mixed methods design was used with a pre and post-test, post implantation survey and open-ended questionnaire for quantitative and qualitative data collection. According to Polit and Beck (2016), mixed method design not only involves quantitative and qualitative data collection but also involves integration of the two (p. 577). The post implementation survey was a frequency and percentage analysis with a nominal level of measurement. The pre and post-test data was analyzed through a two tailed sample t-test (See Appendix B). The open-ended questionnaire was analyzed through a thematic analysis approach. The research question

is: Does applying the Jigsaw Method to a formal online discussion improve collaborative communication among behavioral healthcare professionals?

The studies objectives were to conclude that the hypothesis of collaboration was improved by using the Jigsaw Method on online discussion or there was no change in implementing this method, null hypothesis. The participants were given the opportunity to understand the discussion format and to question the researcher at any time throughout the project. As per informed consent (See Appendix A), the participants were aware of the study and had a choice to participate within the study. There is no cost to perform or participate in this study besides the tuition it costs the student to take the course.

The process of Jigsaw online discussion provided the participants with the collaboration to complete this project, plus reinforced the annual training competencies. The participants quality contributions were due to teamwork strategies and mutual goal achievements by depending on each other to gain results. By implementing the Jigsaw Method of cooperative learning into annual training educational competencies, strengths and weaknesses were identified within the correlation between collaborative communication and online discussion. This study provides a foundation for future research in this area of online learning.

Step 6. Integrate and maintain. According to Zhong and Zhou (2017), healthcare professional who are change agents need to consider cultural climate within the organization. Change is more likely to be accepted if the participants are involved in the change process. With a collaborative communication atmosphere, the Jigsaw method of discussion produces acceptance and trust that enhances collaboration and team building techniques and renders an acceptable change. According to Amador and Mederer (2015),

when migrating successful cooperative strategies into online education, it is important that there is an online structural presence within the discussion board and the responsibilities of each member are identified and understood. This creates a higher level of trust and interaction.

The facilitator structured the content within the online design to draw out critical thinking among its participants. This action improved the quality in responses and commitment to the group. The facilitator was familiar with the structural process and achieve the appropriate learning outcomes to maintain the use of this strategy. By applying annual training competencies to the online Jigsaw structured design, the change will be integrated and maintained through constant use of the Jigsaw strategy.

To continue the use of this project, all educational competencies will be entered into the structural design annually to complete required professional competencies for employment in health and patient care arenas. This will reinforce the understanding and eliminate misconceptions of the design. This cooperative teaching and learning tool can produce substantial results if all involved achieve the mutual goal. Only through evaluation and identification of barriers, can better ways of integration and maintaining longevity of the instrument be discovered. This effort will result in improvements of collaborative communication among healthcare professionals and interprofessional patient care teams.

Quantitative Data Analysis.

The data was analyzed quantitative and qualitative approaches. The demographics was measured by descriptive nominal statistics. The categories will be gender, age, marital

status, level of education, Race/Ethnicity. The demographic data is presented on a frequency table for nominal values. (See Appendix C)

Table 3.3: Demographics

Categories	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
1. Gender	Male	Female				
2. Age	18-29 (1.a)	30-42 (1.b)	43-54 (1.c)	55< (1.d)		
3. Marital Status	Single/ Never Married (2.a)	Married/ Domestic Partner (2.b)	Separated (2.c)	Divorced (2.d)	Widowed (2.e)	
4. Level of Education	Some College (3.a)	Technical School Degree (3.b)	Associate Degree (3.c)	Bachelor's degree (3.d)	Master's Degree (3.e)	
5. Race/ Ethnicity	Hispanic or Latino (4.a)	White (4.b)	Black or African American (4.c)	Asian (4.d)	American Indian Alaskan (4.e)	Other (4.f)

The post implantation survey was measured by percentages of perceptions. A two tailed t-test was used to measure the significance between pretest and posttest. The accepted level of significance will be p=0.05. The p-value is the smallest level of significance at which the null hypothesis would be rejected. The degrees of freedom are represented by the mean, the standard deviation, statistic, probability and Cohen's d. Levene's test for equality of variance was used to assess whether the homogeneity of variance assumption was met (Levene, 1960). The homogeneity of variance assumption requires the variance of the dependent variable be approximately equal in each group. The participants pre and post questionnaires was analyzed through nominal statistics and a G-Power analysis was done to eliminate Type II errors (Faul, Erdfelder, Lang, & Buchner, 2007). According to Polit and Beck (2016), validity can be assessed by

comparing the average scores in both groups. The two groups were analyzed, and averages were compared.

Qualitative Data Analysis

An open-ended questionnaire was administered on the last day. There are five open-ended questions about the use of the Jigsaw design compared to traditional online annual training modules, collaborative communication and professional career. A review of this questionnaire is in Appendix F. The analysis was done through NVivo program with a word cloud frequency and a bar chart to display the results.

Timetable

The timetable below represents the months accomplishments within the DNP program achievements in chronological order.

Table 3.4: 24 Month Timetable: Year 1

Year 1
September 2018 to August 2019

Months	1	2	3	4	5	6	7	8	9	10	11	12
Conceptual Phase												
Problem Identification												
Literature Review												
Clinical Fieldwork												
Theoretical Framework												
Hypothesis Formation												
Proposal Development												
Planning Phase												
Research Design												
Population Specification												
Sampling Plan												
Data Collection Plan												
Proposal Defense												

Ethics Procedure												
Plan Finalization												
Empirical Phase												
Collection of Data												
Data Preparation												
Analytic Phase												
Data Analysis												
Result Interpretation												
Dissemination Phase												
Project Defense												
Findings Utilized												
Calendar Months	9	10	11	12	1	2	3	4	5	6	7	8

Table 3.5: 24 Month Timetable: Year 2

Year 2
September 2019 to August 2020

Months	13	14	15	16	17	18	19	20	21	22	23	24
Conceptual Phase												
Problem Identification												
Literature Review												
Clinical Fieldwork												
Theoretical Framework												
Hypothesis Formation												
Proposal Development												
Planning Phase												
Research Design												
Population Specification												
Sampling Plan												
Data Collection Plan												
Proposal Defense												
Ethics Procedure												
Plan Finalization												
Empirical Phase												
Collection of Data												
Data Preparation												
Analytic Phase												
Data Analysis												
Result Interpretation												

Dissemination Phase												
Project Defense												
Findings Utilized												
Calendar Months	9	10	11	12	1	2	3	4	5	6	7	8

Limitations

The first limitation was the sample of convenience due to the location and access into the behavioral health private practice. Sample size of eight participants is another limitation. The learning management system utilized is Google Classroom discussion forum was a first time use for all participants. This is also a limitation due to a new management system that is unfamiliar to the participants. Another limitation was the first time use of Jigsaw. Other limitations with the study were non standardize questionnaire and survey. This can cause a bias in the data collection and analysis (Polit, & Beck, 2016). A standardize rubric was used to support and show reliability to the results in this study.

Summary

The Jigsaw Method of Cooperative Learning research project was supported by a strong literature review that identified Jigsaw very affective in improving collaboration among behavioral health professionals and interprofessional patient care teams. With the improvement of collaboration among healthcare providers, the delays in patient care, patient satisfaction scores, nurse retention and financial stability all improve. This will improve the dynamics and cultural behaviors within the system.

A mixed methods approach was used to complete this project. The use of nominal measures for the variables and descriptive for the demographics are displayed. Intellectus Statistics and NVivo programs were used to analyze and present the data. A post implementation survey, pretest and post-tests and an open-ended questionnaire was

used as a data collection tool. Ethical considerations were used to inform, collect and store the data.

There are possible limitations by the sample size and the sample of convenience. A G-Power statistical tool was used to identify a Type II Error. Since the study is performed in an online setting, geographic location did not affect the results of the study. If the participants are familiar with the online classroom, the limitation is minimal. The ability to reproduce the findings is substantial to this cooperative learning design.

Jigsaw structured online discussion strategy can be applied in any online and face to face teaching and learning modalities. By using a pre and post-test comparison, the validity of the project is supported. According to Buhr, Heflin, White, and Pinheiro, (2014), this strategic technique of cooperative learning can be applied to many different areas of education and this technique has been used successfully in healthcare education for decades.

Chapter IV: Results

Introduction

The overall purpose of this chapter is to deliver the results of this study and to discuss the findings in detail. Within a nine-day implementation period, the data collection was collected using a demographic survey, pre-test and post-test comparison, a content analysis of discussion and a student post implementation survey at the end of the completion. These results were gathered from Google Classroom online management system and analyzed through Intellectus Statistics and NVivo data analysis techniques.

There is no missing data or illuminations from this study. All eight participants completed all required data collection tools and completed the project to the end of the nine days. The quantitative data was completed, and the qualitative data was entered into NVivo for a content analysis. Word frequencies were identified, and themes emerged and each interview was categorized into positive and negative responses about each question's theme code.

Types of Results

The research study will be a mixed method using quantitative and qualitative analysis to collect and analyze the project's data.

Demographics: The sample was made up of eight behavioral healthcare professionals. The items in the demographic tool were, gender, age, marital status, education level and race/ethnicity. This information allows better understanding of background characteristics of the participants. If there was a significant difference in data results, the demographics could possibly identify the differences. A descriptive analysis was used. The most frequently observed category of Ethnicity was Caucasian (n = 6, 75%). The

most frequently observed category of Gender was F (*n* = 5, 62%). The most frequently observed category of Marital was Married (*n* = 4, 50%). The most frequently observed category of Age was 18-29 (*n* = 3, 38%). The most frequently observed category of Education was MSN (*n* = 8, 100%). Frequencies and percentages are presented below.

Table 4.1: Demographic Frequencies & Percentages

Frequency Table for Nominal Variables

Variable	*n*	*%*
Ethnicity		
Caucasian	6	75.00
Asian	1	12.50
Hispanic	1	12.50
Missing	0	0.00
Gender		
M	3	37.50
F	5	62.50
Missing	0	0.00
Marital		
Domestic	3	37.50
Married	4	50.00
Divorced	1	12.50
Missing	0	0.00
Age		
30-42	2	25.00
18-29	3	37.50
>55	1	12.50
43-55	1	12.50
19-29	1	12.50
Missing	0	0.00
Education		
MSN	8	100.00
Missing	0	0.00

Quantitative: The pretest and posttest were analyzed through a two-tailed paired t-test. A Shapiro-Wilk test was conducted to determine whether the differences in Pretest

and Posttest could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were not significant based on an alpha value of 0.05, $W = 0.89$, $p = .245$. This result suggests the possibility that the differences in Pretest and Posttest were produced by a normal distribution cannot be ruled out, indicating the normality assumption is met. Levene's test was conducted to assess whether the variances of Pretest and Posttest were significantly different. The result of Levene's test for was not significant based on an alpha value of 0.05, $F(1, 14) = 0.84$, $p = .375$. This result suggests it is possible that Pretest and Posttest were produced by distributions with equal variances, indicating the assumption of homogeneity of variance was met.

The result of the two-tailed paired samples *t*-test was significant based on an alpha value of 0.05, $t(7) = -3.87$, $p = .006$, indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of Pretest and the mean of Posttest was significantly different from zero. The mean of Pretest was significantly lower than the mean of Posttest. The results are presented in Table 4.2.

Table 4.2: Pretest & Posttest: Two-Tailed Paired Samples *t*-Test

Pretest		Posttest				
M	SD	M	SD	t	p	d
9.75	1.28	11.38	0.52	-3.87	.006	1.37

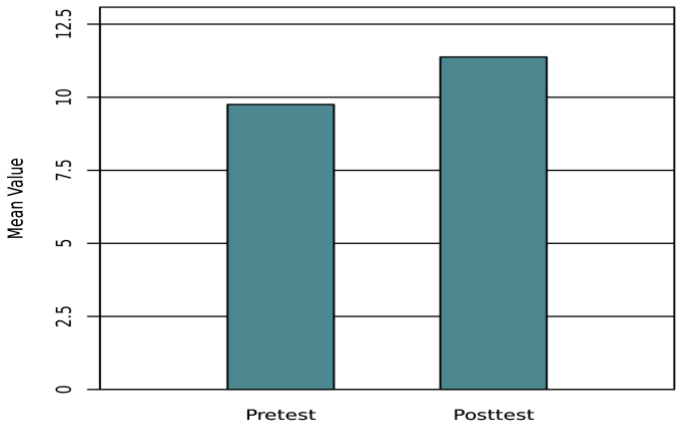
Sample Size (Complete Cases):
N = 8

Shapiro-Wilk Test:
W = 0.860, p = 0.12

Levene's Test:
$df_n = 1$, $df_d = 14$, F = 1.556, p = .233

Confidence Interval Based on $\alpha = 0.05$:
Lower Limit = -2.894, Mean Difference = -2.000, Upper Limit = -1.106

Diagram 4.1: The Means of Pretest & Posttest



The post implementation perception survey was analyzed through percentage technique. There were six closed ended questions with five answers. There were eight participants taking the survey. The Questions with responses are illustrated below.

Table 4.3: Post Implementation Perception Survey

Questions	Strongly Disagree	Disagree	Neutral	%	Agree	%	Strongly Agree	%
1. A major problem in healthcare today is the lack of collaborative communication among professionals.	0	0	2	25	6	75	0	
2. Online education is a great way to take a training course.	0	0	1	12.5	5	62.5	2	25
3. An online education course needs improvement in collaborative communication techniques.	0	0	2	25	6	75	0	

4. Online non-interactive training modules do not improve collaborative communication among healthcare participants.	0	0	2	25	6	75	0	
5. The Jigsaw Method of online discussion improves collaborative communication among healthcare participants during annual education training.	0	0			6	75	2	25
6. I feel that this type of online Jigsaw discussion HIPAA training improves collaborative communication among my co-workers.	0	0	1	12.5	4	50	3	37.5

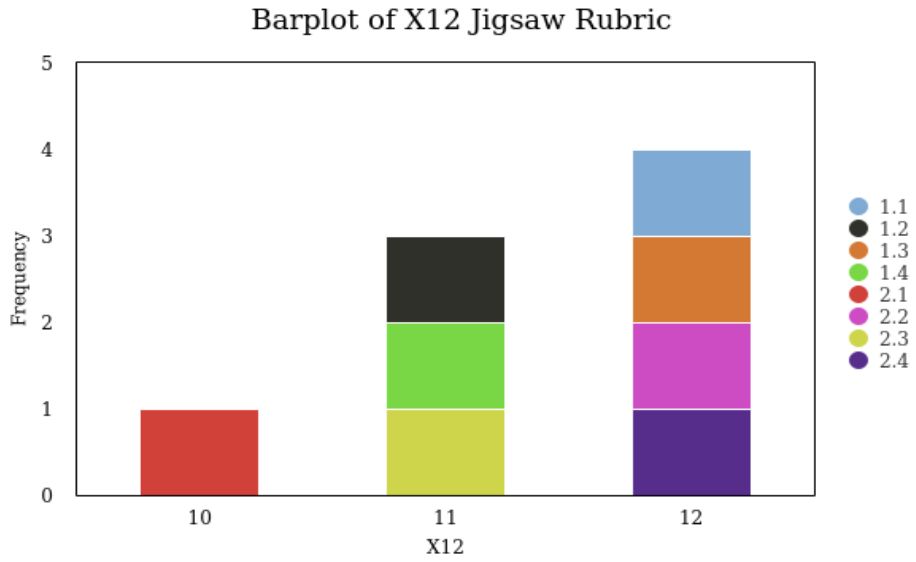
A Standardized Jigsaw Cooperative Collaboration Rubric was completed on the eight participants. This rubric was chosen from the Read/Write/Think International Reading Association because of its use among standardize testing and evaluation of collaboration techniques. When a standardize rubric is used to collect data across specific

population, the research shows reliability and the scores tend to fall within the same point range. This strengthens the reliability of the project.

Diagram 4.2: Frequency & Percentages of Standardized Jigsaw Method Rubric

Variable	*n*	%
10	1	12.5
11	3	37.5
12	4	50.0
Missing	0	0

Table 4.4: Standardized Jigsaw Method Cooperation and Collaboration Rubric



The results of each participant rubric were analyzed by Descriptive Frequency and Percentages of Nominal Variables. See table 4.4 for the individual scores. The most frequently observed category was 12 (*n* = 4, 50%). The second most frequently observed category was 11 (*n* = 3, 37.5%) and the third most frequent category was 10 (*n* = 1, 12.5%).

Qualitative: A content analysis was be conducted on the open-ended questionnaire interview. To gain themes, a word frequency cloud query was

accomplished. See Diagram 4.4. The results interview word frequency was categorized into positive and negative responses for each question.

Diagram 4.3: Word Frequency Cloud

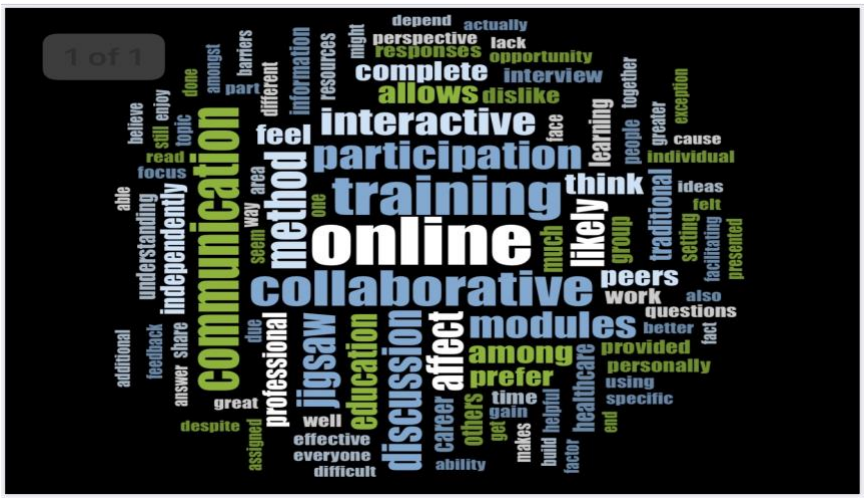


Table 4.5: Descriptive Content Analysis: Collaborative Communication

Question	Positive	Negative	Themes/Codes
1. Do you think interactive online education training modules affect collaborative communication among participants?	>Simple and easy to Collaborate >More Collaborative >More Communication >Interactions > More Communication >Great Feedback >Improves Participation	>Unstructured Communication	Collaborative Communication
2. Do you think Jigsaw Method online training discussion affect collaborative communication among participants?	>Allows for wider range of views and input. >Structured form of communication. >Clear expectation with feedback.	>Technological issues, lack of in person discussion.	Facilitates Participation

	>Method allows communication amongst participants. >Facilitates each participant to interact with others regarding their topic to build and cover more material. >Jigsaw method allowed learning on a subtopic in greater detail, and therefore did not feel overwhelming in this environment to break down ideas. >I believe it furthered understanding and gave opportunity to learn from each other.		
3. Would you prefer to complete non-interactive online training modules independently or interactive online training discussion with your peers?	>I prefer to complete interactive online training discussion with my peers because it provides opportunity to gain additional insights. Jigsaw discussions allows for more information to be address, additional questions and feedback. >Using an interactive training discussion with my peers so that I have	>I would prefer working independently due to my ability to work well by myself using my own personal discipline and exceptions, factors I can control and facts that would be difficult to have a grasp on when in a group setting. >Depend on the training - I would likely prefer a combination. > I prefer to complete them independently. I	Interactive Feedback

	the opportunity to be exposed to information gathered from various resources and presented in creative ways to enhance learning. > Interactive online is helpful because you can connect and brainstorm with others, as well as gain alternate viewpoints. > Interactive was interesting as it allowed time to read other's viewpoints on a subtopic and then to build together thus establishing collaboration and sharing of ideas. > Motivation is a great factor in Jigsaw due to a greater level of participation.	feel that I have better focus and am less concerned about what other people are saying and feeling like I have to say something different.	
4. Do you feel the Jigsaw Method of online education can affect the collaborative communication in your professional healthcare career?	> It can greatly impact collaborative communication because it is set up to allow all members to interact with one another. Through engaging in education in this manner, it might make professionals more likely to	>I would be forced to hear more about different people's views and consider much more than my own perspective or my own understanding.	Impact

	continue this collaborative method into work, to provide more through and effective treatment for clients. > In a professional setting, the collaboration is likely to be greater among healthcare workers. > This is a beneficial way of communicating collaboratively. > it's an effective way to get many people doing small amounts of work and communicating on training that ultimately can provide a lot of information. > It was a different approach that I have not done in my professional career. It would possibly help with expanding perspectives on the topic. > I felt it offered interaction with my peer group and access to their thoughts and understanding. > In my professional career, online education could		

	have a positive effect on collaborative communication due to sharing interest with like-minded individuals in. As well as facilitating interactions and understandings amongst participants.		
5. What did you like and/or dislike about the online Jigsaw Method of discussion?	> Jigsaw Method allowed for team collaborating, while still learning all the information from the training module. > I appreciated getting feedback from others in my group but also the fact that we were told exactly what it was that was needed for the project. > I liked that it allowed for some flexibility as far as being able to participate despite time constraints and distance barriers as well as provided the opportunity to learn from others. There is nothing that I disliked. > I feel it was very effective in	>Sometimes responding in comment form to the information provided by other participants felt a little difficult to point out something without it feeling redundant but this is likely a result of everyone doing a good job. > I didn't like that some of the information provided by others was incredibly extensive and felt like I was just re-reading the original resource instead of having a summarized/condensed version.	Online Jigsaw

	teaching the desired topics and I enjoy that it was actually educational for me. > highlight the cooperative learning with my peer group and an ability to work together. > I enjoyed it overall as it was structured and it allowed everyone to have their own focus, complete their assigned parts at their own time, and was able to see my colleague's perspective.		

The Table above shows the open-ended questions and responses were categorized into positive and negative feedback. The themes were chosen from the word frequency cloud and placed to the right of the chart. The themes establish the positive and negative responses to each question. There were eight positive responses to question 1 which asked if collaborative communication was achieved in an interactive online annual competency education. Question 2 had one negative response out of eight about improving interaction with participants by using the Jigsaw design. Question 3 had three negative responses out of eight when asked if Jigsaw interactive training was preferred. Question 4 had one negative response out of eight when asked if the Jigsaw would improve collaborative communication in their professional career. Question 5 had two

negative responses out of eight when asked what was liked and disliked about the Jigsaw method. A Theme Chart was created to display the qualitative data. See Diagram 4.4.

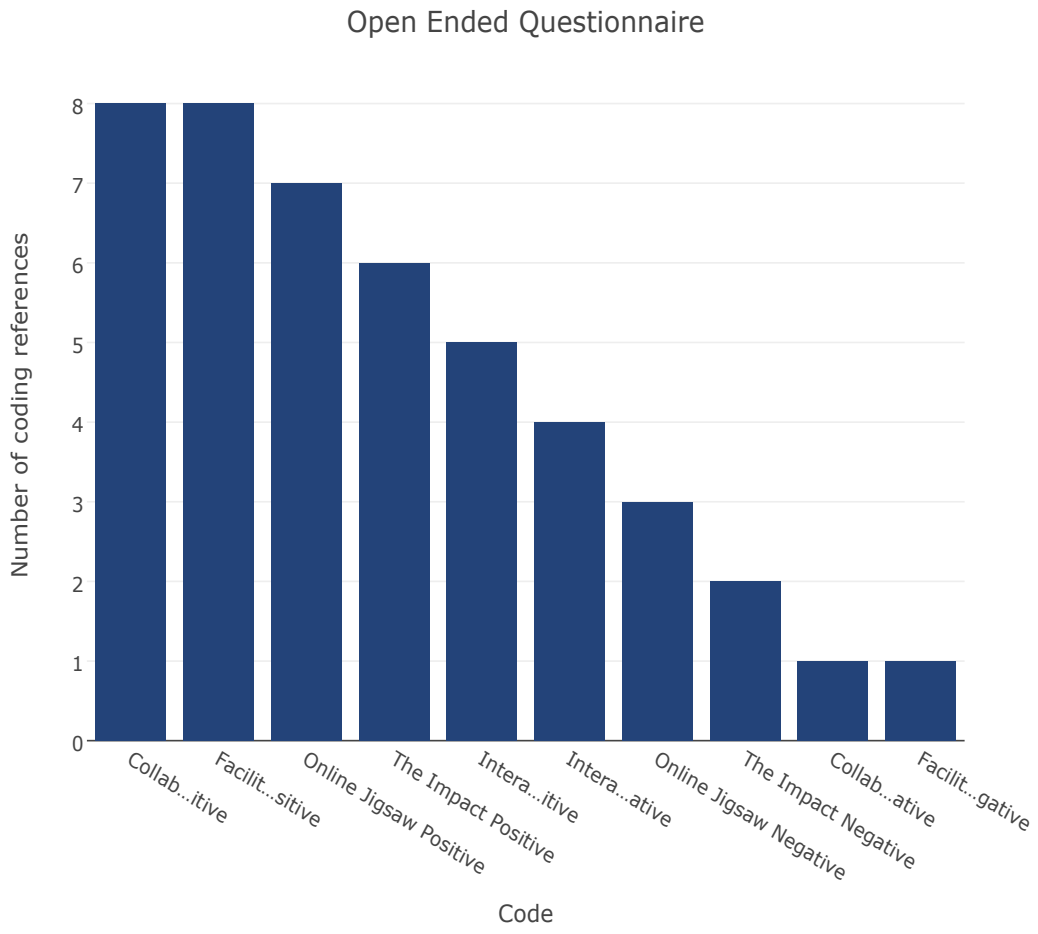


Diagram 4.4: Content Analysis Theme Chart

Left to Right; Collaborative Communication Positive, Facilitates Participation Positive, Online Jigsaw Positive, The Impact Positive, Interactive Feedback Positive, Interactive Feedback Negative, Online Jigsaw Negative, The Impact Negative, Collaborative Communication Negative, Facilitates Participation Negative.

Discussion

Intellectus Statistic Results: The demographics was analyzed by a descriptive analysis. Out of eight participants, there were five female and three males. All eight

participants held master's degrees. All participants were between the ages of 25 to 55 years of age and seven were in a domestic relationship with one single. The ethnic category was Caucasian, Asian, and Hispanic. All equally took part in this project.

The participants pre and post questionnaires was analyzed by a two tailed paired t-test that showed significant differences in the comparisons of both scores. The results of the two-tailed paired samples *t*-test was significant based on an alpha value of 0.05, t (7) = -3.87, p = .006, indicating the null hypothesis can be rejected. The result of the analysis is considerably different due to the p-value is less than 0.05. The mean value in the pretest was significantly lower than the posttest giving the Cohen's d effect size greater strength in differences.

The post implementation survey was a six question, closed-ended, multiped-choice. The responses were strongly disagree, disagree, neutral, agree, and strongly agree. These questions were created by viewing the close-ended question development program in the NVivo resource link. The results of this post implementation survey were analyzed by using percentage calculations.

NVivo Results: Content analysis of common themes was completed using a five question, open-ended survey. These questions were created by viewing the open-ended question development program in the NVivo resource link. The eight participants were asked how they perceived the Jigsaw design, if they thought it improved collaborative communication between participants, and if they perceived this implementation as improving collaborative communication in their professional career. The results were placed in positive and negative responses from the emerging themes.

A theme chart was created to show the results of the positive and negative responses. The positive responses were significantly higher than the negative. All of the participant stated they would rather do an interactive annual education competency such as Jigsaw, rather than the individual modules that have been completed in the past. I did have a negative response on the interactive feedback that states, the online design is only as good as the learner makes it. Overall, the results had positive responses with a few counter responses that was considered to improve the project, such as eliminating doubled information when answering the sub-topic questions. The master concept that was created at the finale day of implementation was a power point presentation that everyone had equal involvement collaboration.

Chapter V: Conclusion

Introduction

This chapter will discuss the sequence of steps for implementation and the results of this collaborative communication quality improvement project. Comparison of the earlier studies and describing the internal and external implications will be investigated. This researcher will also summarize the lessons learned and the limitations of the project.

This project started with the observation of healthcare professional's interactions within a hospital facility. Eight years ago, this researcher began identifying different types of problems that can lead directly to patient care outcomes. The biggest issue was the lack of collaboration and communication among the interprofessional patient care teams. As mentioned previously, this issue can cause major delays in patient care, extended hospital stays, delays in treatments, decrease in satisfaction scores for patients and employees and an increase in financial instability. A triangulation was identified among the lack of professional collaboration, the professional agencies implementing strategies to improve collaborative communication and the connection to these strategies through educational techniques. This researcher started by investigating residency programs and the improvements they made in employee retention and satisfaction scores. Moreover, team building strategies were also investigated. These techniques stemmed from cooperative learning in educating healthcare professionals.

The problem was identified at that time, with the generation of healthcare professionals and the mentality that was used by most and visualized by newly graduated professionals. These visualizations and practices cause new nurses to take-on bad habits. Since then, elaborate studies investigated interventions that can eliminate this lack of

collaboration and communication. As technology grew, it put an even larger gap in interactions. This researcher took the use of technology and the evidence of collaborative communication improvement strategies in cooperative learning to structure an online discussion design of the Jigsaw Method. As the ANA (2018) discussed, collaboration and communication improvement strategies need to start with the education of our healthcare professionals. According to Li, Donghua, Hanzhu, and Siyuan (2018), cooperative learning strategies such as the Jigsaw Method has been used for decades and created a positive impact on education and increasing the collaboration, communication and decreasing prejudices among the participants.

As described earlier in this paper, the Jigsaw design was structured to form an online discussion of educational materials. The project was implemented into Google Classroom and the participants were eight behavioral healthcare professionals. The project lasted nine days and data collection started on the first day with a content (HIPAA) pretest and a demographics survey and the ninth day with a posttest, open-ended questionnaire and a post implantation perception survey. Days two through eight were the Jigsaw structured discussion. A standardized Jigsaw Method Rubric was also utilized from Read/Write/Think, International Reading Association with all rights reserved. Read/Write/Think may be reproduced for educational purposes.

Interpretation of Results

The project had several areas of evaluation. The pretest and posttest evaluated the progress that was made before and after the implementation. This identified an improvement of retained knowledge. The post implementation survey in the use of Jigsaw Method was the perception of the participants understanding of the project. The

use of the open-ended questionnaire was an interview method of gathering data and identifying themes. All of these tools identified the Jigsaw Method to improve collaborative communication within the annual education competency training. The validity and reliability of this project was supported by the standardize rubric that is used internationally to identify cooperative collaboration among the participants. This tool helped support the reliability of the data analysis.

Description: The description of this study and how it relates to previous studies helps support the steps taken in measuring and evaluating this topic of discussion. According to Nolan, Hanley, DiVietri, and Harvey (2018), showed significant improvements on cooperative learning but weak differentiation between the expert group and the Jigsaw group. This researcher used structured discussion in instruction and timelines of events over the nine-day implementation. By applying specific instruction, this strengthened the expert group's distinction of the project.

Each member contributed, discussed, identified unique individual strengths and other's insights that created a cohesion of collaborative communication among the group. According to Russell (2015), the evaluation of collaborative communication in online educational platforms for healthcare professionals need to be further investigated to support the validity and reliability of the methods used to collect data. This ten-year longitudinal study provided a triangulation of synergistic alternatives to pursue for assessment criteria. These studies provided direction in strengthening the weakened areas of this project. Full disclosure, detailed outcomes and schedule of instructions were provided to reinforce this study's outcomes.

Theoretical Framework: Rosswurm and Larrabee (2009) Change in Evidence-based Practice Model was used as the theoretical foundation of this project. By identifying the problem that need to be changed and investigating interventions that link the problem with outcomes, can provide reasonable strategies that can be implemented to improve outcomes. Synthesizing best practices and evidence that supports the desired outcome was the next step in identifying a strategy that may contribute to the desired outcome. In designing the practice change, the Jigsaw concept structured of online discussion became a working method of change that was used to evaluate the improvements in collaborative communication among healthcare professionals. The project was implemented into an online annual education competency for healthcare professionals. The implementation was observed, closely monitored and evaluated using several strategies method previously. The sustainability of this collaborative communication study will be to use the Jigsaw Method of online discussion annually for the continuous use of this collaborative communication improvement instrument. By reintroducing the Jigsaw strategy every year will consistently reinforce the Jigsaw concept.

Limitations: The first limitation was a sample of convenience and sample size of eight participants. Another limitation was only one group of participants were used as the Jigsaw group, there were no control groups to compare results. The pretest and posttest were identical and taken from reputable HIPAA compliance training courses. The post implementation survey was used from a training course on closed ended questions in NVivo. They were not standardized and measured participants perceptions. The open-

ended questions were used from an open-ended question training course in NVivo. This was also not standardized.

Validity Issues: The validity issues were due to the non-standardized data collection tools. To minimize the factors that caused potential bias and imprecision in design, a standardized Jigsaw Method Cooperative Collaboration Rubric was used to identify the quality in collaborative communication responses in measurable terms. This tool was chosen to strengthen and support the overall data collection and analysis.

Implications for Evidence Based Practice and Research

The data collected from this study on the Jigsaw Method of Cooperative Learning has supported the recent research done on the improvements to collaborative communication among healthcare professionals. These results indicate that the mediator or collaborative communication and its relationship to healthcare outcomes play a major role in employee and patient satisfaction scores, decreases hospital stays, decreases employee turnover rates and maintains financial stability. According to Duffield, Roche, Homer and Buchan (2016), the lack of collaboration and communication in healthcare can cause a negative cultural environment within the organization that affects every aspect of the patient care outcome. According to Buhse, and Ratta (2017), the enhancement of professional development with strategies that promote collaborative communication can be a valuable strategy in an ongoing educational platform.

The use of Jigsaw Method in Cooperative Learning applied to annual competency training for healthcare professionals can create and reinforce a collaborative communication among the interprofessional healthcare teams. This study can to be further investigated with alternative variations to Jigsaw that improve the performance

and outcome of the implementation to adapt to current statuses. According to Li, Donghua, Hanzhu, and Siyuan (2018), research on the effects of the cooperative learning model on newly recruited nurses has identified a communication and collaborative environment that enhances teambuilding, confidence, job satisfaction, worth fullness and commitment to its position can produces better outcomes in patient care. According to Leyva-Moral, and Riu-Camps (2016), teaching researched methodology on Jigsaw cooperative learning in education goes beyond teambuilding strategies. Jigsaw is a structured formula that involves collaboration, communication, partnerships, commitments, mutual goal achievements and decreases prejudices among its participants.

Dissemination of Findings

The consideration of the target audience is in educational platforms for the dissemination of findings. The concept of Jigsaw will be utilized in annual competency training courses for healthcare professionals. This will continue to reinforce and sustain the Jigsaw concept. Evaluation and re-evaluation will be an important factor in moving forward. This project will be submitted to an online nursing education seminar for further dissemination. This researcher will continue to use this strategy in annual trainings and academic environments to education new and experienced healthcare professionals.

Conclusion

The lack of collaborative communication in healthcare is getting considerable attention due to the increase in costs, decreased satisfaction scores and non-desirable patient care outcomes to name a few. It is important that professional healthcare rise to meet the challenges in todays technology to maintain the standard of care that is expected from this high-profile profession. Strategies in teambuilding, residency

programs and collaboration improvements have been researched by the top healthcare organizations to combat this issue. If we take these strategies and apply them to the Jigsaw structural concept, we can consistently and continuously reinforce collaborative communication within education itself. Jigsaw Method of Cooperative Learning has been supported by research to have an astounding affect on collaborative communication among participants and is being used more and more in healthcare education.

The online instructional design of Jigsaw has provided similar results as face-to-face version. The online discussions actually are improved by quality contributions compared to the face-to-face. This phenomenon is most likely due to the online platform resources such as accommodating timeframes and individual creativity without direct personal contact. The Jigsaw Concept needs to be further investigated for its merits. It is this researcher's anticipation that this method be used to structure educational content to allow the Jigsaw concept to expand and improve.

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Appendix A
The Jigsaw Method Online Discussion

Master Concept	1. Main Concept	2. Main Concept
Jigsaw Teams	Team 1	Team 2
Member 1	1.1 Sub-concept	2.1 Sub-concept
Member 2	1.2 Sub-concept	2.2 Sub-concept
Member 3	1.3 Sub-concept	2.3 Sub-concept
Leaders	Compile/Edit/Post - Team1	Compile/Edit/Post - Team 2

Jigsaw Team 1 Main Concept
Member 1.1- # 1 Sub-concept
Member 1.2- # 2 Sub-concept
Member 1.3- # 3 Sub-concept
Leader Team 1- Compiles all sub-concepts and posts complete main concept

Jigsaw Team 2 Main Concept
Member 2.1- # 1 Sub-concept
Member 2.2- # 2 Sub-concept
Member 2.3- # 3 Sub-concept
Leader Team 2- Compiles all sub-concepts and posts complete main concept

Expert Team Master Concept
Team 1 Leader – Main concept
Team 2 Leader – Main concept
Compile all main concepts to reveal master concept and post to master concept link

Appendix B

Regis College
Informed Consent
The Jigsaw Method of Online Discussion
Researcher: Margaret P Smallwood

Introduction

Please read this form carefully. You are being asked to be in a research study of a cooperative learning online method of discussion named the Jigsaw Method. You were selected to be in this study because you are a member of the healthcare professional in a behavioral clinic group and you are over 18 years of age. You are not eligible to participate if you are under 18 years of age or pregnant. Please ask any questions you may have before you agree to be in the study. You will receive copy of this consent form.

Purpose of the Study

The purpose of this study is to identify whether the online Jigsaw Method of discussion will improve collaborative communication and content retention among the interprofessional behavioral health patient care team.

What Will Happen in the Study?

If you agree to be in this study, we would ask you to follow the instructional concept design that will be fully explained prior to the beginning of these courses. This is an online discussion structured so that each student prepares their teaching plan for their specific topic. Then when each participant completes their task, the leaders will then compile and post the entire groups main concept for other groups responses. This is not a group project and will be individually identified. The instructions will be fully stated, and a rubric will be available for your grading scale and content inclusions of discussion materials. By providing an interactive online discussion such as the Jigsaw Method, we can become pieces of a conceptual puzzle that provides strength in knowledge when the pieces come put together. This type of exercise will improve collaborative communication among its participants. The researcher is trying to identify improved collaboration using this cooperative learning technique. This collaborative learning will also transfer to collaboration with any healthcare facilities.

Benefits of Being in this Study

The benefits of participation in this study include gaining insight and experience with an alternate method of promoting collaboration in a team atmosphere with the goal of providing safe care and improving patient health outcomes. The improvement of collaborative interaction can provide insight into a working team concept, which will benefit the patient. The participant can also benefit due to the collaborative interaction experience with physicians, nurses and other healthcare professionals. Working in a collaborative environment provides supportive measures that enhance the patient care concept and responsibilities.

Risks and Discomforts of Being in this Study
The study has the following risks. First, this study has minimal risks other than the normal interaction from completing an online discussion. Second, the fear of unknown information will be minimized by a full descriptive instructional guide that will be provided online at the beginning of the course opening to participants. Third, there are no expected risks to this project. The content compliance in the annual in-service training will remain the same. Only the discussion structure will change to allow the instruction to be implemented into the online instructional design.

Payments
There is no payment for being in this study.

Cost
There is no cost to you for being in this research study other than time spent on discussion topic.

Choosing to Be in the Study and Choosing to Quit the Study
Your options to be a participant or nonparticipant in this study will not affect your current or future relations with the behavioral health clinic. There are no penalties or impact on your employment status and no impact on your relationship status. If you choose not to participate, this will have no affect on you either way.

Getting Dismissed from the Study
The researcher may dismiss you from the study at any time for the following reasons: non-participating in course requirements or failure to follow the study guidelines.

Privacy
The records of this study will be kept private. Your pre-test and post-test questionnaires are anonymous, and the results of this data will be kept in a locked computer file for 12 months and then deleted. At any time, there will be no identifying names associated with these results. Once you have entered the study, a number will be assigned to each participant.

Contacts and Questions
The researcher conducting this study is: Margaret P Smallwood. The researcher will be available to answer any questions about the study at: msma102@regiscollege.edu. If you have questions or concerns about your rights, you may contact the Regis Institutional Review Board Chair:

Dr. Colleen C. Malachowski, PhD
781-768-7373
colleen.malachowski@regiscollege.edu

Statement of Consent

Adult Participant Informed Consent

I have read this form (or have had it read to me). I have been encouraged to ask questions. I have received answers to my questions. I give my consent to be in this study. I have received (or will receive) a copy of this form. I understand the risks and discomforts associated with the above study and understand that I may quit the study at any time without penalty.

Signature(s)/Date

Adult Participant Informed Consent

Participant Printed Name: _____

Participant Signature: _____ Date: _____

Appendix C

Demographics

1. Age? (Please Circle One)
    a. 18 to 29
    b. 30 to 42
    c. 43 to 54
    d. 55 and older
2. What is your current marital status? (Please Circle One)
    a. Single/Never Married
    b. Married/Domestic Partner
    c. Separated
    d. Divorced
    e. Widowed
3. What is the highest level of education you have completed? (Please Circle One)
    a. Some College
    b. Technical School Degree
    c. Associates Degree
    d. Bachelor's Degree
    e. Master's Degree
4. Race/Ethnicity Question (Please Check One)
    a. Hispanic or Latino
    b. Caucasian
    c. Black or African American
    d. Asian
    e. American Indian/Alaskan
    f. Other
5. Gender (Please Circle One)
    a. Male
    b. Female

Appendix D

HIPAA Annual Training Pretest & Post-test

1. What does HIPAA stand for? *

Option 1 - Health Institute Probability and Accuracy Act
Option 2 - Health Insurance Portability and Accountability Act
Option 3 - Health Insurance Probability and Accountability Act
Option 4 - Health Institute Portability and Accountability Association

2. Under HIPAA, which one of the following types of information is excluded from the patient's right to access? *

Option 1 - Records more than 2 years old
Option 2 - Payment records
Option 3 - Psychotherapy Notes
Option 4 - X-rays

3. A patient has the right to direct a health care provider's office to send protected health information (PHI) to a third party, UNLESS: *

Option 1 - The patient has not paid their bill in full
Option 2 - Tells you over the phone
Option 3 - The patient fails to give a signed written request
Option 4 - The third party is a mobile health application of unproven efficacy

4. HIPAA Privacy Rule gives the patients the right to all BUT which one of the following: *

Option 1 - Ask to see and get a copy of their health records
Option 2 - Have corrections added to their health information
Option 3 - Receive notice that tells them how their health information may be used and shared
Option 4 - Ask to see or get medical records for the spouse

5. Under what circumstances may a mental health professional share patient information without consent? *

Option 1 - When an aunt calls and says they are taking care of the patient.
Option 2 - When the patient says it is ok to give their neighbor information
Option 3 - When the patient demonstrates behavior that is consider a threat to themselves or others.
Option 4 - When a sibling of the patient says he is responsible for them.

6. What is HIPAA? *

Option 1 - Federal standards for the protection of health information
Option 2 - Federal rule for Medicare and Medicaid payments
Option 3 - Agency for the improvement of healthcare policies
Option 4 - Agency for adequate staffing

7. What Dose HIPAA Do? *

Option 1 - HIPAA limits the use and disclosure of protected information that is available to the patient.
Option 2 - The HIPAA prohibits the use and disclosure of protected information to law enforcement.
Option 3 - HIPAA addresses the use and disclosure of an individual's (patient) health information.
Option 4 - HIPAA dictates the use of an individual's (patient) medical treatments.

8. Physical security includes which of the following? *

Option 1- Locking doors and desks
Option 2 - Keeping PHI out of view of those around you
Option 3 - Storing computer equipment safely
Option 4 - All of the above

9. Your cousin is a patient at your practice. You are not involved in her treatment but would like to send her a get-well card. What is the best way to find out details about her treatment? *

Option 1 - Ask her physician for the information.
Option 2 - Ask her directly.
Option 3 - Access her medical record.
Option 4 - Do nothing at all. HIPAA does not allow you to send her a get-well card.

10. When discussing PHI, try to: *

Option 1 - Lower your voice
Option 2 - Use non-generic terms
Option 3 - Move to a private area
Option 4 - Both 1 and 3

11. The most secure passwords are: *

Option 1 - Names of sports teams
Option 2 - Personal names or fictional characters
Option 3 - Combinations of upper- and lowercase letters and numbers that are at least six characters long
Option 4 - Date of birth

12. The HHS of Civil Rights enforce the HIPAA privacy, security and beach notification rules. Which is NOT a common violation? *

Option 1 - Impermissible PHI use and disclosure
Option 2 - Lack of individual™ access to their PHI
Option 3 - Use or disclosure of more than the minimum necessary PHI
Option 4 - None of the above

Appendix E

HIPAA To Jigsaw Post Implementation

1. A major problem in healthcare today is the lack of collaborative communication among professionals. *

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

2. Online education is a great way to take a training course. *

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

3. An online education course needs improvement in collaborative communication techniques. *

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

4. Online non-interactive training modules improve collaborative communication among healthcare participants. *

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

5. The Jigsaw Method of online discussion improves collaborative communication among healthcare participants during annual education training. *

Option 1- Strongly Disagree
Option 2- Disagree
Option 3- Neutral
Option 4- Agree

Option 5- Strongly Agree

6. I feel that this type of online Jigsaw discussion HIPAA training improves collaborative communication among my co-workers. *

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

Appendix F

Jigsaw Cooperative Collaboration Rubric

Rubric for Cooperative and Collaborative Learning

Student Name: Teacher Name: Date:

Assignment: Course Name: Level:

	Exceeds expectations: 3	Meets expectations: 2	Approaching expectations: 1	Not yet meeting expectations:
Focus on task and participation:	Consistently stays focused on task Effectively encourages and supports the efforts of the group as a whole	Focuses on the task most of the time Usually encourages and supports the efforts of the group as a whole	Sometimes focuses on the task Sometimes encourages and supports the efforts of the group as a whole	Rarely focuses on the task Lets others do the work and rarely supports the efforts of the group as a whole
Shared responsibility and dependability:	Consistently punctual with work responsibilities Follows through on assigned tasks and does not depend on others to do the work; responsibility for tasks is evenly shared	Usually punctual with work responsibilities Follows through on most assigned tasks	Sometimes punctual with work responsibilities Follows through on some assigned tasks	Rarely punctual with work responsibilities Rarely follows through on assigned tasks
Discussing, listening, and discussing:	Consistently and respectfully listens, interacts, discusses, and contributes to the group, helping the group to achieve a consensus	Usually respectfully listens, interacts, discusses, and contributes to the group, helping the group to achieve a consensus	Sometimes respectfully listens, interacts, discusses, and contributes to the group, helping the group to achieve a consensus	Rarely respectfully listens, interacts, discusses, and contributes to the group, helping the group to achieve a consensus
Teamwork:	Always contributes to the overall goal of the group	Usually contributes to the overall goal of the group	Sometimes contributes to the overall goal of the group	Rarely contributes to the overall goal of the group

Overall Evaluation: ___ **Exceeds expectations:** ___ **Meets expectations:** ___ **Approaching expectations:** ___ **Not yet meeting expectations:** ___

Appendix G

HIPAA To Jigsaw Open-ended Questionnaire

1. How do you think online education training modules that are interactive can affect collaborative communication among participants? Why?

2. How do you think that Jigsaw Method online training discussion can affect collaborative communication among participants? Why?

3. Would you prefer to complete online training modules independently or interactive online training discussion with your peers? Why?

4. How much do you feel the Jigsaw Method of online education can affect the collaborative communication in your professional healthcare career? Why?

5. What did you like and/or dislike about the online Jigsaw Method of discussion? Why?