2021

Improvisation-Based Curriculum For Nutrition and Dietetics
Undergraduate Students: An Examination in Alternative Education Methods

Megan Farris
dudzikfarris@gmail.com

Follow this and additional works at: https://huskiecommons.lib.niu.edu/allgraduate-thesesdissertations

Part of the Education Commons, and the Nutrition Commons

Recommended Citation

This Dissertation/Thesis is brought to you for free and open access by the Graduate Research & Artistry at Huskie Commons. It has been accepted for inclusion in Graduate Research Theses & Dissertations by an authorized administrator of Huskie Commons. For more information, please contact jschumacher@niu.edu.
ABSTRACT

IMPROVISATION-BASED CURRICULUM FOR NUTRITION AND DIETETICS UNDERGRADUATE STUDENTS: AN EXAMINATION IN ALTERNATIVE EDUCATION METHODS

Megan Farris, M.S.
School of Health Studies
Northern Illinois University, 2021
Dr. Julie Patterson, Director

Introduction: Medical improvisation is the use of theatrical-based games to develop interpersonal communication skills (ICS), including those applicable to telehealth communication, among health care professionals.

Purpose: The purpose of this study was to determine if implementing a medical improvisation-based workshop via a virtual classroom within an upper-level undergraduate nutrition and dietetics counseling course improved students’ self-assessed perceived capability of the following characteristics required as ICS for telehealth communication: becoming a better listener, becoming more observant of nonverbal communication, responding in the moment, increasing self-confidence in presenting, and becoming a better team member/collaborator. This study also considered the feasibility of using a virtual platform to deliver medical improv for the purpose of increasing ICS as a part of telehealth training. This study was justified by a body of scientific research indicating the efficacy of using improvisation-based exercises within similar face-to-face courses for other health science fields. The aim of this study was to contribute to the body of literature examining novel methods and teaching techniques to better prepare undergraduate nutrition and dietetics students for careers as Registered Dietitian Nutritionists.
Method: A mixed-methods study design was followed utilizing posttest/retrospective pretest surveys and themes identified from participants’ written responses. Using paired t tests, changes between the posttest and the retrospective pretest were compared within a nonrandom experimental group (n=31). A 100-point self-efficacy scale based off of Berk’s Improvisation Evaluation Scale was designed and used to evaluate participants’ self-assessed perceived capabilities related to five characteristics required in effective ICS for telehealth: (a) active listening, (b) perception of nonverbal communication, (c) responding in the moment, (d) self-confidence in presenting, and (e) effective collaboration, as well as the combination of all five characteristic measurements as an overall result. Participants received an interactive 3-hour medical improv-based workshop that was delivered via Blackboard Collaborate as part of their dietetics coursework. Participants responded to open-ended prompts and submitted feedback to the researchers. The prompts were analyzed by conventional content analysis protocol, utilizing an inductive approach. Additionally, demographic data was collected.

Results: Self-efficacy measurements related to becoming a better listener, becoming more observant to nonverbal communication, responding in the moment, and becoming a better team member/collaborator significantly increased (p < 0.005). Measurements related to the characteristic of self-confidence in presenting within the construct of self-efficacy increased but were not statistically significant. Emergent themes mentioned by participants in written responses indicated a positive experience participating in the online training, increased development of ICS skills for telehealth, and application of ICS skills beyond of the classroom setting.

Conclusion: These findings support the use of medical improvisation exercises as a way to increase self-efficacy beliefs regarding skills related to effective counseling developed within an
undergraduate nutrition and dietetics counseling course and demonstrate feasibility of administering medical improvisations via a virtual classroom.
IMPROVISATION-BASED CURRICULUM FOR NUTRITION AND DIETETICS
UNDERGRADUATE STUDENTS: AN EXAMINATION IN ALTERNATIVE
EDUCATION METHODS

BY
MEGAN FARRIS
©2020 Megan Farris

A THESIS SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE
MASTER OF SCIENCE

SCHOOL OF HEALTH STUDIES

Thesis Director:
Dr. Julie Patterson
ACKNOWLEDGEMENTS

I would like to express my deepest gratitude for the guidance and support received throughout the process of completing this important study. Dr. Patterson, your relentless encouragement and positive outlook have provided the motivation to push me to persevere throughout the many challenges we faced during completion of this study. Dr Henry, thank you for your wisdom and offering your expertise as I navigated this journey. Dr. Gillian-Daniel, your calm and encouraging guidance and relentless support to help guide me through this process is appreciated more than I can express. Prof. Frasz, thank you for believing in this work enough to jump into this experiment in bridging the areas of performance and science. Dr. Harris, thank you for your willingness to allow me to introduce your course to medical improv. Dr. Arnold, I appreciate the time and energy you invested in my study to help me create the best survey I could. Dr. Sochaki, thank you for taking a chance on me and this study. Dr. Thompson and Ms. Stetzler, thank you for the motivation and encouragement to continue on with the important work you started.
DEDICATION

To my parents, Albert and Lydia, and my husband, Joe. Without your support and faith in me, none of this would have been possible.

Thank you for believing in me.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>vii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>viii</td>
</tr>
<tr>
<td>LIST OF APPENDICES</td>
<td>x</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION TO THE STUDY</td>
<td>1</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Problem Statement</td>
<td>4</td>
</tr>
<tr>
<td>Significance</td>
<td>5</td>
</tr>
<tr>
<td>Purpose</td>
<td>8</td>
</tr>
<tr>
<td>Conceptual Definitions</td>
<td>9</td>
</tr>
<tr>
<td>Research Questions</td>
<td>10</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>11</td>
</tr>
<tr>
<td>Background</td>
<td>12</td>
</tr>
<tr>
<td>Telehealth</td>
<td>15</td>
</tr>
<tr>
<td>2. REVIEW OF LITERATURE</td>
<td>18</td>
</tr>
<tr>
<td>Introduction</td>
<td>18</td>
</tr>
<tr>
<td>Become a More Observant, Better Listener</td>
<td>19</td>
</tr>
<tr>
<td>Respond in the Moment</td>
<td>20</td>
</tr>
<tr>
<td>Increase Self-Confidence in Presenting</td>
<td>21</td>
</tr>
<tr>
<td>Chapter</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Become an Effective Collaborator/Team Member</td>
<td>22</td>
</tr>
<tr>
<td>Other Benefits</td>
<td>23</td>
</tr>
<tr>
<td>Pedagogical Theory</td>
<td>23</td>
</tr>
<tr>
<td>Telehealth Training</td>
<td>24</td>
</tr>
<tr>
<td>Weaknesses of Existing Studies</td>
<td>26</td>
</tr>
<tr>
<td>Summary of the Literature Review</td>
<td>26</td>
</tr>
<tr>
<td>3. METHODOLOGY</td>
<td>28</td>
</tr>
<tr>
<td>Study Design</td>
<td>28</td>
</tr>
<tr>
<td>Study Population and Recruitment</td>
<td>29</td>
</tr>
<tr>
<td>Instrument Design</td>
<td>31</td>
</tr>
<tr>
<td>Instrument Administration</td>
<td>35</td>
</tr>
<tr>
<td>Improvisation Curriculum</td>
<td>37</td>
</tr>
<tr>
<td>Virtual Delivery</td>
<td>39</td>
</tr>
<tr>
<td>Statistical Analysis</td>
<td>40</td>
</tr>
<tr>
<td>4. RESULTS</td>
<td>42</td>
</tr>
<tr>
<td>Demographic Data of the Sample Population</td>
<td>42</td>
</tr>
<tr>
<td>Results of Quantitative Data Analysis</td>
<td>42</td>
</tr>
<tr>
<td>Effect of Workshop Overall</td>
<td>42</td>
</tr>
<tr>
<td>Effect of Workshop on Individual Characteristics</td>
<td>45</td>
</tr>
<tr>
<td>Becoming a Better Listener</td>
<td>45</td>
</tr>
<tr>
<td>Chapter</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Becoming More Observant of Nonverbal Communication</td>
<td>45</td>
</tr>
<tr>
<td>Responding in the Moment</td>
<td>45</td>
</tr>
<tr>
<td>Increasing Self-Confidence in Presenting</td>
<td>46</td>
</tr>
<tr>
<td>Becoming a Better Team Member/Collaborator</td>
<td>46</td>
</tr>
<tr>
<td>Results of Qualitative Data Analysis</td>
<td>46</td>
</tr>
<tr>
<td>Summary of Results</td>
<td>48</td>
</tr>
<tr>
<td>5. DISCUSSION</td>
<td>51</td>
</tr>
<tr>
<td>Introduction</td>
<td>51</td>
</tr>
<tr>
<td>Self-Efficacy and Paired ( t ) Test</td>
<td>51</td>
</tr>
<tr>
<td>Explored Characteristics of Self-Efficacy</td>
<td>53</td>
</tr>
<tr>
<td>Emergent Themes</td>
<td>55</td>
</tr>
<tr>
<td>Implications</td>
<td>56</td>
</tr>
<tr>
<td>Limitations and Delimitations</td>
<td>57</td>
</tr>
<tr>
<td>Future Research</td>
<td>59</td>
</tr>
<tr>
<td>Lessons Learned</td>
<td>59</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>60</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>65</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table                                                                 Page
1. Comparison of Motivational Interviewing (MI) Communication Tools and Improvisation Exercises Utilized in This Study ..............................................................16
2. Improvisation Elements as Identified by the Applied Improvisation Network and Correlated Accreditation Council for Education in Nutrition and Dietetics (ACEND) Core Competency from the Essential Practice Competencies for the Commission on Dietetic Registrations’ Credentialed Nutrition and Dietetics Practitioners .....................................................................................................................17
3. Five Characteristics Related to the Construct of Self-Efficacy and Aligned Survey Statements ..............................................................................................................................34
4. List of Learner Objectives and Improv Exercises Used in Workshop .................................................................................................................................38
5. Covariant Form Demographics from Survey Respondents ..........................................................................................................................43
6. Paired Differences of Characteristics Within the Construct of Self-Efficacy ..................................................................................................................44
7. Summary of Qualitative Themes from Participants .................................................................................................................................47
8. Summary of Hypotheses and Results .................................................................................................................................49
9. Summary of Assumptions for Paired t Tests .................................................................................................................................109
10. Average Results from 5-Point Likert Scale on Pilot Survey and Feedback Form .................................................................125
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Diagram of study participants from recruitment</td>
<td>30</td>
</tr>
<tr>
<td>2.</td>
<td>Graph representing average scores of retrospective pretest and posttest survey results for each of the five individual characteristics and the combination of all characteristics</td>
<td>44</td>
</tr>
<tr>
<td>3.</td>
<td>Diagram of Assumption 3 for the combination of all characteristics</td>
<td>110</td>
</tr>
<tr>
<td>4.</td>
<td>Diagram of normal distribution for the combination of all characteristics</td>
<td>111</td>
</tr>
<tr>
<td>5.</td>
<td>Diagram of distribution for results of the combination of all characteristics</td>
<td>111</td>
</tr>
<tr>
<td>6.</td>
<td>Diagram of Assumption 3 for Becoming a Better Listener</td>
<td>112</td>
</tr>
<tr>
<td>7.</td>
<td>Diagram of normal distribution for Becoming a Better Listener</td>
<td>113</td>
</tr>
<tr>
<td>8.</td>
<td>Diagram of distribution of results for Becoming a Better Listener</td>
<td>113</td>
</tr>
<tr>
<td>9.</td>
<td>Diagram of Assumption 3 for Becoming More Observant of Nonverbal Communication</td>
<td>114</td>
</tr>
<tr>
<td>10.</td>
<td>Diagram of normal distribution for Becoming More Observant of Nonverbal Communication</td>
<td>115</td>
</tr>
<tr>
<td>11.</td>
<td>Diagram of Distribution of Results for Becoming More Observant of Nonverbal Communication</td>
<td>115</td>
</tr>
<tr>
<td>12.</td>
<td>Diagram of Assumption 3 for Responding in the Moment</td>
<td>116</td>
</tr>
<tr>
<td>13.</td>
<td>Diagram of normal distribution for Responding in the Moment</td>
<td>117</td>
</tr>
<tr>
<td>14.</td>
<td>Diagram of distribution of results for Responding in the Moment</td>
<td>117</td>
</tr>
<tr>
<td>15.</td>
<td>Diagram of Assumption 3 for Self-Confidence in Presenting</td>
<td>118</td>
</tr>
<tr>
<td>16.</td>
<td>Diagram of normal distribution for Self-Confidence in Presenting</td>
<td>119</td>
</tr>
<tr>
<td>Figure</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>17. Diagram of distribution of results for Self-Confidence in Presenting</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>18. Diagram of Assumption 3 for Becoming a Better Collaborator/Team Member</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>19. Diagram of normal distribution for Becoming a Better Collaborator/Team Member</td>
<td>121</td>
<td></td>
</tr>
<tr>
<td>20. Diagram of distribution of results for Becoming a Better Collaborator/Team Member</td>
<td>121</td>
<td></td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. FULL VIRTUAL MEDICAL IMPROV CURRICULUM</td>
<td>66</td>
</tr>
<tr>
<td>B. CONSENT AND COVARIANT FORM</td>
<td>80</td>
</tr>
<tr>
<td>C. POSTTEST/RETROSPECTIVE PRETEST SURVEY</td>
<td>84</td>
</tr>
<tr>
<td>D. WRITTEN FEEDBACK PROMPTS</td>
<td>97</td>
</tr>
<tr>
<td>E. LETTER OF PERMISSION TO USE AND MODIFY SURVEY TOOLS</td>
<td>99</td>
</tr>
<tr>
<td>F. IRB APPROVAL LETTERS</td>
<td>101</td>
</tr>
<tr>
<td>G. RESULTS OF SHAPIRO-WILK TEST FOR CHECKING NORMALITY OF RESIDUALS</td>
<td>108</td>
</tr>
<tr>
<td>H. SURVEY TOOL EVALUATION PROCESS</td>
<td>123</td>
</tr>
<tr>
<td>I. PILOT SURVEY FEEDBACK FORM</td>
<td>126</td>
</tr>
</tbody>
</table>
Communication skills are highly regarded by the Commission on Dietetic Registration, the credentialing agency of the Academy of Nutrition and Dietetics, and comprise the second sphere of core competencies for Registered Dietitian Nutritionists (RDNs).\(^1\) The competencies include: utilizing appropriate communication methods and skills to meet the needs of various audiences, collaboration with others to achieve common goals and optimize delivery of services, and employing strategies and facilitating team-building skills.\(^1\) RDNs are routinely placed in situations where they must communicate nutrition information to patients, counsel clients, and lead groups of individuals through behavior modification via different communication modalities. To be effective at counseling, RDNs must not only have clinical knowledge but also possess highly developed interpersonal communication skills (ICS) to properly communicate with patients utilizing empathy, vulnerability, and insight. Due to shifts in health care that utilize telehealth as a mode to deliver care to patients, RDNs must also know how to adapt these skills for virtual settings.\(^2,3\)
In addition to counseling roles, RDNs also work in interprofessional settings where they collaborate with other medical specialists to develop interventions for the benefit of patients. This type of collaboration requires the ability to acknowledge and build upon diverse ideas with positivity and confidence. Additionally, RDNs assume roles of leadership within health care, public policy, and food service venues. Public speaking plays heavily into these positions; therefore, RDNs must be proficient in all aspects of interprofessional communication.

Researchers identified commonalities between clinical communication and improvisation. Improvisation (or improv) is a type of performance theater where the actors spontaneously produce a scene or play based on suggestions provided by an audience.\textsuperscript{4,5} Researchers agree upon several concepts that are important within the field of improv.\textsuperscript{4–13} Actors studying improv focus on refining multifaceted communication skills in formal classes and during rehearsals. Exercises known as “improv games” emphasize the development of active listening skills. They also work on perceiving and responding to verbal and nonverbal communication through observant exchanges. They consider social and contextual status and how it affects the potential ways a scenic interaction may play out. They aim to support their scene partners by building upon established relationships and settings, rather than fighting against them to follow a personal agenda. Within classes and rehearsals, improvisors work together through group-mind activities to help facilitate a collaborative mindset that is free of judgment.

The improv community universally agrees upon two main foundations of improv: being in the moment and the phrase “yes, and….” Being in the moment forces the performer into genuine reactions based in active listening, causing them to be vulnerable and mindful of unpredicted interpretations of words and actions. “Yes, and…” is a mindset of positive
collaboration used so scene partners seamlessly collaborate to build upon what is presently happening.4–9,11,13

Elements of improv are recognized to strengthen ICS applicable to realms outside of theater. Although improvisation was first developed as a tool for actors, over time the exercises turned into a performance medium and began attracting people from diverse backgrounds to study classes at theaters like The Second City in Chicago, Illinois.14 The business world was one of the early adopters of improvisation for the development of ICS.15 Other professions have since followed suit, valuing the skills improv imparts to its students. More recently, improv has found its way into education curricula of health care practitioners like pharmacists, nurses, occupational therapists, and doctors as a means of cultivating skills to empathetically communicate with patients.4,6–11,13

In 2009, Stoney Brook University in Stoney Brook, New York, opened the Alan Alda Center for Communicating Science which uses improvisation as a base for educating graduate and doctoral students in science, technology, engineering, and math (STEM) disciplines in science communication.10,16 The curriculum is designed to endow medical professionals and scientists with the skills to “communicate complex topics in clear, vivid, and engaging ways; leading to improved understanding by the public, media, patients, elected officials, and others outside of their own discipline.”16 Medical and scientific professions appear to value this type of novel education within their curricula.6,9,13,17

The Academy of Nutrition and Dietetics (the Academy) took steps to incorporate improv within its curriculum. In 2017, the Academy featured an improv session at their national conference. The conference is attended by approximately 10,000 dietetics and nutrition
professionals, making it the largest professional conference for nutrition and dietetics professionals in the world. A session titled “Improv for Effective and Adaptive Communication” was led by The Second City Works, a division of The Second City theater company that specializes in applied improvisation. This workshop offered participants the opportunity to explore communication using improv exercises to meet multiple learning needs (Codes 1130, 6070, and 1070) and performance barriers (1.2.1, 2.1.2, and 9.6.6) as identified by the Academy’s Committee for Lifelong Learning. In offering this session, a precedence of acceptance and observed validity of this type of experiential learning has been established by the Academy.

**Problem Statement**

The expectation of having well-developed ICS as part of the undergraduate Didactic Program in Dietetics (DPD) is presented in the Accreditation Council for Education in Nutrition and Dietetics (ACEND) Standards of Knowledge (Standards 2 and KRDN 2.1). Inclusion is vague, however, and little emphasis is placed on developing ICS for telehealth in nutrition and dietetics students. Yet, as professionals, RDNs are expected to have mastery of various communication skills including those needed for counseling, leadership, and collaboration for both face-to-face and telehealth settings. Although courses are evaluated following competencies set by ACEND, the openness of the ACEND’s DPD standards has created a nonprescriptive approach to developing ICS in undergraduate students. For instance, some universities offer a nutrition counseling course at the undergraduate level, attempting to include opportunities to develop ICS skills, but while others do not. Additionally, there is no
standardized pedagogical method. Some techniques may be more effective than others. Even though students may complete an activity led by the professor and thereby earn achievement of a competency, the criteria for the activity are determined by the specific program or teacher and may not follow methods suggested by the Academy. Furthermore, there is no requirement for education of communication skills specific to telehealth. Beyond the field of dietetics, communication is a suggested area of improvement within medical care team interactions. The Joint Commission reported that poor communication between providers and patients or between members of the health care team leads to approximately 70% of adverse patient outcomes. Upon graduation, students in the field of nutrition and dietetics may directly enter the workforce, commence a dietetic internship, or apply for graduate school. It is important that students gain as many meaningful opportunities to develop communication skills while they are still enrolled in an undergraduate program. This is inclusive of skills required for effective telehealth communication.

Significance

To my knowledge, there are no published studies regarding the use of improvisation-based teaching techniques within an interactive online platform as part of an undergraduate nutrition and dietetics course. Studies and reports such as those by Hoffman and colleagues, Boesen and colleagues, Watson, and Krusen are among the most highly cited studies examining the implications of using semester-long improvisation-based communication courses for students in the health sciences. Notably, a report authored by Watson examined the effects of Northwestern University’s Feinberg School of Medicine’s medical improv course on first- and
second-year medical students’ perceptions of client interactions. The 12-session course comprised one of the elective options to fulfill medical students’ humanities education requirements. The report by Watson describes the use of improv techniques to improve listening and verbal skills as well as body language during conversation. Her perspective resulted from a combination of her observations and past medical students’ anonymous course evaluations. The reported findings suggest benefits of using improvisation techniques to improve medical students’ communication skills.

Boesen and colleagues conducted a multiyear examination of the effects of improvisation exercises within clinical education for pharmacy students. The authors used a mixed-methods approach to evaluate the results of a 16-week interviewing and counseling skills course for first-year pharmacy students during 2004 to 2007. Quantitative results were measured by comparing grades from standardized patient examination scores between students preceding the implementation of improvisation exercises and students who received improvisation exercises in subsequent semesters. Qualitative results measured the effectiveness of adding the improvisation exercises by reviewing reflective journals the students maintained throughout the course. Results showed a marked improvement on students’ standardized patient interaction scores following the addition of improv exercises. Additionally, journal entries from the students indicated the exercises had a positive impact on their communication abilities.

To the best of my knowledge, only one study exists examining the effects of medical improvisation within a nutrition and dietetics curriculum. Thompson and Stetzler’s study reviewed a three-part improvisation workshop offered to nutrition and dietetics graduate students as a supplement to a standardized counseling course. The study encompassed two separate
cohorts of students and focused on developing empathetic communication through the use of medical improvisation exercises. The exploratory pilot study measured quantitative data in a pretest/posttest design by using a modified version of the nonvalidated Berk’s Improvisation Evaluation Scale. This Likert-type scale was originally designed to measure the efficacy of improvisation applied within a college classroom setting. Additionally, the researchers collected participants’ reported perceptions of workshop helpfulness and interpreted them as qualitative data at the culmination of the workshop. All results were favorable and statically significant, indicating the usefulness of medical improv as an effective tool in developing empathetic communication.5

Finally, to my knowledge, there is a gap in the literature exploring the impact of a medical improvisation-based workshop as a tool to increase self-efficacy in ICS related to telehealth training. Emerging research indicates growing interest in the use of not only improvisation exercises as a teaching tool but also a need for formal training within telehealth communication. Impactful examinations of improvisation within health communication settings consider delivery via face-to-face interactions.

This study explores the feasibility and effectiveness of implementing a medical improvisation-based telehealth communication workshop, with delivery via a virtual classroom, following the theoretical framework of Bandura's self-efficacy theory for behavior change as part of an undergraduate DPD curriculum for nutrition and dietetics students.22,23 Self-efficacy is defined as the conviction one has in one’s ability to successfully perform the behavior required to achieve desired results.24 Previous studies considered the impact of improvisation on the participants’ confidence levels. Whereas confidence is considered robust and a generalized idea,
self-efficacy is associated with specific self-beliefs grounded in personal values, goals, and aspirations. Bandura proposes that self-efficacy may be developed through mastery experiences (or learning through failed or successful attempts), social modeling (or observing others succeed through trials), social persuasion (or an outside effector extending the plausibility of accomplishment), and observation of personal physical and emotional states during trial (or self-awareness).

In addition to following the theoretical framework of self-efficacy theory for behavior change, medical improv-based curriculum is grounded in constructivism. Constructivism is a learning theory that suggests students enter an educational setting with a set of unique personal experiences, beliefs, and motivations which, when combined with active learning and social interaction, enable them to construct meaningful connections built on previous experiences. Constructivist theory of learning is connected to upper levels of Bloom’s taxonomy. These allow for a deeper cognitive, affective, and psychomotor learning experience.

Purpose

The purpose of this study is to formally examine whether implementing an improvisation-based workshop utilizing a virtual classroom setting within an upper-level nutrition counseling course increases self-assessed perceived capability of becoming a better listener, becoming more observant in nonverbal communication, responding in the moment, increasing self-confidence in presenting, and becoming a better team member/collaborator within telehealth communication.
Conceptual Definitions

In this research study, a medical improvisation-based workshop refers to a 3-hour, interactive curriculum where exercises originating from spontaneous theatrical performance games are modified to develop ICS as outlined by the Applied Improv Network and ACEND. Throughout this study, the term telehealth refers to a mode for providing health care where clinical communication with patients or other health care providers is through the use of information and communication technologies (ICTs). A virtual classroom setting is defined within this study as a digital interface where facilitators and students can interact with one another in real time using a chat box, microphone, camera, slides decks, and digital whiteboards. Upper-level nutrition counseling course refers to an ACEND-accredited DPD course available to students with junior or senior academic standing. This study utilizes the Merriam-Webster’s dictionary definition of the term self-assessed: the act of analyzing and evaluating oneself. Self-efficacy is a construct pertaining to perceived capability and the term perceived capability is a judgment of one’s own ability to carry out given kinds of performances to attain a goal as outlined by Alfred Bandura.24

Additionally, within this study, five characteristics are linked to the construct of self-efficacy. A listener is a person who employs the techniques of active listening. Active listening is an ISC in which verbal and nonverbal interactions are used to achieve a mutual understanding between communicators. Nonverbal communication is an ICS where visual perceptions of physicality displayed by others is analyzed internally to clarify intent and meaning within interactions. Responding in the moment is linked to the term spontaneous.
which in this study refers to a sudden, unpremeditated verbal or nonverbal reaction. The phrase self-confidence in presenting is deconstructed into two terms. For self-confidence, this study uses Bandura’s definition, which is the generalized strength of a belief.\textsuperscript{27} In this study, the term presenting is an ICS referring to public speaking in front of various-sized groups of people. A team member/collaborator is defined as a participant who contributes within an organized group. Within this study the terms increase, better, and more are descriptive terms used to signify a positive change in scores between the self-efficacy posttest and retrospective pretest evaluations. Finally, the term posttest is a type of survey tool administered following an intervention and the term retrospective pretest is a type of survey tool given following an intervention where the evaluator is asked to consider their responses as they would have answered prior to receiving the intervention.

Research Questions

1. What impact, if any, does participating in a medical improvisation-based workshop as part of a nutrition counseling course curriculum with virtual delivery via an online classroom have on upper-level nutrition and dietetics students’ self-assessed perceived capability of an overall combination of the characteristics of the construct of self-efficacy?

2. What impact, if any, does receiving a medical improvisation-based workshop as part of counseling course curriculum with virtual delivery via an online classroom have on upper-level nutrition and dietetics students’ self-assessed perceived capability of the self-efficacy for each of the following characteristics: (a) becoming a better listener, (b)
becoming more observant of nonverbal communication, (c) responding in the moment, (d) increasing self-confidence in presenting, and (e) becoming a better team member/collaborator?

3. What clarifying information do themes mentioned by nutrition and dietetics students within reflection responses following a medical improvisation-based workshop provide about their self-assessment scores and the feasibility of a virtually delivered improvisation-based workshop?

Hypotheses

1. Upper-level dietetics students will have an overall increase in combined self-assessed scores on the posttest self-efficacy evaluation survey tool following a medical improvisation-based workshop compared to retrospective pretest evaluation.

2. Upper-level dietetics students will have increased self-assessment scores on the posttest self-efficacy evaluation survey tool regarding perceived capability of each of the following: (a) becoming a better listener, (b) becoming more observant of nonverbal communication, (c) responding in the moment, (d) increasing self-confidence in presenting, and (e) becoming a better team member/collaborator following a medical improvisation-based workshop compared to retrospective pretest evaluation.
Background

Improvisation is rooted in performance art. Viola Spolin is considered the originator of modern improvisation exercises for the theater.\textsuperscript{28,29} Her study of theater and the progressive education movement, under the tutelage of sociologist Neva Boyd, led to the development of theater games. This educational movement centered on children’s games, group work, and the notion that children learn through intuitive play. Spolin altered the children’s games into therapeutic tools that were used to overcome language barriers within immigrant populations. Led by Spolin, this population, which did not share a common language, collaboratively morphed the games into adlib plays. Eventually, Spolin’s games and educational strategies found their way onto theatrical stages and were respected as improvised performance pieces, known as “improvisation” or “improv.” This process has served as the foundation for sketch comedy performed at The Second City theater and on television shows such as \textit{Saturday Night Live}. Since its development in the 1920s, improvisation games have consistently demonstrated efficacy in building upon ICS such as active listening, perception of emotional context, and responding in the moment. These skills serve as the basis for increasing empathy within clinical communication.\textsuperscript{6,30}

According to researchers in the fields of applied and medical improv, teaching hospitals are cognizant of the need for medical professionals with effective ICS.\textsuperscript{8,10,12,13,30–32} The inclusion of patient satisfaction scores as an indicator for hospital reimbursement has raised awareness for the need for training and educational programs to improve health care associates’ communication skills.\textsuperscript{32} Specifically, the new pay for performance model includes patient satisfaction scores in
an equation designed to determine how much hospitals are reimbursed for their services.\textsuperscript{33} Considerable portions of patient satisfaction scores are correlated to effective communication between practitioners and the patient.\textsuperscript{10,32} As a result, medical schools are beginning to augment student curriculum with humanities education courses. Emerging courses such as those at Northwestern University’s Fienberg School of Medicine and the University of Wisconsin School of Medicine and Public Health are grounded in the techniques developed by Viola Spolin. Although the principles are the same, when applied to communication settings within health care, improvisation is known as medical improv.

Improvisation is about using communication as a tool to overcome barriers.\textsuperscript{32} This applies to both the broad spectrum of ICS but also greatly effects the RDN’s nutrition counseling role. The overarching goal of nutrition counseling is to assist a patient or client with health behavioral modification by identifying and overcoming barriers to change.\textsuperscript{34} Effective nutrition counseling is a process that requires high-level communication skills on the part of the counselor because as an individual’s health behaviors are not only determined by societal factors such as education, income, access to resources, or gender but are also deeply ingrained in a person’s core beliefs.\textsuperscript{34,35}

Motivational interviewing, which is commonly taught to nutrition students as a technique to counsel individuals through identifying barriers and committing to health behavior change, aligns with techniques used in medical improv.\textsuperscript{36} Through motivational interviewing, the skilled counselor identifies a patient’s or client’s stage of change with regard to health behavior modification as outlined in the transtheoretical model. This progresses from precontemplation to contemplation, preparation, action, and finally maintenance.\textsuperscript{34,37} Once the stage is identified, the counselor may use motivational interviewing to assist patients or clients in progressing toward
health goals by helping them identify their own motivations for change. The fundamentals of motivational interviewing are connected to developing discrepancy, avoiding argumentation, rolling with resistance, expressing empathy, and supporting self-efficacy. The specific communication tools utilized in motivational interviewing, including open-ended questions, affirmations, reflections, and summaries, may be developed through various improvisation exercises, as demonstrated in Table 1. The full curriculum used in this study is available in Appendix A. Having refined client-centered communication skills is critical to empower patients or clients to achieve healthy outcomes, especially since much is based on deeply ingrained core value systems.

Research that advances ICS for the RDN is important as communication makes up the second sphere of the Academy’s Commission on Dietetic Registration’s list of core competencies. Emerging research examines the use of creative techniques to provide experiential learning in order to meet competency standards for dietetics students. The Applied Improv Network, a network of practitioners trained to use improvisation techniques as a means to support ICS in nonperformance settings, identifies 10 elements of improvisation through a Delphi study of qualified applied improvisation (AI) practitioners. They are 1) making your partner look good, 2) yes, and…, 3) atmosphere of play, 4) curious listening, 5) complete acceptance, 6) flexibility/spontaneity, 7) focus on the here and now, 8) risk taking, 9) personal awareness/mindfulness, and 10) balance of freedom and structure. These elements translate to cultivate the core competency skills required by the RDN as demonstrated in Table 2. As an example, the elements making your partner look good; yes, and…; curious listening; flexibility/spontaneity; and balance of freedom and structure all correlate to Competencies 2.2.3 (identifies opportunities for shared benefit and/or vision), 2.2.4 (collaborates with others when
the required skill is beyond his/her competence), 2.2.5 (demonstrates conflict resolution and mediation skills), 2.3.1 (applies the principles of collaboration and negotiation in teamwork), 2.3.2 (incorporates team members’ knowledge, expertise and personal skills into team processes), 2.3.3 (models behaviors that maximize group participation by consulting, listening and communicating clearly), 2.3.4 (promotes a friendly, cooperative environment that is conducive to employees’ sense of belonging), and 2.3.5 (facilitates an understanding and appreciation of the differences among team members and how they each contribute to the team). Within an improvisation-based workshop curriculum, skills relating to these core competencies could be refined.

Telehealth

Telehealth is an emerging field of practice. The Academy provides a variety of resources to RDNs who use ICTs for counseling patients and clients remotely. Health care facilities and RDNs within private practice recognize benefits of expanding nutrition care through the use of virtual platforms. However, the Academy recognizes a lack of standardization regarding regulation, policies, training, and best practices for telehealth. This creates opportunity for formal training on ICS through telehealth interactions directed toward RDNs.

Whether it is delivered face-to-face or virtually, communication is the foundation of RDNs’ work. It is critical that effective communication curriculum is identified, developed and implemented beginning at the undergraduate level so RDNs remain at the forefront of ICS with their health care colleagues for the benefit of patients.
<table>
<thead>
<tr>
<th>MI Communication Tool</th>
<th>Definition</th>
<th>Example Statements or Interactions</th>
<th>Improv Exercise Used in this Study</th>
</tr>
</thead>
</table>
| **Open-ended Questions** | “Questions worded in a way as to elicit a meaningful and thoughtful response.”[36](#) | - How have you dealt with this in the past?  
- What are some ways you’ve already found success? | Exercises that promote spontaneity and flexibly:  
- This is…  
- Last Word Response |
| **Affirmations** | “A positive statement regarding one’s character or values that acknowledges his or her strengths and efforts.”[36](#) | Client: I don’t need to eat sweets anymore.  
Counselor: You have reduced your sugar intake, and this makes your proud. | Exercises that promote positivity and active listening  
- Yes and…  
- Word at a Time  
- Last Word Response |
| **Reflections** | A statement that reflects what the client is stating or feeling to demonstrate understanding.[36](#) | Client: I feel ill after I eat dairy, so I avoid it.  
Counselor: You know your body well and can honor its needs with your choices. | Exercises that promote active listening and empathy  
- Word at a Time  
- Mirroring  
- Interrupt and Apologize |
| **Summary** | Larger statements which reflect a client’s ambivalence or desire to change and demonstrate that the practitioner is listening.[36](#) | Client: I’ve tried so many diets. They always work to a certain point. I lose the weight and try so hard to maintain it, but every time I gain everything back and then some. I am so defeated.  
Counselor: Let me see if I understand this, on one hand you want to lose weight but on the other hand you’re afraid of failing. Does that sound right? | Exercises that promote active listening and empathy  
- Last Word Response  
- Word at a Time  
- Mirroring  
- Interrupt and Apologize |
Table 2: Improvisation Elements as Identified by the Applied Improvisation Network and Correlated Accreditation Council for Education in Nutrition and Dietetics (ACEND) Core Competency from the Essential Practice Competencies for the Commission on Dietetic Registrations’ Credentialed Nutrition and Dietetics Practitioners

<table>
<thead>
<tr>
<th>Improv Exercises</th>
<th>Improv Elements</th>
<th>Related Core Competencies</th>
<th>ACEND Core Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes and… Word at a Time</td>
<td>Making your partner look good</td>
<td>2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5</td>
<td>2.2.3 – Identifies opportunities for shared benefit and/or vision 2.2.4 – Collaborates with others when the required skill is beyond his/her competence</td>
</tr>
<tr>
<td>Interrupt and Apologize</td>
<td>Yes, and… (Collaboration)</td>
<td>2.2.3, 2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5</td>
<td>2.2.5 – Demonstrates conflict resolution and mediation skills 2.3.1 – Applies the principles of collaboration and negotiation in teamwork</td>
</tr>
<tr>
<td>This is… Word at a Time</td>
<td>Curious listening</td>
<td>2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.3.5</td>
<td>2.3.2 – Incorporates team members’ knowledge, expertise and personal skills into team processes 2.3.3 – Models behaviors that maximize group participation by consulting, listening and communicating clearly</td>
</tr>
<tr>
<td>Last Word</td>
<td>Flexibility/ Spontaneity</td>
<td>2.2.3, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5</td>
<td>2.3.4 – Promotes a friendly, cooperative environment that is conducive to employees’ sense of belonging 2.3.5 – Facilitates an understanding and appreciation of the differences among team members and how they each contribute to the team</td>
</tr>
<tr>
<td>Response</td>
<td>Balance of freedom and structure</td>
<td>2.2.5, 2.3.2, 2.3.3, 2.3.4, 2.3.5</td>
<td>2.3.5 – Facilitates an understanding and appreciation of the differences among team members and how they each contribute to the team</td>
</tr>
</tbody>
</table>
CHAPTER TWO

REVIEW OF LITERATURE

Introduction

Improvisation exercises provide practice in ICS that transcends the theatrical stage and has the potential to extend to various disciplines within health care settings. Research indicates that students of health and human science studies, such as those in nutrition and dietetics, benefit from the inclusion of improvisation-based exercises within counseling courses to help cultivate ICS as part of their educational curriculum. Studies show improvisation provides experiential learning which aids its participants in becoming better listeners, being more observant, responding in the moment, increasing self-confidence in presenting, and becoming a better team member/collaborator.5,6,9–12,31 These types of communication skills are highly valued by the Academy in RDNs. Within the Academy’s Sphere 2 of the Essential Practice Competencies for the Commission on Dietetic Registration’s Credentialed Nutrition and Dietetics Practitioners, communication is the core competency. The overarching statement the document presents expects RDNs to “communicate and collaborate with others to achieve common goals and enhance relationships in the provision of nutrition and dietetic services.”1 This may be because nutrition and dietetics services encompass interprofessional team collaboration, group and client
counseling, and leadership roles.

The required ICS may be refined with practical application through improvisation exercises and games. Educators in other fields, including nursing, occupational therapy, pharmacy, and medicine, have observed benefits from incorporating experiential learning through improvisation-based curriculum.⁴,⁶,¹³,²¹,⁴⁰,⁴¹ Although there is limited published academic research investigating the effects of theatrical-based improvisation as an educational tool for health care practitioners, existing research creates a compelling case for implementing improvisation techniques in health and human sciences curricula. At present, the majority of academic resources available on the subject are a handful of scholarly articles dating older than five years and a few recently published abstracts and articles. All published academic works examining the topic indicate that several fundamental principles that improvisation is rooted in bolster communication skills required by health care professionals to improve patient health outcomes. The following sections of this literature review address the characteristics associated with the practice of improvisation: becoming a more observant, better listener; responding in the moment; increasing self-confidence; becoming a better team member/collaborator; and other benefits associated with the practice of improvisation.

Become a More Observant, Better Listener

One of the main benefits of studying and practicing improvisation is becoming a more observant, better listener. For the health care practitioner, this translates to identifying verbal and nonverbal cues that alert the practitioner to address specific health-related concerns about a client or patient.⁶,₁² Subtleties within a conversation that may normally be overlooked are recognized
by well-trained practitioners and, in particular, those who have been educated in an improvisation-based curriculum. Boesen and colleagues investigated the effect of adding an improvisation-based curriculum to an existing interviewing and counseling skills course for first-year pharmacy students on final grades and student perceptions of the course. A primary focus was placed on “the ‘art’ of basic communication skills such as listening, observing, and responding.” Boesen and colleague’s study showed a consistent, marked increase in standardized patient examination scores specific to recognition of initial cues for reflective responses in the years following the addition of the improvisation-based curriculum. Likewise, in Watson’s study, first- and second-year medical students enrolled at Northwestern University’s Fienberg School of Medicine reported feeling like they had become better listeners and more observant following the 12-session elective medical improv course. Neonatologists and neonatal fellows described being more observant when interacting with patients following a 90-minute medical improvisation session. Participants in the study by Shochet and colleagues, which also focused on the effects of an elective medical improv course for medical school students, reported an increased self-awareness in listening skills.

Respond in the Moment

Health care providers, like RDNs, are like improvisors in that they must be flexible and quickly adapt to the unexpected. A capable health care provider is able to adapt quickly to dynamic situations. An improvisation-based curriculum acts as a tool to train students to respond spontaneously in the moment and to swiftly produce creative and clinically accurate ideas. Evidence exists showing both nurses and occupational therapists constantly combine their
scientific knowledge with their vast clinical experience to improvise client-centered solutions. Additionally, in both Watson’s study and Sawyer and colleagues’ study, participants in medical improv courses overwhelmingly reported an improved ability to respond in the moment following completion of the course. In this way, improvisation becomes a strategy for health care workers to utilize when assisting patients.

Increase Self-Confidence in Presenting

By design, improvisation-based curriculum challenges the students’ comfort levels. The exercises pull students away from lecture-style learning and place them in the role of active, experiential learners. This type of learning is grounded in social cognitive theory, which is theorized to strengthen participants’ self-efficacy with regard to self-perceived capabilities according to research conducted by psychologist Albert Bandura. This prepares health care students for potentially stressful encounters they may face while working within the professional field. In the study by Boesen and colleagues, pharmacy students reported an increased level of comfort in speaking and performing in front of groups following exposure to the improvisation-based curriculum. First- and second-year medical students reported increased self-confidence following the medical improv course in Watson’s study. Geriatric fellows who received a single improvisation workshop designed to improve their interaction and communication with patients diagnosed with dementia and their caregivers reported an increased confidence with regard to working and communicating with this population. Nutrition and dietetics graduate students reported increased perceptions of confidence in several areas, including “answering questions for which I haven’t prepared,” “thinking on the spot,” and
“speaking/presenting to a large group,” following 6 hours of medical improvisation training.\(^5\)

Being able to successfully perform outside of one’s own comfort zone is necessary for RDNs who are placed in a variety of situations.

Improvisation-based lessons start with an introduction to a new game or exercise with the goal of presenting a specific communication skill such as collaborative thinking. After initial improvisation skills are taught, the newly learned techniques are applied through simulated interactions. In a study by Buchholz and colleagues of 15 pairs of undergraduate and graduate dietetics students, 46.9% improvement among undergraduate dietetic students and a 27.9% improvement among graduate students were identified in communication and nutrition care-related competencies following the improvised consultations with simulated patients played by theater students.\(^43\) Although not specifically designed as such, simulations may be considered a form of applied improvisation. For undergraduate students, Canadian dietetics standardized performance indicator (PI) scores increased by an average of \(M = 0.9\) with a standard deviation of \(SD = \pm 0.35\) (49.7%) and an average of \(M = 0.8\) with a standard deviation of \(SD = \pm 0.22\) (45.8%) points, respectively (both \(p < .001\)). Graduate students’ communication and nutrition-care PI scores increased by an average of \(M = 0.4 \pm 0.45\) (18.5%) with an average of \(M = 0.7\) a standard deviation of \(SD = \pm 0.59\) (37.9%) points, respectively (both \(p < .01\)).\(^44\)

Become an Effective Collaborator/Team Member

Collaborating effectively as a member of an interprofessional team is a competency for nutrition and dietetics students.\(^18\) Certain improvisation games provide opportunities for individual growth within a team framework. Thompson and Stetzler reported a significant
increase in scores related to participating as a team member for nutrition and dietetics graduate students who participated in a three-session medical improvisation workshop. In Boesen et al.’s study, leadership skills were offered through specific team-building games which helped identify give-and-take moments. These shared-focus opportunities are most useful during meetings or when the RDN acts as a facilitator for group classes or counseling sessions. Nonclinical scenarios provided room for growth and trust among first- and second-year medical students enrolled in a medical improv communication elective course.

Other Benefits

By the nature of design, improvisation-based curricula create a fun, experiential learning environment where mistakes are welcome, open discussion and debriefing are encouraged, and constructive feedback is provided from observers. In this learner-centered classroom, the teacher becomes a facilitator instead of an authoritarian, which leads to a supportive classroom experience for the students. As a result, classmates form tight bonds and support each other.

Pedagogical Theory

Implementation of applied or medical improvisation exercises within nutrition and dietetics courses utilizes a constructivist theory of learning and ties it to upper levels of Bloom’s taxonomy, allowing for a deeper cognitive, affective, and psychomotor learning experience. The immersive exercises force the students to become active learners. The professor becomes the facilitator who leads the exercises but refrains from lecturing and instead coaches from the
sidelines, just in the way Gilboy and colleagues suggest when discussing the benefits of a flipped classroom. The student must synthesize and apply new skills in order to complete the exercise. The student may already know the material by having read or written about what to say in challenging situations but, without opportunity to apply it, lack the context of experience. Given time and allotted solitude for thought provocation, students may be able to formulate a practice script. This kind of learning reaches only the lower ends of Bloom’s taxonomy. Being placed within an improv exercise that takes unorthodox steps toward pushing the student to apply and synthesize empathetic and meaningful communication with the added pressures of face-to-face interaction, spontaneity of the situation, and other barriers such as outside noise, status, or emotion elevates the student into application and synthesis, resulting in a practiced application.

Telehealth Training

Training in telehealth communication is an emerging field of research. Dramatic changes in administration of health care are challenging practitioners to be dynamic in their methods and approaches to ICS. Aside from emerging themes of focus such as defining telehealth and implications with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) compliance, etiquette, licensure, and reimbursement, researchers recognize a need for the translation of the same communication skills for digital interactions as they are employed in face-to-face interactions. Determining a set of standards with which to train practitioners in telehealth communications is a goal among many health care fields. Researchers are turning to experienced practitioners to identify ICS that may lead to increased patient satisfaction and better clinical outcomes. Henry and colleagues interviewed (n = 6) experienced telehealth
practitioners to identify themes linked to nontechnical clinical attributes. Verbal and nonverbal communication were among the seven themes mentioned by participants. Within the theme of verbal communication, study participants cited behavioral skills such as listening and using comprehensible and empathetic language. Nonverbal communication included the examples of studying client facial expressions, using exaggerated gestures or motions, and eye contact or gaze angle. Rutledge and colleagues’ study also highlighted the importance of maintaining eye contact with the computer camera during virtual sessions as a means to increase connection with patients. Finally, in Henry and colleagues’ study, effective communication with patients was emphasized by participants as a benefit from training in telehealth communication.

Rutledge and colleagues examined the literature to identify methods considered effective for telehealth training for nurse practitioners. Training in telehealth etiquette that includes techniques like ways to simulate eye contact, conveying body language over a camera, and using carefully constructed words to convey empathy were all most effectively demonstrated through didactic lectures and through observation of poorly executed technique. The study also revealed the majority of telehealth training is done with the use of didactic lectures, narrative online modules, short online courses, and face-to-face lectures. It is suggested by the researchers that while these modalities enable discussion of theory, they are not the most effective at allowing students to apply the techniques for skill development; rather, interactive simulations provided more practical experience.
Weaknesses of Existing Studies

Existing studies are specific to particular human sciences specialties and are frequently based on small sample sizes. With the exception of Boesen and colleagues’ study, the body of work relies on qualitative data from self-reported surveys or student feedback forms. The courses Watson and Hoffman reviewed were both offered as electives. The students chose from a list of elective courses to fill an academic requirement. Because enrollment was voluntary, there was preferential bias for the course from surveyed participants. However, the courses Boesen et al. and Thompson and Stetzler reviewed were required. In their study, Boesen et al. reported several students “felt uncomfortable in the course” even though they still reported improvement in their communication skills. A study of an improvisation course offered to undergraduate business majors and Master in Business Administration graduate students showed similar results regarding comfort level of students throughout the course. Thompson and Stetzler did not report on students’ comfort levels but did state a 100% response for the medical improvisation being helpful and 92% agreeing that the training “should be offered to future groups of students (n=21). Studies did not consider the use of medical improvisation as a technique for telehealth training nor did they deliver the curriculum via a virtual classroom setting.

Summary of the Literature Review

Researchers conclude that improvisation-based curriculum used for clinical education imparts benefits of increased self-confidence upon students. This leads to improvement of the ICS necessary for career preparedness within the health care field. The fields of pharmacy, nursing, medicine, occupational therapy, and business have already studied the effects of
improvisation-based curriculum and adopted it into their education models, embracing it as a feasible, viable, and effective tool. These studies, however, are mostly qualitative in design. Although all show favorable results, data supporting the effects an improvisation-based curriculum has on measurable constraints is limited to four studies, one assessing pharmacy students, another assessing medical fellows specializing in geriatrics, another assessing medical doctors and fellows specializing in neonatology, and the forth assessing nutrition and dietetics graduate students.\(^5,6,11,40\) Additionally none of the studies examine the effectiveness of improvisation exercises for use in ICS for telehealth training.

This study is the first of its kind to examine the effects of an improvisation-based communication workshop within an upper-level undergraduate nutrition counseling course on self-assessed perceived capability of becoming a better listener, becoming more observant, responding in the moment, increasing self-confidence in presenting, and becoming a better team member/collaborator with regard to telehealth communication training. Additionally, this study is the first to examine the effects of this type of curriculum within delivery via a virtual classroom setting. This study serves as a pilot study designed to initiate a larger movement toward changing the way ICS are taught in the field of nutrition and dietetics for the purpose of telehealth training. Additionally, this study may be a meaningful addition to the growing body of academic research exploring the benefits of using improvisation as a teaching tool within higher education, the health sciences, and the fields of nutrition and dietetics specifically.
CHAPTER THREE

METHODOLOGY

Study Design

This study followed a mixed-method experimental design using a purposive convenience sample of undergraduate nutrition and dietetics students who were enrolled in a nutrition counseling course within ACEND-accredited Didactic Program in Dietetics (DPD) nutrition and dietetics programs. Analytical predominance was set on the quantitative arm with supporting evidence drawn from the qualitative arm. In the quantitative arm, a one-group, posttest/retrospective pretest design was followed where difference was considered between survey results on the posttest and retrospective pretest as a measure of effectiveness for increasing self-efficacy as based on the theoretical framework of Bandura's self-efficacy theory for behavior change. The quantitative arm considered data that was gathered from participants via written reflections that provided insight into participants’ experiences after attending a 3-hour medical improvisation-based workshop.
Study Population and Recruitment

This study utilized a combination of 1) convenience sampling to recruit participants and 2) a secondary analysis of existing data to increase the amount of available data. All eligible study participants were enrolled in ACEND-accredited DPD nutrition and dietetics undergraduate programs. A total of 14 students were recruited from University A’s nutrition communication course. Of the 14 students, eight participated in the study by completing the 3-hour workshop, posttest/retrospective pretest survey, and covariant form. Three of the eight study participants provided written feedback through the online survey link. Of the 14 workshop participants, six provided responses to written feedback prompts administered by the course professor. Additionally, 31 students who were enrolled in a nutrition communications course at University B participated in the medical improvisation workshop as part of normal classroom activities. The same posttest/retrospective pretest survey and covariant form were offered to the students as part of the course evaluation. Of the 31 students at University B, 24 completed the posttest/retrospective pretest survey. Of those, 10 provided demographic data on the covariant form and one was removed from the study for having previously taken an improvisation course. Nine of the students provided written feedback through the survey. As shown in Figure 1, a total of 31 participants completed the posttest/retrospective pretest, including 17 who also completed the covariant form, and a total of 18 responses contributed to the qualitative analysis.

Although University A is a private school and University B is a state school, both are located in the northern part of Illinois, which is in the Midwest region of the United States. Courses at both universities ensure students achieve competencies outlined by ACEND. Both are courses required in four-year ACEND-accredited DPD programs. Both courses instruct
students by identifying common methodologies used in nutrition counseling and developing and applying skills related to eliciting health behavior modification for individual, small-group, and large-group counseling settings. Additionally, there was no statistically significant difference between change in group averages for the scores overall as determined by a one-way ANOVA ($F(1,29) = .08, p = .78$). Change between the two groups was not statistically significant, $p < .05$.

Due to program and geographical similarities and lack of statistical significance between the group means, both sets of data were combined and analyzed within this study.

![Figure 1. Diagram of study participants from recruitment.](image-url)
Instrument Design

Several instruments were designed for data collection within this study. These included a hard copy of the consent form, covariant form, and directions for creating a unique coded identifier that was collected in person at the beginning of the 16-week semester (Appendix B). Following completion of the workshop, a consent form, directions for creating a repeatable unique coded identifier, a posttest/retrospective pretest survey, and request for any additional comments for the researchers was provided through a link to the online platform, www.qualtrics.com (Appendix C). Finally, students at University A received an emailed Microsoft Word document from their professor with four prompts to respond to in written feedback (Appendix D).

The consent form was designed using the template for Consent to Participate in a Research Study provided by the graduate school at University B. Students were given the primary investigators’ names and contact information, key information of the study, a description of the study, risks and benefits, confidentiality, compensation, and a list of their rights as participants.

The covariant form gathered descriptive data. A self-reported education level section was broken out into seven categories: undergraduate student, nutrition/dietetics major; undergraduate student, not nutrition/dietetics major; post-baccalaureate student, nutrition/dietetics major; post-baccalaureate student, not nutrition/dietetics major; graduate student, nutrition/dietetics; graduate student, not nutrition/dietetics; and other, please describe. An area to collect the demographics of age included 17 years old or younger, 18 to 22 years old, 23 to 35 years of age, 36 to 50 years of
age, 51 to 65 years of age, over 65 years or choose not to report. A section to report gender as female, male, other, or choose not to report was provided. Another section to collect data on ethnicity was provided and based off of the 2010 Census Race and Hispanic Origin Alternative Questionnaire Experiment. A section to self-report GPA was provided with options including 3.5 to 4.0, 3.0 to 3.4, 2.5 to 2.9, 2.4 or below, or choose not to report. Finally, participants were given the option to respond “yes” or “no” when asked if they had ever taken an improvisation for theater course. Data collected from this form was used to determine if any descriptive data could identify possible trends within the resulting primary data and to exclude any participant from the study who had previously taken an improvisation course.

Directions to create a re-creatable unique coded identifier were provided to the participants on all survey tools. The coded identifier allowed students to participate in all aspects of data collection in the study while ensuring the researchers could not link any information back to the student. The coded identifier was designed to be re-creatable by the participant so triangulation of data could be achieved when linking the various contributors of data. The coded identifier was made up of four unique pieces of data including the first two letters of the participant’s middle name or “00” if no middle name, last two digits of the year the participant graduated high school, the number of siblings the participant has or “00” if no siblings, and the first two letters of the town in which the participant was born. The researcher considered a match between pieces of data if three of the four points of the coded identifier were identical.

No validated instrument with specificity toward collection of the self-efficacy constructs sought to be identified in this study through the application of improvisation was known to the researcher. Thompson and Stetzler modified Berk’s Improvisation Evaluation Scale to align the predicted effectiveness of improvisation and to meet communication skill development goals
outlined by ACEND. Similarly, Berk’s Improvisation Evaluation Scale was modified with permission for the purposes of this study (Appendix E). The posttest/retrospective pretest survey developed for this study listed 24 self-assessment statements that were rated using a 0% to 100% point confidence scale based on Alfred Bandura’s concept of self-efficacy. Self-efficacy is connected to a person’s perceived capability to perform a given task. The value of 100% correlated to strong confidence while the value of 0% correlated to no confidence in the ability to perform the task in the statement. Participants indicated, in whole numbers between 0 and 100, the percent of confidence they associated to each statement. In contrast, Thompson and Stetzler included 20 statements that were self-efficacy based but rated on a 4-point Likert scale and administered to participants following a pretest/posttest design. According to Pratt et al., measuring self-efficacy after having completed an intervention workshop or course via a posttest survey and then requesting the participant consider the amount of growth and retrospectively evaluate a pretest value indicates a truer representation of change than a pretest/posttest design. A self-efficacy scale and posttest/retrospective pretest design most closely aligned with the aims of the study.

Of the 24 self-efficacy statements included on the survey, 21 were identified to align to the characteristics examined within this study, including becoming a better listener/active listening, observation of nonverbal communication, responding in the moment/spontaneity, self-confidence in presenting, and effective collaboration, as shown in Table 3. The remaining three statements were included at the request of course instructors but did not directly align with any single characteristic being studied.
### Table 3: Five Characteristics Related to the Construct of Self-Efficacy and Aligned Survey Statements

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Related Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Becoming a better listener/active listening</td>
<td>1. Listen carefully when other are speaking</td>
</tr>
<tr>
<td>Observation of nonverbal communication</td>
<td>2. Interpret nonverbal communication</td>
</tr>
<tr>
<td>Responding in the moment/spontaneity</td>
<td>3. Be a creative thinker</td>
</tr>
<tr>
<td></td>
<td>4. Think on the spot</td>
</tr>
<tr>
<td></td>
<td>5. Answer questions for which I haven’t prepared</td>
</tr>
<tr>
<td></td>
<td>6. Solve problems in new ways</td>
</tr>
<tr>
<td></td>
<td>7. Respond quickly and decisively in challenging situations</td>
</tr>
<tr>
<td>Self-confidence in presenting</td>
<td>8. Try new things</td>
</tr>
<tr>
<td></td>
<td>9. Solve problems</td>
</tr>
<tr>
<td></td>
<td>10. Flexible in my thinking</td>
</tr>
<tr>
<td></td>
<td>11. Speak/present to a small group</td>
</tr>
<tr>
<td></td>
<td>12. Speak/present to a large group</td>
</tr>
<tr>
<td></td>
<td>13. Link my prior knowledge and experiences to create new solutions</td>
</tr>
<tr>
<td></td>
<td>14. Effectively counsel others</td>
</tr>
<tr>
<td>Team member/collaborator</td>
<td>15. Maintain a positive attitude toward change</td>
</tr>
<tr>
<td></td>
<td>16. View problems as opportunities</td>
</tr>
<tr>
<td></td>
<td>17. Easily accept other’s ideas</td>
</tr>
<tr>
<td></td>
<td>18. Easily trust my team members</td>
</tr>
<tr>
<td></td>
<td>19. Easily collaborate with others</td>
</tr>
<tr>
<td></td>
<td>20. Build trust in others</td>
</tr>
<tr>
<td></td>
<td>21. Assist others in setting a goal</td>
</tr>
<tr>
<td>Statements on the survey but not included in the analysis</td>
<td>22. Effectively interview others</td>
</tr>
<tr>
<td></td>
<td>23. Demonstrate empathy toward others</td>
</tr>
<tr>
<td></td>
<td>24. Help others increase their readiness to adopt behaviors</td>
</tr>
</tbody>
</table>
Participants were given the opportunity to provide written feedback to the researchers through a prompt at the end of the survey via www.qualtrics.com. Additionally, as part of a course assignment, students at University A were asked to respond to each of the following questions:

What were the strengths of the workshop?

What would you do to improve the workshop?

Would you recommend this workshop for other students or nutrition and dietetics professionals?

Is what you learned and practiced in this workshop important to you as you prepare to enter a career as a health care professional?

Results from all written responses were combined and analyzed for trending themes using conventional content analysis protocol, utilizing an inductive approach.54

Instrument Administration

While participation in the medical improvisation-based workshop was required as part of normal educational practices for University A students, completing the study surveys and submitting reflection papers to the researcher was voluntary and required consent. Students from University A were recruited during class time during the second week of the semester. They were introduced to the study and informed of the option to participate in the surveys by the researcher. Students who were interested in participating were provided a paper packet that included the consent form, covariant form, and directions for the creation of a unique, re-creatable coded identifier. Students were offered an opportunity to get a ticket for a raffle for a
$25 cash prize if they chose to complete the surveys. Additionally, the course instructor offered participants 10 points of extra credit in the course for completing the surveys. Alternatively, students not willing to participate were offered the option to complete a one-page paper on the topic of experiential learning for an opportunity to earn the 10 points of extra credit. Students were notified that if they participated, their responses to the survey would be used as part of a research project. Following completion of the medical improvisation-based workshop, students were again requested to participate in the study and provided the link to the posttest/retrospective pretest survey on www.qualtrics.com. The survey was available following completion of the workshop and was open for four weeks. Additional consent was gathered through the Qualtrics survey and participants were guided through the steps to re-create their unique coded identifier so that data gathered from the covariant form could be matched to the self-efficacy surveys. The course professor provided the four previously mentioned prompts to students as part of an assignment. Responses from the prompts were forwarded to the researcher by the course professor.

To increase the sample size, additional survey data was gathered via a secondary analysis from students enrolled in University B’s nutrition communication course. Students from University B were provided the same medical improvisation workshop at approximately the same point during the 16-week semester as students at University A. Additionally, the course professor at University B provided the same packet and a link to an identical posttest/retrospective pretest survey via www.qualtrics.com following completion of the workshop. The professor used the data as an internal evaluation to measure efficacy of the
workshop. Permission to access the data from University B was granted to the researcher through a series of IRB protocol amendments (Appendix F).

Improvisation Curriculum

The 3-hour medical improvisation workshop was delivered to University B’s students at Weeks 11 and 12 and to University A’s students at Week 13 during the 16-week Spring 2020 semester. Both groups received the workshop during the respective course’s class period via Blackboard Collaborate. The workshop was administered and facilitated by a nutrition educator who had an extensive background in improvisation as both a professional performer and instructor. As shown in Table 4, the 3-hour workshop consisted of specific improvisation exercises selected for alignment of predicted outcomes to the five studied characteristics. Each exercise was followed by an interactive debriefing and discussion session.

Participants interacted with each other and the facilitator through whole-class and small-group exchanges. Small groups were formed using virtual breakout rooms. The various improv exercises allowed participants to practice active listening, verbal and nonverbal communication, observation of self-awareness, and collaborative synthesis and adaptability and to demonstrate emotional awareness through suspension of judgment from self and others. The workshop was designed to build upon the real-time developing of skills by beginning with an active listening exercise, progressing to suspension of judgment of self and others, then to observation, and finally collaboration and synthesis.
Table 4: List of Learner Objectives and Improv Exercises Used in Workshop

<table>
<thead>
<tr>
<th>Learner Objective</th>
<th>Improv Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Practice relaxation breathing exercise</td>
<td>Controlled Breathing/Visualization</td>
</tr>
<tr>
<td>• Practice suspension of judgement of self and others</td>
<td></td>
</tr>
<tr>
<td>• Recognize nonverbal clues given by others</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate adaptability within interpersonal interactions</td>
<td></td>
</tr>
<tr>
<td>• Practice suspension of judgement of self and others</td>
<td>This is…</td>
</tr>
<tr>
<td>• Recognize nonverbal clues given by others</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate adaptability within interpersonal interactions</td>
<td></td>
</tr>
<tr>
<td>• Practice verbal communication within a small group setting</td>
<td>Debriefing and discussion</td>
</tr>
<tr>
<td>• Discuss observations of self-awareness within two person and multiple person exercises</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate adaptability within interpersonal interactions</td>
<td>8-count Shake Down</td>
</tr>
<tr>
<td>• Demonstrate verbal communication within small groups</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate collaborative synthesis within multiple person exercises</td>
<td>Yes and, Yes but, No instead</td>
</tr>
<tr>
<td>• Demonstrate adaptability within interpersonal interactions</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate collaborative synthesis within multiple person exercises</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate adaptability within interpersonal interactions</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate adaptability within interpersonal interactions</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate active listening</td>
<td>Last Word Response</td>
</tr>
<tr>
<td>• Practice verbal communication within a small group setting</td>
<td></td>
</tr>
<tr>
<td>• Discuss observations of self-awareness within two person and multiple person exercises</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate active listening</td>
<td></td>
</tr>
<tr>
<td>• Practice verbal communication within a small group setting</td>
<td>Discussion and Debriefing for Last Word Response</td>
</tr>
</tbody>
</table>

(Continued on following page)
<table>
<thead>
<tr>
<th>Learner Objective</th>
<th>Improv Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Practice verbal communication within a small group setting</td>
<td>Discussion and debriefing for Interrupt and Apologize</td>
</tr>
<tr>
<td>• Discuss observations of self-awareness within two person and multiple person exercises</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate verbal communication within small groups</td>
<td>Word at a Time (WAAT)</td>
</tr>
<tr>
<td>• Demonstrate collaborative synthesis within multiple person exercises</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate adaptability within interpersonal interactions</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate active listening</td>
<td></td>
</tr>
<tr>
<td>• Practice verbal communication within a small group setting</td>
<td>Discussion and debriefing for WAAT</td>
</tr>
<tr>
<td>• Discuss observations of self-awareness within two person and multiple person exercises</td>
<td></td>
</tr>
<tr>
<td>• Recall 3 important concepts from the workshop</td>
<td>Closing</td>
</tr>
</tbody>
</table>

### Virtual Delivery

The workshop was delivered via Blackboard Collaborate Ultra, which is an interactive, online, virtual classroom platform that features the ability to present in real time using Microsoft PowerPoint slides and other mixed media. Interactive communication was possible via text through a chat box, aurally through use of microphone and camera, and through written interaction with displayed PowerPoint slides and virtual whiteboards. Mohammad Hussein
suggests Blackboard-based instruction is effective at improving course participants’ achievement by providing multiple methods to interact with one another and the facilitator. Workshop participants were able to join the workshop either via a computer with built-in camera and microphone, via a smartphone, or by calling into the session from a phone. Throughout the workshop, participants were encouraged to contribute and directed to communicate using all available methods through Blackboard Collaborate Ultra. Additionally, the workshop facilitator utilized breakout rooms, which is a feature of the platform that allowed the facilitator to randomly assign participants into small, private groups to practice exercises.

Statistical Analysis

Quantitative data collected from the surveys was assessed with IBM’s software, Statistical Package for the Social Sciences (SPSS). The primary dependent variable was the averaged difference in evaluation scores from all study participants on the self-assessed perceived capability of all 21 statements aligning with self-efficacy. The secondary dependent variables included self-assessed perceived capability of each of the following: becoming a better listener/active listening, becoming more observant of nonverbal communication, capability of responding in the moment/spontaneity, self-confidence in presenting, and being an effective
team member/collaborator. All participants had taken the full 3-hour medical improvisation-based workshop. The covariates of demographics included age, gender, ethnicity, and level of education.

Of the demographic data, variation was observed between age and level of education. A multiple regression analysis was run to predict change in self-efficacy scores from the workshop, age, and education level gathered from available demographic and survey data (n = 17). However, due to the low sample size, there is not enough information available from the data for age and education to determine the statistical significance. As result, all data, including those with missing covariates were included in the final analysis (n=31). Within the quantitative arm of the study, posttest scores were compared against retrospective pretest scores using a paired $t$ test to assess the measure of change. Assumptions for the paired $t$ test were checked using the Shapiro-Wilk test (Appendix G.) Disclosure of whether the students had previously attended an improvisation for theater course was controlled for.

The qualitative arm of the study utilized data from a combination of all written feedback from the Qualtrics survey and written responses to four open-ended questions from students at University A. Responses were aggregated and analyzed to identify themes using the conventional content analysis protocol, utilizing an inductive approach.$^{54,57}$ Initially, the responses were comprehensively read. Multiple readings were repeated to identify key concepts. These concepts were underlined and coded. Codes were categorized into groups by similar meaning and linked to research questions. Representative quotations were featured.
CHAPTER FOUR

RESULTS

Demographic Data of the Sample Population

A total of 45 students were eligible to participate; 14 from University A and 31 from University B. Of eligible students, 68.8% (n=31) completed the posttest/retrospective pretest survey instrument. In total, 54.8% (n=16) participants completed the covariant form. Table 5 demonstrates results of the demographic data. Of known data, the majority identified as female (94.1%, n=16), 23-35 years old (52.9%, n=9), of a post-baccalaureate education level (58.8%, n=10), and were of White race (64.7%, n=11).

Results of Quantitative Data Analysis

Effect of Workshop Overall

Results from a paired $t$ test examining the change between self-efficacy scores as considered within the hypotheses is included in Table 6. Figure 2 represents a graphical depiction of results. For the first hypothesis, which examined changes in the self-efficacy scores for a combination of all 21 statements measuring self-efficacy after completing the 3-hour
medical improvisation-based workshop, an averaged increase of $M = 9.419$ (from $71.52 \pm 13.43$ to $80.94 \pm 9.83$) with the standard deviation of $SD = 9.226$ was observed in participants. The improvement was statistically significant ($t(30) = 5.684, p < 0.000$), and the 95% confidence interval (CI) is $[6.053, 12.803]$. The effect size of the difference is $d = 1.02$.

Table 5: Covariant Form Demographics from Survey Respondents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Result</th>
<th>N</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>16</td>
<td>51.61</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td></td>
<td>Prefer Not to Report</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Not Reported</td>
<td>14</td>
<td>45.16</td>
</tr>
<tr>
<td>Age (years)</td>
<td>23-35</td>
<td>9</td>
<td>29.03</td>
</tr>
<tr>
<td></td>
<td>36-50</td>
<td>4</td>
<td>12.90</td>
</tr>
<tr>
<td></td>
<td>18-22</td>
<td>3</td>
<td>9.76</td>
</tr>
<tr>
<td></td>
<td>51-65</td>
<td>1</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>Prefer Not to Report</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Not Reported</td>
<td>14</td>
<td>45.16</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>White</td>
<td>11</td>
<td>35.48</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>3</td>
<td>9.76</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>1</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>1</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>Prefer Not to Report</td>
<td>1</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>Not Reported</td>
<td>14</td>
<td>45.16</td>
</tr>
<tr>
<td>Education Level</td>
<td>Post-Baccalaureate</td>
<td>9</td>
<td>29.03</td>
</tr>
<tr>
<td></td>
<td>Undergraduate</td>
<td>8</td>
<td>25.81</td>
</tr>
<tr>
<td></td>
<td>Prefer Not to Report</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Not Reported</td>
<td>14</td>
<td>45.16</td>
</tr>
<tr>
<td>Self-Reported GPA</td>
<td>3.5 to 4.0</td>
<td>13</td>
<td>41.94</td>
</tr>
<tr>
<td></td>
<td>3.0 to 3.4</td>
<td>3</td>
<td>9.76</td>
</tr>
<tr>
<td></td>
<td>2.5 to 2.9</td>
<td>1</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td>2.4 or below</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Prefer Not to Report</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Not Reported</td>
<td>14</td>
<td>45.16</td>
</tr>
<tr>
<td>Total Participants</td>
<td></td>
<td>31</td>
<td>100.00</td>
</tr>
<tr>
<td>Reported Demographic Data</td>
<td></td>
<td>17</td>
<td>54.84</td>
</tr>
<tr>
<td>Did Not Report Demographic Data</td>
<td></td>
<td>14</td>
<td>45.16</td>
</tr>
</tbody>
</table>
Table 6: Paired Differences of Characteristics Within the Construct of Self-Efficacy

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (1-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination of All Characteristics</td>
<td>9.419</td>
<td>9.226</td>
<td>1.657</td>
<td>6.035</td>
<td>12.803</td>
<td>30</td>
<td>.000*</td>
</tr>
<tr>
<td>Becoming a Better Listener</td>
<td>12.355</td>
<td>13.162</td>
<td>2.364</td>
<td>7.527</td>
<td>17.183</td>
<td>30</td>
<td>.000*</td>
</tr>
<tr>
<td>Becoming More Observant</td>
<td>13.129</td>
<td>11.927</td>
<td>2.142</td>
<td>8.754</td>
<td>17.504</td>
<td>30</td>
<td>.000*</td>
</tr>
<tr>
<td>Responding in the Moment</td>
<td>11.677</td>
<td>9.053</td>
<td>1.626</td>
<td>8.357</td>
<td>14.998</td>
<td>30</td>
<td>.000*</td>
</tr>
<tr>
<td>Self-Confidence in Presenting</td>
<td>.452</td>
<td>9.051</td>
<td>1.626</td>
<td>-2.868</td>
<td>3.772</td>
<td>30</td>
<td>.391</td>
</tr>
<tr>
<td>Becoming a Better Collaborator/Team Member</td>
<td>9.677</td>
<td>8.905</td>
<td>1.599</td>
<td>6.411</td>
<td>12.944</td>
<td>30</td>
<td>.000*</td>
</tr>
</tbody>
</table>

*p < .001; n=31 Note: The self-efficacy scale runs from 0-100.

Figure 2: Graph representing average scores of retrospective pretest and posttest survey results for each of the five individual characteristics and the combination of all characteristics.
Effect of Workshop on Individual Characteristics

Becoming a Better Listener

Change in the self-efficacy scores of the characteristic becoming a better listener demonstrated an average increase $M = 12.355$ (from $76.94 \pm 11.02$ to $89.29 \pm 17.78$), with the standard deviation of $SD = 13.162$, after completing the 3-hour improvisation-based workshop. The improvement was statistically significant, $(t(30) = 5.226, p < 0.000)$, and the 95% CI is [7.526, 17.183]. The effect size of the difference is $d = 0.94$.

Becoming More Observant of Nonverbal Communication

The characteristic of becoming more observant of nonverbal communication increased an average of $M = 13.129$ (from $71.13 \pm 15.93$ to $84.26 \pm 11.76$) with the standard deviation of $SD = 11.927$, after completing the 3-hour improvisation-based workshop. The improvement was statistically significant, $(t(30) = 6.129, p < 0.000)$, and the 95% CI is [8.754, 17.504]. The effect size difference is $d = 1.1$.

Responding in the Moment

The characteristic of self-efficacy with regard to responding in the moment increased an average increase of $M = 11.677$ (from $66.13 \pm 15.55$ to $77.81 \pm 13.66$), with the standard deviation of $SD = 9.053$, after completing the 3-hour improvisation-based workshop. The
improvement in this characteristic was statistically significant, \( t(30) = 7.182, p < 0.000 \), and the 95% CI is [8.357, 14.998]. The effect size of the difference is \( d = 1.29 \).

**Increasing Self-Confidence in Presenting**

The characteristic of increasing self-confidence in presenting within the self-efficacy construct increased an average of \( M = .452 \) (from 71.03 ± 13.47 to 71.48 ± 8.60) with the standard deviation of \( SD = 9.051 \), after completing the 3-hour improvisation-based workshop. The improvement for this characteristic was not statistically significant, \( t(30) = .278, p < 0.391 \), and the 95% CI is [-2.868, 3.772].

**Becoming a Better Collaborator/Team Member**

Change in the self-efficacy scores of the characteristic becoming a better team member/collaborator increased an average of \( M = 9.677 \) (from 72.23 ± 14.14 to 81.90 ± 11.71) with a standard deviation of \( SD = 8.905 \), after completing the 3-hour improvisation-based workshop. The improvement was statistically significant, \( t(30) = 6.051, p < 0.000 \), and the 95% CI is [6.411, 12.944]. The effect size of the difference is \( d = 1.09 \).

**Results of Qualitative Analysis**

Table 7 summarizes qualitative themes from participants. Thirty-six percent of the 31 respondents (n=11) added written comments pertinent to the research question, “What clarifying information do trending themes mentioned by students within reflection responses following the
Improvisation-based workshop provide the self-assessment scores?” Of the 11 Qualtrics respondents, 73% (n=8) indicated a “fun” experience participating in the improvisation workshop, 54% (n=6) indicated the experience’s direct connection to future career development, 27% (n=3) indicated confusion or uncertainty regarding the relevance to career development, 18% (n=2) indicated a preference for the material to be delivered face-to-face rather than online, and 18% (n=2) indicated a scope of benefit beyond the classroom and into the participant’s personal life.

Table 7: Summary of Qualitative Themes from Participants

<table>
<thead>
<tr>
<th>Theme</th>
<th>n</th>
<th>Sample Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Directedly to Skill Development</td>
<td>13</td>
<td>“I stepped out of my comfort zone to really understand and learn more about my own abilities and communication skills and weaknesses which I can work on.”</td>
</tr>
<tr>
<td>Application Beyond the Course</td>
<td>6</td>
<td>“I used [these] improv exercises to start weekly chapter meetings in my sorority and I saw the ability to connect and communicate increase it helped to get you to feel comfortable with people you don’t communicate with often.”</td>
</tr>
<tr>
<td>Positive Experience</td>
<td>6</td>
<td>“I thought incorporating this method into a nutrition/dietetics counseling class was exciting.”</td>
</tr>
<tr>
<td>Would be better face-to-face</td>
<td>4</td>
<td>“I would say that improv is more successful in-person than online. For online, students do not like to participate as much as they would in person.”</td>
</tr>
<tr>
<td>Did not see connection to skill development</td>
<td>4</td>
<td>“We did not always see the most clear connection between the improv lessons and how they translated into future careers.”</td>
</tr>
<tr>
<td>Negative Experience</td>
<td>1</td>
<td>“Did not like the virtual format.”</td>
</tr>
</tbody>
</table>

Notes: n=38 comments received from 11 participants. The four remaining comments were one-worded comments that did not contribute to the study.
Additionally, six participants responded to four open-ended reflection questions regarding perceived workshop strengths, audience applicability, and relevance to career development and suggested improvements. An analysis of all feedback revealed emergent, trending themes: applied directly to skill development, application beyond the course, positive experience, preference for face-to-face setting rather than via a virtual classroom, did not see connection to skill development, and negative experience.

Summary of Results

A summary of the hypothesis and results is outlined in Table 8. This study’s results indicate a strongly significant improvement ($p < .000$) in respondents’ self-efficacy scores overall. Strongly significant improvement ($p < .000$) was also noted in each of these characteristics: becoming a better listener, becoming more observant, responding in the moment, and becoming a better collaborator. While improvement was noted for the characteristic of increasing self-confidence in presenting, the result was not statistically significant ($p = .391$). Additionally, several trending themes emerged in participants’ responses to open-ended reflection questions, including enjoyment/fun, strong connection to skill development, need for training in medical improv beyond the field of dietetics, application of skills beyond the course, and preference for face-to-face setting rather than via a virtual classroom.
Table 8: Summary of Hypotheses and Results

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Variables</th>
<th>p-value</th>
<th>Reject or Fail to Reject the Null Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Upper-level dietetics students will have an overall increase in combined self-assessment scores on the posttest self-efficacy evaluation survey tool following the improvisation-based workshop compared to scores on the retrospective pretest evaluation.</td>
<td>- Posttest Survey Scores</td>
<td>.000*</td>
<td>Reject</td>
</tr>
<tr>
<td></td>
<td>- Retrospective Pretest Survey Scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. A. Upper-level dietetics students will have increased self-assessment scores on the posttest self-efficacy evaluation survey tool, regarding perceived capability of (a) becoming a better listener following the improvisation-based workshop compared to retrospective pretest evaluation.</td>
<td>- Posttest Survey Scores</td>
<td>.000*</td>
<td>Reject</td>
</tr>
<tr>
<td></td>
<td>- Retrospective Pretest Survey Scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. B. Upper-level dietetics students will have increased self-assessment scores on the posttest self-efficacy evaluation survey tool, regarding perceived capability of (b) becoming more observant of nonverbal communication following the improvisation-based workshop compared to retrospective pretest evaluation.</td>
<td>- Posttest Survey Scores</td>
<td>.000*</td>
<td>Reject</td>
</tr>
<tr>
<td></td>
<td>- Retrospective Pretest Survey Scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. C. Upper-level dietetics students will have increased self-assessment scores on the posttest self-efficacy evaluation survey tool, regarding perceived capability of (c) responding in the moment following the improvisation-based workshop compared to retrospective pretest evaluation.</td>
<td>- Posttest Survey Scores</td>
<td>.000*</td>
<td>Reject</td>
</tr>
<tr>
<td></td>
<td>- Retrospective Pretest Survey Scores</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Continued on next page)
Table 8: (continued)

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Variables</th>
<th>( p )-value</th>
<th>Reject or Fail to Reject the Null Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. D. Upper-level dietetics students will have increased self-assessment</td>
<td>- Posttest Survey Scores</td>
<td>.391</td>
<td>Fail to reject</td>
</tr>
<tr>
<td>scores on the posttest self-efficacy evaluation survey tool, regarding</td>
<td>- Retrospective Pretest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>perceived capability of (d) increasing self-confidence in presenting</td>
<td>Survey Scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>following the improvisation-based workshop compared to retrospective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pretest evaluation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. E. Upper-level dietetics students will have increased self-assessment</td>
<td>- Posttest Survey Scores</td>
<td>.000*</td>
<td>Reject</td>
</tr>
<tr>
<td>scores on the posttest self-efficacy evaluation survey tool, regarding</td>
<td>- Retrospective Pretest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>perceived capability of (e) becoming a better team member/collaborator</td>
<td>Survey Scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>following the improvisation-based workshop compared to retrospective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pretest evaluation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( *p = .001 \)
CHAPTER FIVE

DISCUSSION

Introduction

To my knowledge, this is the first study to examine the effects on self-efficacy with regard to ICS for telehealth communications and feasibility of a virtually delivered medical improvisation-based workshop for undergraduate nutrition and dietetics students.

Self-Efficacy and Paired t Test

Through a paired t test, this study found a strongly statistically significant increase when comparing self-efficacy scores between a retrospective pretest survey and matching posttest survey following completion of virtually delivered, 3-hour medical improvisation-based workshop that was included as part of undergraduate nutrition counseling course curriculum, \( t(30) = 5.684, p < 0.000, 95\% \text{ CI}[6.053, 12.803], d = 1.02 \). The result supports the hypothesis regarding the use of medical improvisation-based techniques to increase self-efficacy with regard to ICS development in undergraduate students. This aligns with findings of similar studies that examine the impact of applied or medical improvisation exercises within other health science
fields on variables such as self-confidence, flexibility, and active listening and within practice-specific standardized evaluations scores. Gillian-Daniel and colleagues suggest the increase in confidence that more than 90% of their participants reported following completion of the Improv to Improve Science Communication and Teaching practicum may be linked to an increase in self-efficacy and the affective side of instructional practices. The statistical result achieved in this study also indicates the feasibility of delivering medical improvisation for development of ICS for telehealth via a virtual platform.

Improvisation-based coursework typically occurs in face-to-face settings so that the facilitator and participants may interact with one another to increase observation of full-body expression. Mohammad Hussein’s study found that using Blackboard Collaborate was more effective at increasing achievement scores for adult students who were studying English as a second language than those who took the same course in a traditional classroom setting. He proposes the virtual platform helped remove barriers such as performance anxiety that can accompany face-to-face interactions. He also claims the availability of multimodal interaction increased students’ participation in the course when compared to students who took the same course face-to-face.

While feedback from multiple students in the present study shows they would have “preferred the workshop with face-to-face delivery,” several other students commented on the benefit of specific techniques used throughout the online presentation. Improvisation curriculum is designed to be dynamic, and although participants were in front of a computer screen, several activities encouraged students to stand or move throughout their space while maintaining awareness of their computer camera’s viewing area. The facilitator also utilized several features
of Blackboard Collaborate, including the interactive whiteboard which allows students to instantly share written comments or drawings, a chat box for text comments, a microphone and camera, and private breakout rooms for small-group interaction. One student said, “I really enjoyed being so engaged the whole time we were connected. It’s very hard to sit in front of a [computer] screen for three hours, but standing up and talking with our classmates made it fly by.” Both the results from paired $t$ tests and feedback from participants strengthen the notion that virtual delivery of improvisation is plausible and effective at increasing self-efficacy.

Explored Characteristics of Self-Efficacy

This study also examined specific characteristics commonly appearing in the literature that link to the construct of self-efficacy. I isolated, grouped, and aligned particular statements on the survey with each of the five characteristics. A statistically significant increase was found for the characteristics of becoming a better listener ($t(30) = 5.226, p < 0.000, 95\% \text{ CI}[7.526, 17.183], d = 0.94$), becoming more observant of nonverbal communication, ($t(30) = 6.129, p < 0.000, 95\% \text{ CI}[8.754, 17.504], d = 1.1$), responding in the moment, ($t(30) = 7.182, p < 0.000, 95\% \text{ CI}[8.357, 14.998], d = 1.29$), and becoming a better collaborator ($t(30) = 6.051, p < 0.000, 95\% \text{ CI}[6.411, 12.944], d = 1.09$). This expands upon the findings of several other studies to incorporate medical improvisation’s ability to transcend multimodal delivery while also increasing self-efficacy for ICS required for telehealth communication. Watson explored course evaluations (n=87) from her medical improv seminar, which was offered over an eight-year span. Of those, 94.3% of participants agreed or strongly agreed with the statement, “This class helped me become a better listener”; 96.6% agreed or strongly agreed with the statement, “This
class helped me become more observant”; 100% agreed or strongly agreed with the statement, “This class helped me respond in the moment,” and 92% agreed or strongly agreed with the statement, “This class helped me become a better team member/collaborator.” Watson’s results reflect the increase of skill development from medical improvisation. However, results from this study suggest an increase in perceived capability for the same characteristics, but within the context of telehealth application.

Although it was not statistically significant, an increase was also observed for the characteristic of increasing self-confidence in presenting within the construct of self-efficacy, \((t(30) = .278, p < 0.391, 95\% \text{ CI}[-2.868, 3.772]).\) This is contrary to the findings of nearly all other studies.\(^{5,6,11–13,31,40,52}\) It is important to note that I explored increased self-confidence in the context of public speaking which, for the RDN, includes presentations for small and large groups. A possible explanation for this statistical result may be due to the way I isolated and grouped the 21 statements from the self-efficacy survey. As no validated evaluation tool was known, I utilized existing research to modify the evaluation tool used in Thompson and Stetzler’s study\(^5\) to create the survey tool for this study to the best of my ability. Prior to distributing them to study participants, I conducted a review and evaluation process using undergraduate nutrition and dietetics students as the evaluators to help mitigate any confusion with the data collection tools (Appendix H).

Another possible explanation is that the workshop was 3 hours long so did not provide the time to properly accommodate training in all areas explored within the study. In contrast, several similar studies examined the use of improvisation over 10-, 12-, or 16-week semesters within the course.\(^{5,6,12,13,52}\) One student stated, “A way to improve the workshop, [I would] make
the workshop a bit longer… because many of the activities were rushed.” An additional cause for the insignificant change may have been due to the lack of activities directly relating to public speaking within the workshop, or more likely due to a few statistical outliers within the small sample size.

Emergent Themes

The third research question sought to identify emergent themes within student reflections as a way to clarify scores on the self-efficacy surveys. In addition to those mentioned above, there was a recurrent theme of improved active listening skills among students’ responses. An example of this comes from one participant who said, “The workshop strengthened my active listening skills.” Several of the exercises chosen for the workshop were designed to specifically introduce the concept of active listening and then allow students the space to practice and observe others practice active listening.5,6,13 This type of instructional technique allows for both mastery of experience and social modeling, two ways proposed to increase self-efficacy.22

Another emergent theme was that of self-awareness. The curriculum for this workshop was designed in a way to quickly orient students to an interactive space from the traditional online lecture they were accustomed to in their courses.6,12,13,52 Students were encouraged by the facilitator to remove judgment from themselves and others and to recognize the space as one in which they were free to make mistakes and discoveries. One student said, “[This] made us more aware about our body language, whether it is our own or the person across from us.” Bandura surmises that self-efficacy may be increased through observation of personal physical and emotional states during trial.22
A commonly appearing theme was that of improved flexibility or the increased ability to respond in the moment. Whether face-to-face or virtual, much of what medical practitioners encounter is unscripted, so being comfortable responding to vulnerable patients or colleagues without preparation is a valued skill. One student commented that “the workshop strengthened [her] skills when it comes to thinking of something to say on the spot.” This aligns with Boesen and colleagues’ findings.

Although students were provided with an overview of outcome objectives for the online session, many reported being confused about the purpose of the workshop. One student stated, “Explaining the workshop a little more in the beginning would be great because I was a bit confused, as were other students I spoke to…” This same student went on to say, “I have always had strong communication skills with patients at the hospital I work at; however, I learned so much about my own communication skills which I didn’t know needed some improvement.” This exemplifies how medical improv is tied to the constructivist theory of learning. Another student stated, “The different activities allowed us to open up and to work on our own ability to communicate with others,” highlighting the connection to Bandura’s work in self-efficacy.

Implications

The field of nutrition and dietetics has a lack of academic research exploring pedagogical techniques that may be applied within didactics programs for the use of telehealth training. Dietitians work in a variety of roles that demand high-level ICS. With the advent and rapid growth of telehealth, medical professionals are charged with identifying and utilizing techniques designed to maintain patient interaction with the end result of improved patient care. This study
serves to facilitate conversation about the feasibility of medical improvisation within a virtual setting for the use of telehealth training. The results demonstrate the successful development of ICS and an increase in self-efficacy with regard to these skills. Furthermore, medical improvisation used within this study may serve as a platform from which to develop standardized curriculum for telehealth training. Finally, this study also indicates the need for further research in the field of telehealth communication.

Limitations and Delimitations

This study had a small sample size, which may have affected the outcome of statistical results. An attempt was made to identify the correlation between score outcomes and the demographics of age and education level; however, the sample size that provided demographic information (n = 17) was too small. There was not enough data to indicate whether age and education affected the improvement. Further study is needed to investigate what factors contribute to improvement.

My research team was unable to secure a suitable control group. Boesen and colleagues demonstrated the use of sequential years of multiple cohorts as a way to increase sample size. Furthermore, Boesen et al. also utilized a control group by isolating standardized evaluation scores from cohorts prior to the introduction of the improvisation-based curriculum and compared them to the scores of students who had received the improvisation-based curriculum. Attempts to replicate this process or secure a control group failed.
Due to time constraints, there was not enough time to incorporate the use of simulations. Multiple students in this study commented on being confused about the connection between the improvisation exercises and the application to real-life scenarios. In debriefing sessions, Eisenberg and colleagues found that establishing prescribed amounts of time for simulations is beneficial to the extension of ICS development.\textsuperscript{32} Extending the training to 6 hours may have allowed more opportunity to include interactive simulations. One student suggested inviting two students to role play scenarios prior to the debriefing sessions. This may allow for students to learn through observing, which is a form of social modeling.\textsuperscript{22}

There were several limitations to data collection within this study. Due to geographical constraints, the process of collecting the demographic data was separated from the process of collecting the self-efficacy surveys. As a result, approximately 41.9\% (n=13) of the respondents were missing the demographical information. Consequently, the posttest/retrospective pretest surveys and reflection questions were administered online, which may have diminished participants’ incentive to complete the survey and respond to the reflection statements. Additionally, there is a lack of a validated evaluation instrument designed to determine the change in self-efficacy in nutrition and dietetics education. Finally, training for educators in the field of nutrition and dietetics as a means to utilize improvisation techniques within their classrooms is limited to a few small programs around the country and, to my knowledge, support for such training has yet to be endorsed by the Academy.
Future Research

The first suggestion for future research is to extend the amount of time improvisation is incorporated within the educational process. While this study demonstrates the effectiveness of a short workshop, utilizing the educational techniques explored in this study for a longer period of time would extend the scope of this research. Boesen and colleagues, Watson, and Thompson and Stetzler all demonstrate effectiveness in a 12- to 16-week medical improvisation-based curriculum.\(^5,6,13\) Additionally, similar to Boesen and colleagues’ study, adding a simulation component would increase the scope of research.\(^6\) Finally, adding a longitudinal component where a third wave of measurement is gathered to explore the possible impact the workshop had on participants several months following completion of the workshop could identify resiliency of the techniques.

Lessons Learned

Improvisation is about embracing the unfamiliar and driving forward to explore what may happen with a mindset of optimism, acceptance, and playfulness. The course of this study changed dramatically in the light of worldwide events. I followed the tenents of improvisation and was placed on a path to consider the implications of medical improvisation within a telehealth context. As such, the research became more specific, personalized, and topical. It also increased the amount of effort, but in the face of adversity, saying “yes, and…” led to something better than what was originally envisioned.
REFERENCES


17. Hammer RR, Rian JD, Gregory JK, Bostwick J. Telling the patient’s story: using theater training to improve case presentation skills.


38. Mincher J. Collaboration with medical schools and other institutions of higher education enables dietetics students to participate in team base building interprofessional education. *J Aca Nutr Diet*. 2018;118(9):A60.


APPENDICES
APPENDIX A

FULL VIRTUAL MEDICAL-IMPROV CURRICULUM
Communicating with Empathy (Non Verbal Communication)

The aim of this workshop is to develop knowledge and skills related to effective communication within an undergraduate Nutrition and Dietetics (DPD) course through experiential learning. Knowledge development designed to meet 2017 ACEND Accreditation Standard:

- KRDN 3.3 Demonstrate counseling and education methods to facilitate behavior change and enhance wellness for diverse individuals and groups.

ACEND Standard 5: Curriculum and Learning Activities; 5.3 C: Learning activities must use a variety of educational approaches necessary for delivery of curriculum content, to meet learner needs and facility learning objectives.

Learner Objectives:
- Demonstrate active listening
- Discuss observations of self-awareness within two person and multiple person exercises.
- Demonstrate verbal and nonverbal communication within two person and multiple person exercises.
- Demonstrate collaborative synthesis within multiple person exercises
- Demonstrate adaptability within interpersonal interactions
- Demonstrate emotional awareness through suspension of judgement of self and others
- Apply skills to simulations

Required Space and Tools:
- Room large enough for all participants to sit in a circle and face one another.
- Room large enough for participants to move about and maintain personal space to move a side to side in every direction.
- Enough chairs for all participants to sit.
- One client case study either printed out for everyone or projected up on a screen.
- One employee case study either printed out for everyone or projected up on a screen.
- Handout with physicality prompts for patient.
- Handout with physicality prompts for employee.

<table>
<thead>
<tr>
<th>Instructor Objective</th>
<th>Learner Objective</th>
<th>Activity</th>
<th>Script</th>
<th>Time in min.</th>
<th>PPT/ BBU Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Demonstrate tools of Blackboard Ultra Connect | • | 1. Hi everyone! Thank you for joining in today.  
• Review the points on the opening slide  
2. Review title slide | 1. Welcome slide  
2. Title Slide | |
<table>
<thead>
<tr>
<th>List objectives of workshop session.</th>
<th>Summarize history and contemporary use of Applied Improvisation within the field of Health Science and development of Medical Improvisation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognize workshop objectives</td>
<td>Recall brief history and current application of Medical Improvisation</td>
</tr>
<tr>
<td>Demonstrate active listening</td>
<td>Practice verbal communication within a small group setting</td>
</tr>
<tr>
<td>Objectives are designed to support communication skills related to interpersonal and interprofessional communication skills for professionals within the health sciences.</td>
<td></td>
</tr>
<tr>
<td>Objectives are <em>recite above</em></td>
<td>The mother of modern improvisation is Veeola Spolin</td>
</tr>
<tr>
<td>Studied under Neva Boyd sociologist who worked with immigrant children.</td>
<td></td>
</tr>
<tr>
<td>Children’s games developed into exercises to help immigrants better communicate, empowerment exercises for single mothers, and eventually became theatrical performance pieces.</td>
<td></td>
</tr>
<tr>
<td>Theater’s like the Second City in Chicago based on improvisation. Formal training aimed at actors.</td>
<td></td>
</tr>
</tbody>
</table>

3. Review facilitator, moderator, technical support
4. Review the features of BBC *Thank Don for slide content*
5. Using Blackboard Connect Con’t
6. Practice using features of Blackboard Collaborate
   1. Answer in the chat box
   2. Write on the board
   3. Draw on the board
   4. Raise hand, unmute microphone and camera, speak the word, mute both
      *If you get stuck or need help, let me know and I will help.*
7. Let’s get started.

3. Facilitator, Moderator, TS
4. Using Blackboard Connect
5. Using Blackboard Connect Con’t
6. Describe how you feel.
7. Let’s Get Started
8. Blank Slide
• Classes expanded and began attracting people of diverse backgrounds.
• Business world was the first to adopt the exercises to benefit sales representatives and as part of corporate training and Applied Improvisation was born.
• Medical Schools followed suit about 2008. STEM field uses techniques to help scientists and medical professionals better communicate with the general public and patients.
• Medical Improv is the newest term to be integrated into the lexicon of the improv world.
• Today we are going to join in the movement to use techniques used to develop communication skills.
• Use the chat box to share one thing from this opening that interested you about everything I just told you?
• Give 2-3 minutes for everyone to report the one or two things that they took away.
• Note observations on what percentage of participants listed one of the objectives verses how many listed an aspect of the story about improv’s history.
• Which was more impactful: listing objectives or a story?
• Raising your hand please share your thoughts on how this translates to how we communicate with patients, clients, classmates, or coworkers?
| Explain best mindset for participating through the workshop. | • Practice relaxation breathing exercise  
• Practice suspension of judgement of self and others | • For our purposes, we should have fun today but the goal is NOT to be funny.  
• All of us have this ugly little voice that sits on our shoulder and tells us everything bad about yourself. It judges everything we do. It is much harder on us than our friends, family, or enemies. For the remainder of this hour, I request that you leave that ugly judgmental voice outside this room.  
• We’re all going to send that ugly voice away by closing our eyes and taking a deep breath in for a count of four, holding it and breathing out for the count of four. (Repeat 2 more times.)  
• I’m going to place you all into breakout rooms of 2-3 people. I want you give your partner a genuine compliment. Don’t forget to unmute your mic and camera. Now, you will have 3 minutes.  
• Now, using the chat box, I want you everyone one of your strengths.  
• Thank you so much for being vulnerable and sharing. | 5 |
| Demonstrate mindset for workshop | • Practice suspension of judgement of self and others  
• Recognize non-verbal clues given by others  
• Demonstrate adaptability within | Prior to the start of the workshop, instruct everyone to gather 3-6 items that they can hold up in front of their monitor.  
Everyone is going to placed into breakout rooms of 2-3.  
Once in break-out rooms, participants self-designate who is Person A and who is Person B.  
Person A holds up an object in front of the camera Person B and points to it. Person | 5 |

*Unmute Breakout Rooms of 2

9. What is your one of your strengths? Chat box

10. Blank Slide

*Unmute Breakout rooms of 2 for 2:00 minutes
interpersonal interactions

B must name the object, but they must call it anything other than what it actually is.

For example: If Person A holds up a coffee mug, Person B might say, “cow.” Or if Person A points to a pencil, Person B might say, “earring.” Once the exercise has run for a minute or two, partners switch tasks. Person B points to objects and Person A names the object just like before.

Lead Discussion and Debriefing

• Practice verbal communication within a small group setting
• Discuss observations of self-awareness within two person and multiple person exercises.

Debriefing and discussion

• How did you figure out who was going to be Person A and who was going to be Person B? (examples: One person decided and other followed, both deliberated, other ways…)
• What did it feel like to be the person who was naming the objects?
• How did it feel to be the person pointing at the objects?
• What did you notice about your body as you were naming the objects?
• What did you observe in the stature of the other person when you were the one pointing?
• How did you feel when you struggled?
• How did you feel when your person struggled?

Debriefing: This is going to be different kind of learning style then we’re used to. I am going to practice thinking in different ways. I am going to ask you to challenge yourself and to suspend judgement of

5

Raise Hand
*Unmute

Whiteboard

Raise hand
*Unmute

Whiteboard

Raise hand
*Unmute

Whiteboard
I am going to ask you to support one another and believe in yourself. We are also going to practice self-awareness.

| Facilitate physical warm-up | Demonstrate adaptability within interpersonal interactions | 8-count Shake Down | Have participants turn off their mics but turn on their cameras.  
- This is a physical warm-up that helps shake out tension, get blood flowing, and gets us refocused.  
- We start with our right hand up in the air and count backwards starting with the number eight. Then we switch hands and shake out our left hand for eight counts. Then we switch to our right foot and then our left foot. Then we repeat the pattern but counting backwards from seven, and then six and so on until we’ve made it back to one. Facilitator participates with the group and encourages them to speak with power and as one voice and maintaining eye contact with the camera or computer monitor.  
- *This exercise nearly always ends with everyone laughing and if they aren’t smiling or laughing at the end, then have them applaud themselves for doing something physically active and then applaud each other for doing something physically active.*  
  Follow with a quick discussion responding to the prompt: *How genuine were you when you applauded yourself verses your course mates?* | 4-5 | 11. Crazy 8s  
Everyone have cameras on! Mute audio. |
| Facilitate verbal communication along with debriefing and discussion | • Demonstrate verbal communication within small groups
• Demonstrate collaborative synthesis within multiple person exercises
• Demonstrate adaptability within interpersonal interactions | Yes and, Yes but, No instead | We are going to plan a party! Your class is going to celebrate… What do you want to celebrate? Any ideas?

_Call on first participant and use their suggestion._
Okay, I am going to break you up into groups of 2-3. I want you to come up with all of the plans for the party. The only caveat is that you must say yes to whatever you partners suggest. For instance, if Dr. Patterson were to suggest an “Under the Sea Theme,” I would have to say “Yes, and we should all dress as mermaids.” She might say, “Yes, and we should serve seaweed as an appetizer.” I might say, “Yes, and we need to get bubble machines.” Any questions? Great. You will have 4 minutes to plan the party.

After 2 minutes get everyone back.
_Let’s take a minute to write down some words that describe how that went on the whiteboard. If you can, use green text._

We are going to break up into groups again. We are going to plan another party. This time, instead of starting each sentence with, “yes and,” we are going to try, “yes, but.” You will have 2 minutes.

After 2 minutes, get everyone back.
_Let’s take a minute to write down some words that describe how that went on the whiteboard. If you can, use blue text._

| 12 | 12. Blank Slide
Raise hand
*Unmute |
We are going to break up into groups again. We are going to plan another party. This time, instead of starting each sentence with, “yes and,” or “yes, but,” we are going to start each sentence with, “no, instead.” You will have 3 minutes to plan your party.

After 3 minutes, get everyone back.

Let’s take a minute to write down some words that describe how that went on the whiteboard. If you can, use red text.

Let’s take a look at our board.

Lead a discussion using the following prompts:

Who wrote this word? Can you explain what you meant?

How does this apply to what we do as counselors?

How does this apply to how we communicate in group projects?

Molly Kellogg discusses the power of “Yes and...” She took that directly from improv. It is a powerful tool. How do you think this can be used?

| Facilitate verbal and collaborative communication | We are going to take turns talking now. In this exercise you will have to listen to your partners’ entire sentence. In this exercise, the last word of each person’s sentence becomes the first word of the next sentence. We will do this one sentence at a time and switch back and forth between. For example: |
| Break out groups of 2-3 for 2 minutes |

| | | 5 | 3 | 2 |

| Facilitate verbal and collaborative communication | We are going to take turns talking now. In this exercise you will have to listen to your partners’ entire sentence. In this exercise, the last word of each person’s sentence becomes the first word of the next sentence. We will do this one sentence at a time and switch back and forth between. For example: |

| Break out groups of 2-3 for 2 minutes | All back | Raise hand |

| 5 |
| Lead Discussion and Debriefing for Last Word Response | Practice verbal communication within a small group setting  
Discuss observations of self-awareness within two person and multiple person exercises. | Discussion and Debriefing for Last Word Response | Raise your hand to share with us how it went. If you would like to share something urgently or agree, use the Chat Box.  
**How did it go?**  
**What did you notice about this exercise?**  
**What was most impactful to you?**  
**What was your body doing during this exercise?** |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------|
This is an important skill because when people speak, the last word is often the most important.

| Facilitate verbal communication for Interrupt and Apologize | Interrupt and Apologize | In pairs or threes, Person A is going to tell the story of a recent achievement or accomplishment that he or she is very proud of. These do not need to be momentous stories. Things as simple as successfully potty training your 3 year old, training for and running a 5K, or successfully pulling off a surprise for someone will work. This story should fill the span of three minutes or so. He/she needs to be prepared to talk for a bit. Person B is to tell Person A about the last memorable meal he or she had. It could be something he or she cooked from scratch or a restaurant dinner. Be sure to include a lot of details like what was served, who was there, how the food was prepared, etc. Person B should be prepared to talk for a couple of minutes as well. As Person A is telling his or her story, Person B is to interrupt every couple of sentences and tell Person A his or her story. After a brief moment of telling his her story, he or she is to apologize and encourage Person A to continue on until the finish their story or the facilitator tells them to stop. Instruct everyone to get out their smart watches or if they do not have one, their |
|---------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------|                                                                 |
| • Demonstrate verbal communication within small groups       |                           | 15                                                                               |
| • Demonstrate collaborative synthesis within multiple person exercises |                           |                                                                                  |
| • Demonstrate adaptability within interpersonal interactions  |                           |                                                                                  |
| • Demonstrate active listening                               |                           |                                                                                  |


cell phones. They are now going to switch story prompts. Person B is going to tell Person A about a personal achievement or accomplishment. Every few moments, Person A is going to actively look at their watch or phone and either check for an email, text, or at least check the time. Then apologize and look back up. Instruct Person A to go for variation in length and frequency. Person B is to try to continue talking. After a few minutes tell them to stop.

Have them switch to a new partner. This time you are with someone new. Each of you choose one of the stories you just told. Person A, raise your hand. Great! You will be listening. Person B, you will tell the story you want to share. This time. Person A, you will interrupt Person B by trying to finish your partner’s sentence for him or her.

After a few minutes have them stop.

<table>
<thead>
<tr>
<th>Lead Discussion and Debriefing for Interrupt and Apologize</th>
<th>Practice verbal communication within a small group setting</th>
<th>Discuss observations of self-awareness within two person and multiple person exercises.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion and Debriefing for Interrupt and Apologize</td>
<td>How did this go for you?</td>
<td>How did it feel like to constantly get interrupted?</td>
</tr>
<tr>
<td></td>
<td>How did it feel to interrupt the person you were talking to?</td>
<td>Switching gears, what did you feel when I asked you to share a story about a personal accomplishment?</td>
</tr>
<tr>
<td></td>
<td>What does that feeling say about how you see yourself?</td>
<td>What did you feel when I asked you to share a story about a personal accomplishment?</td>
</tr>
<tr>
<td></td>
<td>We’re now going to practice a more effect way of listening.</td>
<td>5</td>
</tr>
</tbody>
</table>
- Demonstrate verbal communication within small groups
- Demonstrate collaborative synthesis within multiple person exercises
- Demonstrate adaptability within interpersonal interactions
- Demonstrate active listening

**WAAT**

This is our final exercise for this session. In this game, you will be placed in small groups. They are not to collaborate before starting the story. They are just to listen to the last word that was said and build upon it. They will figure out what story they are telling as they go along. The trick is that they are to only respond one word at a time. For instance:

Person A: Once
Person B: upon
Person A: a
Person B: time,
Person A: there
Person B: was
Person A: a

And so on.

Let them run the exercise for a few minutes.

**Lead Discussion and Debriefing for WAAT**

- Practice verbal communication within a small group setting
- Discuss observations of self-awareness within two person and multiple person exercises.

**Discussion and Debriefing for WAAT**

- How did it go?
- What worked?
- What didn’t?
- Were you telling the same story?

Have every other group join together so that there are now groups of 4. Direct them to each think of a fairytale story that they know well. They are not to share what story they are thinking of. Then direct the groups to start telling a fairytale one word at a time.

How did it go?
What worked?
What didn’t?
How does this connect to virtual communication?

<table>
<thead>
<tr>
<th>Facilitate closing exercise</th>
<th>Recall 3 important concepts from the workshop</th>
<th>Closing</th>
</tr>
</thead>
<tbody>
<tr>
<td>We are at the end of our session. I want to quickly recap everything we did today. Today, you learned the background of Medical Improv. Then you got a chance to practice some skills that translate from improvisation to nutrition counseling. These skills included: Active listening Collaboration Self-reflections We allowed ourselves a safe space to be vulnerable and learn in a new way. Have everyone take a moment to write down: • One thing they will no longer do. • One thing they will continue doing. • One thing they will start doing. Thank the group for their participation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>13. Recap</td>
<td></td>
</tr>
<tr>
<td>14. Three things slide Whiteboard</td>
<td>15. Thank you</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

CONSENT AND COVARIANT FORM
Northern Illinois University

Consent to Participate in a Research Study

Investigators
Name: Megan Farris  Dept: CHHS  Phone: 618-670-5058
Name: Dr. Julie Patterson  Dept: CHHS  Phone: 815-753-1231

Key Information

• This is a voluntary research study on the effects of an improvisation-based curriculum within a nutrition and dietetics undergraduate counseling course.
• This 16-week study involves participants to respond to 19 statements on a series of two self-assessment surveys prior to and following participation within a nutrition and dietetics counseling course. Additionally, a one-page reflection paper will be collected describing your experience of the program.
• The benefits include identifying effective methods of experiential learning within the field of nutrition and dietetics; there are no foreseeable risks associated with participating.

Description of the Study:

The purpose of the study is to identify effects of using an improvisation-based curriculum within an undergraduate nutrition and dietetics counseling course. If you agree to participate in this study, you will be asked to fill out a series of two surveys that will take approximately 20 minutes each to complete, participate in two, two-hour workshops as part of your normal coursework, and submit a one-page reflection paper which should take approximately 30 minutes to complete on your experience throughout the program. You must be 18 years or older to participate. Participation is completely voluntary and optional.

Risks and Benefits:

There are no anticipated costs and no foreseeable risks or benefits to participation in this study.

Confidentiality:

• This study uses coded identifiers. As such, your identity will be withheld from the researchers.
• Research records will be kept in a locked file, and all electronic information will be coded and secured using a password protected file. We will not include any information in any report we may publish that would make it possible to identify you.

Compensation:
For participating in the study, you will receive 2 points towards class credit and be entered into a drawing for a $25 cash prize awarded via PayPal in May of 2020.

**Your Rights:**

You have the right to say no. You may change your mind at any time and withdraw at any time. You will remain anonymous in all of your responses submitted to the researcher. If you have any questions about this study, you may contact Dr. Julie Patterson PhD, MBA, RDN, LDN, CD: jppatterson2@niu.edu or Megan Farris: mfarris1@niu.edu. You may choose not to answer specific questions or to stop participating at any time. Whether you choose to participate or not will have no effect on your grade or evaluation within the course.

Northern Illinois University policy does not provide medical treatment or compensation for treatment of injuries that may occur as a result of participation in research activities. The preceding information shall not be construed as a waiver of any legal rights or redress which the participants may have.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Office of Research Compliance at Northern Illinois University at (815) 753-8588, researchcompliance@niu.edu.

Completion of the survey implies that you have given your consent to take part in this study. Thank you.
Covariant Form

For your ID number,
List the first two letters of your middle name (if you do not have a middle name, please write 00): __________

Last two digits of the year you graduated from high school: __________

Number of siblings you have (2 is 02): __________

First two letters of the city in which you were born: __________

Please check all answers that applies to you. Please use a black or blue pen only.

1) I am a/an (check all that apply)
   ___ undergraduate student, nutrition/dietetics major
   ___ undergraduate student, not nutrition/dietetics major
   ___ post baccalaureate student, nutrition/dietetics major
   ___ post baccalaureate student, not nutrition/dietetics major
   ___ graduate student, nutrition/dietetics
   ___ graduate student, not nutrition/dietetics
   ___ Other, please describe _________________________________

2) I am
   ___ 17 years old or younger
   ___ 18 to 22 years old or younger
   ___ 23 to 35 years of age
   ___ 36 to 50 years of age
   ___ 51 to 65 years of age
   ___ Over 65 years
   ___ Choose not to report

3) I identify as
   Male       Female       Other       Choose not to report

4) Are you of Hispanic, Latino, or Spanish origin?
   ___ Yes
   ___ No
   ___ Choose not to report

5) What is your race?
   ___ White
   ___ Black of African American
   ___ American Indian or Alaskan Native
   ___ Asian or Pacific Islander
   ___ White, non-Latino
   ___ Choose not to report

6) My cumulative GPA is:
   ___ 3.5 to 4.0
   ___ 3.0 to 3.4
   ___ 2.5 to 2.9
   ___ 2.4 or below
   ___ Choose not to report

7) Have you ever taken an improvisation (for theater) course before?  Yes  No
APPENDIX C

POSTTEST/RETROSPECTIVE PRETEST SURVEY
Informed Consent

Northern Illinois University
Consent to Participate in a Research Study

Study Title: "Improvisation-based curriculum for nutrition and dietetics undergraduate students: An examination in alternative education methods"

Investigators

<table>
<thead>
<tr>
<th>Name</th>
<th>Megan Farris</th>
<th>Dept:</th>
<th>CHHS</th>
<th>Phone:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Julie Patterson</td>
<td>Dept:</td>
<td>CHHS</td>
<td>Phone:</td>
<td>618-670-5058</td>
</tr>
</tbody>
</table>

Key Information

- This is a voluntary research study on the effects of an improvisation-based curriculum within a nutrition and dietetics undergraduate counseling course.
- This 16-week study involves participants to respond to 19 statements on a series of two self-assessment surveys prior to and following participation within a nutrition and dietetics counseling course. Additionally, a one-page reflection paper will be collected describing your experience of the program.
- The benefits include identifying effective methods of experiential learning within the field of nutrition and dietetics; there are no foreseeable risks associated with participating.

Description of the Study:

The purpose of the study is to identify effects of using an improvisation-based curriculum...
within an undergraduate nutrition and dietetics counseling course. If you agree to participate in this study, you will be asked to fill out a series of two surveys with 24 statements that will take approximately 20 minutes each to complete for a total of 40 minutes, participate in one, one-hour workshop as part of your normal coursework, and submit a one-page reflection paper which should take approximately 30 minutes to complete on your experience throughout the program. You must be 18 years or older to participate. Participation in the study is completely voluntary and optional.

Risks and Benefits:
There are no anticipated costs and no foreseeable risks or benefits to participation in this study.

Confidentiality:
· This study uses coded identifiers. As such, your identity will be withheld from the researchers.
· Research records will be kept in a locked file and all electronic information will be coded and secured using a password protected file. We will not include any information in any report we may publish that would make it possible to identify you.

Compensation:
For participating in the study, you will receive 2 extra points towards class credit and be entered into a drawing for a $25 cash prize awarded via PayPal in May of 2020. In lieu of participation, you may be asked to submit a written assignment to your professor for the purpose of earning 2 extra points toward class credit.

Your Rights:
You have the right to say no. You may change your mind at any time and withdraw at any time. You will remain anonymous in all of your responses submitted to the researcher. If you have any questions about this study, you may contact Dr. Julie Patterson PhD, MBA, RDN, LDN, CD: jpatterson2@niu.edu or Megan Farris: mfarris1@niu.edu. You may choose not to answer specific questions or to stop participating at any time. Whether you choose to participate or not will have no effect on your grade or evaluation within the course.
Northern Illinois University policy does not provide medical treatment or compensation for treatment of injuries that may occur as a result of participation in research activities. The preceding information shall not be construed as a waiver of any legal rights or redress which the participants may have.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Office of Research Compliance at Northern Illinois University at (815) 753-8588, researchcompliance@niu.edu.

Thank you.

☐ I consent, begin the study
☐ I do not consent, I do not wish to participate

Create a Coded Identifier

Please answer the following three questions in order to create a unique ID number:

**What are the first two letters of your MIDDLE name?**
(Ex. Marie would be MA. If you do not have a middle name please use 00)


**What are the last two numbers of the YEAR you graduated high school?**
(Ex. For the year 2003, put 03)
What is the number of siblings you have?
(Ex. If have one sibling, I would put 01)

What are the first two letters of the CITY were you born in?
(Ex. Chicago would be CH)

Combined Posttest and Retrospective Pretest

Retrospective Pretest Survey

The statements below describe scenarios related to abilities and skills for telehealth communications. There are two lines for each of the 24 statements below.

For the line listed After the workshop, use a 0% to 100% scale to write the appropriate percentage for each of the 24 statements that reflect how confident you felt after taking the workshop.

For the line listed Before the workshop, use a 0% to 100% scale to write the appropriate percentage for each of the 24 statements that reflect how confident you felt prior to taking the workshop.

Rate your degree of confidence by recording a number from 0 - 100 using the scale given below:

0 10 20 30 40 50 60 70 80 90 100

Cannot do Moderately can do Highly
As an example: If someone were to ask me how confident I am that I am able to lift a 50 pound weight with one arm, I would put it into perspective. I know that I can lift a 30 pound child with one arm because I have actually done it. So, I am 100% confident that I could lift a 30 pound weight with one arm. However, for a 50 pound weight, I am not positive because I have only tried 30 pounds before but, I would think there is a 40% chance I could lift a 50 pound weight with one arm. So, I would align the slider to "40."

Try new things

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>After the workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before the workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Solve problems

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>After the workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before the workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Think flexibly

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>After the workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Before the workshop

Be a creative thinker

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

After the workshop

Before the workshop

Think on the spot

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

After the workshop

Before the workshop

Answer questions for which I haven't prepared

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

After the workshop

Before the workshop

Listen carefully when others are speaking

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

After the workshop

Before the workshop
Maintain a positive attitude toward change

0  10  20  30  40  50  60  70  80  90  100

After the workshop
Before the workshop

View problems as opportunities

0  10  20  30  40  50  60  70  80  90  100

After the workshop
Before the workshop

Speak/present to a small group

0  10  20  30  40  50  60  70  80  90  100

After the workshop
Before the workshop

Speak/present to a large group

0  10  20  30  40  50  60  70  80  90  100

After the workshop
Before the workshop
Solve problems in new ways

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
After the workshop
Before the workshop

Interpret non-verbal communication

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
After the workshop
Before the workshop

Link my prior knowledge and experiences to create new solutions

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
After the workshop
Before the workshop

Easily accept others' ideas

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
After the workshop
Before the workshop

Respond quickly and decisively in challenging situations
After the workshop
Before the workshop

Easily trust my team members

After the workshop
Before the workshop

Easily collaborate with others

After the workshop
Before the workshop

Effectively interview others

After the workshop
Before the workshop

Demonstrate empathy toward others.

After the workshop
Before the workshop

Build trust in others

After the workshop
Before the workshop

Help others increase their readiness to adopt behaviors

After the workshop
Before the workshop

Assist others in setting a goal.

After the workshop
Before the workshop

Effectively counsel others
After the workshop

Before the workshop

**Anything to Add**

Is there anything you would like the researchers to know or is there anything you would like to add?

[Blank space]

**Connectivity**

How much of each session did you attend?

<table>
<thead>
<tr>
<th>Percentage of the 1st session you attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of the 2nd session you attended</td>
</tr>
<tr>
<td>Percentage of the 3rd session you attended</td>
</tr>
</tbody>
</table>

Did you experience connectivity issues during the session that may have impacted your experience?
Closing

Thank you for your time.
APPENDIX D

WRITTEN FEEDBACK PROMPTS
For your ID number,
List the first two letters of your middle name (if you do not have a middle name, please write 00): ____________
Last two digits of the year you graduated from high school: ____________
Number of siblings you have (2 is 02): ____________
First two letters of the city in which you were born: ____________

Please respond to each of the prompts below.

• What were the strengths of this workshop?
• What would you do to improve this workshop?
• Would you recommend this workshop for other students or Nutrition and Dietetics professionals? Please specify which group(s) and explain why.
• Is what you learned and practiced in this workshop important to you as you prepare to enter a career as a health care professional? Please explain your response.
APPENDIX E

LETTER OF PERMISSION TO USE AND

MODIFY SURVEY TOOLS
Re: Improvisation Evaluation Scale Tool
Ronald Alan Berk <rberk1@jhu.edu>
Mon 11/2/2020 7:02 PM
To:
   • Megan Farris <mfarris1@niu.edu>

Dear Ms. Farris:
Thank you for your inquiry regarding my Improvisation Evaluation Scale. You have my permission to use the 20-item scale in your master's thesis research modified for your purposes and sample as long as the original scale and JECT article are cited.

I wish you success with your study and completing your degree. Thank you for your interest in our work. If I can be of any further assistance, don't hesitate to contact me from the quarantine room of your choice with a snazzy mask. Be safe!
Best regards,
Ron

Ronald A Berk, PhD
Professor Emeritus, Biostatistics & Measurement,
Former Assistant Dean for Teaching,
The Johns Hopkins University
Email: rberk1@jhu.edu   Phone: 410-940-7118
Websites: www.pptdoctor.net

LinkedIn: http://www.linkedin.com/in/ronberk/
Blog: http://ronberk.blogspot.com
Twitter: http://twitter.com/#!/pptdoctor
APPENDIX F

IRB APPROVAL LETTERS
Approval Notice
Initial Review

19-Dec-2019

TO: Megan Farris (01766417)
   School of Health Studies

RE: Protocol # HS20-0202 “Improvisation-based curriculum for nutrition and dietetics undergraduate students: An examination in alternative education methods”

Your Initial Review submission was reviewed and approved under Member Review procedures by the Institutional Review Board on 19-Dec-2019. Please note the following information about your approved research protocol:


If your project will continue beyond that date, or if you intend to make modifications to the study, you will need additional approval and should contact the Office of Research Compliance and Integrity for assistance. Continuing review of the project, conducted at least annually, will be necessary until you no longer retain any identifiers that could link the subjects to the data collected. Please remember to use your protocol number (HS20-0202) on any documents or correspondence with the IRB concerning your research protocol.

Please note that the IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Unless you have been approved for a waiver of the written signature of informed consent, this notice includes a date-stamped copy of the approved consent form for your use. NIU policy requires that informed consent documents given to subjects participating in non-exempt research bear the approval stamp of the NIU IRB. This stamped document is the only consent form that may be photocopied for distribution to study participants.

It is important for you to note that as a research investigator involved with human subjects, you are responsible for ensuring that this project has current IRB approval at all times, and for retaining the signed consent forms obtained from your subjects for a minimum of three years after the study is concluded. If consent for the study is being given by proxy (guardian, etc.), it is your responsibility to document the
Where Learning Demands More
Approval Notice
Protocol Amendment

24-Mar-2020
Megan Farris
School of Health Studies

RE: Protocol # HS20-0202 “Improvisation-based curriculum for nutrition and dietetics undergraduate students: An examination in alternative education methods”

Dear Megan Farris,

Your Protocol Amendment submission was reviewed and approved under Member Review procedures by the Institutional Review Board on 24-Mar-2020.

Proposed changes:
• additional collection of already existing data
• switch to online data collection procedures

Please note the following information about your approved research protocol:


If your project will continue beyond that date, or if you intend to make modifications to the study, you will need additional approval and should contact the Office of Research Compliance, Integrity, and Safety for assistance. Annual review of the project will be necessary until you no longer retain any identifiers that could link the subjects to the data collected.

It is important for you to note that as a research investigator involved with human subjects, you are responsible for ensuring that the project has current IRB approval at all times, and for retaining any signed consent forms obtained from your subjects in a secure place for a minimum of three years after the study is concluded. The committee also recommends that the informed consent include an acknowledgement that the subject, or the subject's representative, that he or she has received a copy of the consent form. In addition, you are required to promptly report to the IRB any injuries or other unanticipated problems involving risks to subjects or others.

Please remember to use your protocol number (HS20-0202) on any documents or correspondence with
the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the Office of Research Compliance, Integrity, and Safety at (815) 753-8588.
Approval Notice
Protocol Amendment

07-Oct-2020
Megan Farris
School of Health Studies

RE: Protocol # HS20-0202 “Improvisation-based curriculum for nutrition and dietetics undergraduate students: An examination in alternative education methods”

Dear Megan Farris,

Your Protocol Amendment submission was reviewed and approved under Member Review procedures by the Institutional Review Board on 07-Oct-2020.

Proposed changes:

- requesting access to additional data

Please note the following information about your approved research protocol:


If your project will continue beyond that date, or if you intend to make modifications to the study, you will need additional approval and should contact the Office of Research Compliance, Integrity, and Safety for assistance. Annual review of the project will be necessary until you no longer retain any identifiers that could link the subjects to the data collected.

It is important for you to note that as a research investigator involved with human subjects, you are responsible for ensuring that the project has current IRB approval at all times, and for retaining any signed consent forms obtained from your subjects in a secure place for a minimum of three years after the study is concluded. The committee also recommends that the informed consent include an acknowledgement that the subject, or the subject's representative, that he or she has received a copy of the consent form. In addition, you are required to promptly report to the IRB any injuries or other unanticipated problems involving risks to subjects or others.
Please remember to use your protocol number (HS20-0202) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the Office of Research Compliance, Integrity, and Safety at (815) 753-8588.
APPENDIX G

RESULTS OF SHAPIRO-WILK TEST FOR CHECKING

NORMALITY OF RESIDUALS
Assumptions for Effect of Workshop

Results of the analysis for assumptions for the results for the combination of scores overall and each of the five characteristics of the construct of self-efficacy for the paired \(t\) tests are summarized in Table 9, where Assumption 1 represents continuous dependent variable (CDV), Assumption 2 represents independent variables consisting of two categories (Matched Pairs), Assumption 3 represents no significant outliers (NSO), and Assumption 4 is results of the Shapiro-Wilk test for checking normality of residuals.

### Table 9: Summary of Assumptions for Paired \(t\) Tests

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Assumption 1 CDV</th>
<th>Assumption 2 Matched Pairs</th>
<th>Assumption 3 NSO</th>
<th>Assumption 4 Shapiro-Wilk</th>
<th>(t) test p-value (one-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination of All Characteristics</td>
<td>Passed</td>
<td>Passed</td>
<td>Is not met</td>
<td>Is not met .899</td>
<td>31 .007*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Becoming a Better Listener</td>
<td>Passed</td>
<td>Passed</td>
<td>Passed</td>
<td>Is not met .927</td>
<td>31 .037*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Becoming More Observant of Nonverbal</td>
<td>Passed</td>
<td>Passed</td>
<td>Is not met</td>
<td>Is not met .894</td>
<td>31 .005*</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responding in the Moment</td>
<td>Passed</td>
<td>Passed</td>
<td>Passed</td>
<td>Is not met .905</td>
<td>31 .010*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Confidence in Presenting</td>
<td>Passed</td>
<td>Passed</td>
<td>Is not met</td>
<td>Is not met .843</td>
<td>31 .000*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.391</td>
</tr>
<tr>
<td>Becoming a Better Collaborator/Team Member</td>
<td>Passed</td>
<td>Passed</td>
<td>Is not met</td>
<td>Is not met .853</td>
<td>31 .001*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* * \(p < .05\) Testing the null hypothesis of normality for this data against the alternative hypothesis that not normal distributed at the 5% alpha level of significance.

** \(p < .001\)
For the combination of all characteristics and each of the five characteristics of the construct of self-efficacy, Assumption 1 (continuous dependent variable) and Assumption 2 (independent variables consisted of matched pairs) was met.

For the combination of all characteristics, Assumption 3 (no significant outliers) was not met. There are four outliers observed as seen in Figure 3. Additionally, for Assumption 4 (Shapiro-Wilk test for normality of residuals), due to significant value of the Shapiro-Wilk test, sig. = 0.007, is smaller than 0.05, we reject the null hypothesis and conclude that normality is not met, as seen in Figure 4 and Figure 5.

Figure 3. Diagram of Assumption 3 for the combination of all characteristics.
Figure 4. Diagram of normal distribution for the combination of all characteristics.

Figure 5. Diagram of distribution for results of the combination of all characteristics.
For the characteristic of becoming a better listener, Assumption 3 (no significant outliers) passed. There are no observed outliers, as seen in Figure 6. Additionally, for Assumption 4 (Shapiro-Wilk test for normality of residuals), due to significant value of the Shapiro-Wilk test, sig. = 0.037, is smaller than 0.05, we reject the null hypothesis and conclude that normality is not met, as seen in Figure 7 and Figure 8.

Figure 6. Diagram of Assumption 3 for Becoming a Better Listener.
Figure 7. Diagram of normal distribution for Becoming a Better Listener.

Figure 8. Diagram of distribution of results for Becoming a Better Listener.
For the characteristic of becoming more observant of nonverbal communication, Assumption 3 (no significant outliers) is not met. There is one outlier observed, as seen in Figure 9. Additionally, for Assumption 4 (Shapiro-Wilk test for normality of residuals), due to significant value of the Shapiro-Wilk test, sig. = 0.005, is smaller than 0.05, we reject the null hypothesis and conclude that normality is not met, as seen in Figure 10 and Figure 11.

Figure 9. Diagram of Assumption 3 for Becoming More Observant of Nonverbal Communication.
Figure 10. Diagram of normal distribution for Becoming More Observant of Nonverbal Communication.

Figure 11. Diagram of distribution of results for Becoming More Observant of Nonverbal Communication.
For the characteristic of responding in the moment, Assumption 3 (no significant outliers) passed. There are no outliers observed, as see in Figure 12. Additionally, for Assumption 4 (Shapiro-Wilk test for normality of residuals), due to significant value of the Shapiro-Wilk test, sig. = 0.010, is smaller than 0.05, we reject the null hypothesis and conclude that normality is not met, as seen in Figure 13 and Figure 14.

Figure 12. Diagram of Assumption 3 for Responding in the Moment.
Figure 13. Diagram of normal distribution for Responding in the Moment.

Figure 14. Diagram of distribution of results for Responding in the Moment.
For self-confidence in presenting, Assumption 3 (no significant outliers) was not met. There are four outliers observed, as seen in Figure 15. Additionally, for Assumption 4 (Shapiro-Wilk test for normality of residuals), due to significant value of the Shapiro-Wilk test, \( \text{sig.} = 0.000 \), is smaller than 0.05, we reject the null hypothesis and conclude that normality is not met, as seen in Figure 16 and Figure 17.

Figure 15. Diagram of Assumption 3 for Self-Confidence in Presenting.
Figure 16. Diagram of normal distribution for Self-Confidence in Presenting.

Figure 17. Diagram of distribution of results for Self-Confidence in Presenting.
For becoming a better collaborator/team member, Assumption 3 (no significant outliers) was not met. There are two outliers observed, as seen in Figure 18. Additionally, for Assumption 4 (Shapiro-Wilk test for normality of residuals), due to significant value of the Shapiro-Wilk test, sig. = 0.001, is smaller than 0.05, we reject the null hypothesis and conclude that normality is not met, as seen in Figure 19 and Figure 20.

Figure 18. Diagram of Assumption 3 for Becoming a Better Collaborator/Team Member.
Figure 19. Diagram of normal distribution for Becoming a Better Collaborator/Team Member.

Figure 20. Diagram of distribution of results for Becoming a Better Collaborator/Team Member.
The dependent $t$ test requires distribution of difference to be approximately normally distributed. However, at the same time, the paired $t$ test is also robust to the violation of normality when sample size is relatively large (a rule of thumb is when $n>30$). As a result, with the sample size of $n=31$ in our study, we tend to conclude that all $t$-test results are statistically valid.
APPENDIX H

SURVEY TOOL EVALUATION PROCESS
Prior to data collection, lower-level undergraduate nutrition and dietetics students enrolled at University B, a state university, were recruited to voluntarily respond to seven questions on a survey titled, “Pilot Survey and Feedback Form” (Appendix I). This survey was designed to collect feedback on the ease of understanding the consent form, covariant form, creation of coded identifier, and statements within the posttest/retrospective pretest survey tool.

Six of the seven questions in the pilot survey and feedback form utilized a 5-point Likert scale ranging from 1 to 5 with 1 correlating to “strongly disagree,” 3 correlating to “neutral,” and 5 correlating to “strongly agree.” The seventh question provided a space for students to report open-ended written feedback. Participation was voluntary and anonymous. For their participation, students were offered two extra credit points by the course instructor as well as a ticket for a drawing for 25 dollars. Twenty-five students filled out the pilot survey and feedback form.

Overall, comprehensibility of all forms was rated an average 4.73 out of 5.0, with 22 students marking either “agree” or “strongly agree” on all six of the statements as shown in Table 10. The positive response indicated that students were able to understand statements and directions within the consent form, covariant form, creation of coded identifier, and survey tool. Written feedback was provided by nine of the students suggesting areas for clarification or confirming ease of comprehension. One respondent noted three minor spelling errors and one repeated statement within the self-assessment survey. All written feedback was assessed for relevance by the researcher and used to adjust statements and directions within the documents for clarity.
<table>
<thead>
<tr>
<th>Statement</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I find the consent form easy to understand.</td>
<td>4.76</td>
</tr>
<tr>
<td>2. I find the directions to create and ID number easy to understand.</td>
<td>4.60</td>
</tr>
<tr>
<td>3. I find the directions of the covariant form easy to understand.</td>
<td>4.72</td>
</tr>
<tr>
<td>4. I find all responses on the covariant form easy to understand.</td>
<td>4.72</td>
</tr>
<tr>
<td>5. I find directions on each of the survey tools easy to understand.</td>
<td>4.76</td>
</tr>
<tr>
<td>6. I find all 25 statements on the survey tool easy to understand.</td>
<td>4.80</td>
</tr>
</tbody>
</table>

n = 25
APPENDIX I

PILOT SURVEY FEEDBACK FORM
Pilot Survey and Feedback Form

After reviewing the Consent Form, Covariant Form, and Survey Tool, please circle the number that correlates with your response to the following statements. 1 indicates you strongly disagree, 5 indicates you strongly agree.

1. I find the Consent Form easy to understand.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Neutral</td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

2. I find the directions to create an ID number easy to understand.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Neutral</td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

3. I find the directions on the Covariant Form easy to understand.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Neutral</td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

4. I find all responses on the Covariant Form easy to understand.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Neutral</td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

5. I find the directions on each of the survey tools easy to understand.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Neutral</td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

6. I find all 25 statements on the survey tool easy to understand.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Neutral</td>
<td></td>
<td></td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

7. Please use the back of this form to report any areas or statements on the proceeding documents that you found confusing or unclear. Thank you for your time!