Academic Interventions for ELL Nursing Students: A Pilot Program

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Abstract

Background and Review of Literature: Diversity in the nursing workforce has become a necessity. However, the number of minorities entering the nursing workforce remains low. Research has shown that English-Language Learners (ELL) have a higher attrition and board failure rates than that of their English-speaking counterparts. Research has identified barriers that impede the ELL nursing student’s success, however, has failed to identify academic interventions that assist in the ELL student in overcoming said barriers.

Purpose: The purpose of this project was to implement a nursing-specific ELL success program to improve development of study skills to increase comprehension of healthcare terminology and clinical reasoning.

Methods: This quality improvement project collected quantified data in traditional BSN program in a private, non-profit, nursing and allied health university in the Midwest. The inclusion criteria were: nursing student enrolled in the traditional BSN program, age over 18, and identified English as their second language.

Implementation Plan/Procedure: A five-week program offered both bi-weekly live and digitized sessions. Activities were provided to enhance reading habits and critical thinking/clinical reasoning skills. Participants anonymously completed a paper assessment and an on-line assessment at the beginning and end of the program.

Implications/Conclusion: Analysis of t-tests did not identify any statistically significant results regarding reading and critical thinking skills. There was an increase in the aggregate means of the HSRT, and the PRS category of the SORS. This increase potentially shows a positive effect the interventions had on participant critical thinking skills. Generalizations from these findings
cannot be made due to the limited sample size. Any repeated quality improvement project related to this topic would require larger sample sizes, a longer time frame.

**Keywords:** English-Language Learner, English-as-a-Second Language Nursing Student, English-Language Learner Nursing Education Barriers, Nursing Programs, English-Language Learner Nursing Student Attrition, English-Language Learner Nursing Student Retention
Academic Interventions for ELL Nursing Students: A Pilot Program

In recent decades, the United States has seen a significant increase in culturally and racially diverse populations. This changing demographic has had a direct effect on the population seen with the health care system. In 2015, the minority population in the U.S. was approximately 36.3%, with 12.9% having migrated from another country and 20.7% having a second language spoken within the home (Mangrum, 2015). By mid-century, it is predicted that approximately half of the U.S. population will be the minority groups (Mangrum, 2015).

Cultural awareness, competence, and diversity have become necessities in the healthcare setting. Culturally diverse populations are vulnerable and have the highest rate of health disparities (Muronda, 2016). Despite this changing diversity, the majority of the nursing workforce are Caucasian, English-speaking women with only 16.8% being minorities (Englund, 2018). Culturally diverse nurses are representatives for the minority populations. In order to provide quality, holistic care and decrease disparities seen in the racial and ethnic populations, a diverse nursing population is necessary (Moore & Clark, 2016). Diversity in the healthcare system offers several improvements: access to healthcare for minority populations, increased patient satisfaction, and improved educational experiences for minorities in healthcare programs (Mangrum, 2015). Creating this diverse nursing workforce begins with nursing programs. While nursing programs are seeing an increase in admission of more diverse students, the English Language Learner (ELL) students struggle to succeed. The rate of attrition of these students has been reported to be as high as 85% (Englund, 2018; Olson, 2012). While nursing students are now graduating with cultural awareness, there remains a gap in the true understanding of cultural competence. This lack of cultural competence relates back to the faculty’s lack of cultural
competence (Englund, 2018). Closing this gap required educating faculty regarding cultural
capability and how it can be inclusive throughout their teachings.

Overview

Background

Because discussion of diverse populations can involve a myriad of different terms,
definitions will be provided to terminology that will be noted throughout the project. ELL students are defined as students who do not have English as their primary language. Throughout this paper, reference will be made to clinical reasoning. Clinical reasoning is an important process which a nurse utilizes when providing competent, safe, quality care to patients successfully. Clinical reasoning relies heavily on critical thinking skills. The definition of clinical reasoning for this project included the utilization of critical thinking using assessment, nursing concepts, and the nursing process to prioritize and plan patient care.

A common misunderstanding with ELL nursing student’s struggles is related to a language barrier. While language may be one of the barriers, it is not the lone cause. Research has identified several factors that directly affect the attrition and success of ELL nursing students. ELL students are often marginalized due to such factors as: social isolation, cultural and communication barriers, poorly written exam questions, a lack of faculty support or understanding, lack of peer support or understanding, and lack of ELL specific academic support services (Englund, 2018; Moore & Clark, 2016, Muronda, 2016).

A gap regarding effective academic interventions for ELL nursing students does exist within the research. Several studies focused on language barriers, but not in the way one may think. Linguistics involves numerous complexities that exceed beyond the understanding of words and their meanings. Linguistics encompasses tone, colloquialisms, cultural terms and
phrases, slang terms, sentence structure and phrasing, and non-verbal cues. ELL nursing students must develop an understanding on the English language on several different levels: rules of the language, academic terminology, nursing/medical terminology, political environment within the nursing culture, American culture, non-verbal communications, telephone communication, communication norms, and colloquialisms (Crawford & Candlin, 2013; Lum, Dowedoff, Bradley, Kerekes, & Valeo, 2015; Rogan & San Miguel, 2013). Linguistic complexities lead to difficulties in development of clinical reasoning and critical thinking skills (Chan, Purcell, & Power, 2016). If the ELL nursing student is unable to adjust his/her communication abilities to peers and patients, it can hinder transition into the clinical setting, and lead to misunderstandings, decrease patient trust, and potentially place a patient in a harmful situation (Chan et al., 2016; Crawford & Candlin, 2013; Rogan & San Miguel, 2013).

**Linguistic Affects.** Linguistic complexities often directly affect the ELL student’s exam scores. The most utilized form of evaluation for nursing students is multiple-choice exams. Moore & Clark (2016) noted that a large majority of test questions are written with unnecessary complex wording and terminology that is specific to the dominant culture. Mangrum (2015) also discusses grammatical errors and long, wordy scenarios cause confusion for the ELL nursing student. This poses the question as to whether the student is being tested on their clinical reasoning or their language comprehension (Mangrum, 2015; Moore & Clark, 2016).

**Learning Model Differences.** ELL nursing students may struggle with development of clinical reasoning based on the learning models within their native countries. Many students that have migrated to the U.S after school age struggle with the active learning model. Some countries utilize a transmission model in which learning is done passively and primarily through
memorization (Mangrum, 2015). Students who have historically learned by rote often struggle to develop clinical reasoning and critical thinking.

**Cultural Affects.** Cultural differences play a part in the potential success of the ELL nursing student. Many cultures teach that it is disrespectful to ask the instructor questions, which often leads to increased anxiety (Minority Nurse Staff, 2013). ELL student concerns regarding their accent often leads to the avoidance of asking questions (Olson, 2012). Cultural issues that can affect the ELL student’s relationship with their faculty, peers, and patients are difficulties with such skills as therapeutic touch or eye contact, having difficulty following a medication schedule, or providing patient education (Chan et al., 2016; Crawford & Candlin, 2013; Lum et al., 2015; Mangrum, 2015).

Researchers have frequently reported that ELL students report feelings of isolation, frustration, anxiety, increased stress, loneliness, and separation (Englund, 2018; Minority Nurse Staff, 2013). These feelings, born out of marginalization, arise from behaviors of both peers and faculty alike. Some of these behaviors are unintentional, out of lack of understanding or knowledge, and some are purposefully discriminatory based on typecasting (Englund, 2018; Lum et al., 2015; Muronda, 2016).

From an institutional standpoint, there is a lack of support services specific to the ELL nursing student. While nursing programs hold an ethical responsibility to teach based on evidence-based findings, the research on identification and success of interventions is minimal (Muronda, 2016).

**Problem Statement**

There is a significant amount of research supporting lack of academic support for ELL nursing students, and the effect it has on attrition, retention, and state board failure rates.
Research has also provided the identified barriers to the ELL nursing student’s success. However, there is minimal research identifying interventions that ensure the success of ELL nursing students (Muronda, 2016). Interventions are needed which are specific to the ELL nursing students’ barriers in order to develop learning processes and ensure success. The practice question that guided this project was: Does participation in an academic support program specific to ELL nursing students improve development of clinical reasoning skills and understanding of healthcare terminology?

**Purpose Statement**

The purpose of this project was to implement a nursing-specific ELL success program to improve development of study skills to increase comprehension of healthcare terminology and clinical reasoning.

**Outcomes**

Upon completion of the ELL success program, ELL students will demonstrate increased understanding of healthcare terminology and improved clinical reasoning skills.

**Review of the Literature**

Upon performance of the literature search, English Language Learner was found to be the newest terminology. However, the term ‘English Language Learners’ founded minimal results. ‘English as a second language’ was the verbiage used for the literature search in order to capture the whole of the topic. Terms used in the search were “ESL nursing students”, “ESL students in nursing programs”, “ESL nursing students attrition rates”, and “ESL nursing students retention rates”. Searches included the databases Cinahl Plus Complete, ProQuest, and Google scholar. Inclusion criteria were baccalaureate nursing programs and minority students. The search was limited to research articles, years 2013 through 2018, peer reviewed, and English language
articles. After limiters were applied, 2410 articles were identified in Google Scholar, six in Cinahl, and thirteen in ProQuest. Upon reviewing numerous articles from all databases, eight final articles were identified for the project. A search flow diagram has been included in Appendix A.

Based on the Hierarchy of Evidence for Intervention Studies in Melnyk & Fineout-Overholt (2015), four of the final articles were Level I evidence, two were Level II, and two were Level III. Four articles were meta-analysis or literature reviews, two were correlational studies, and two were mixed methods evaluation studies. Six of the articles centered on communication and language needs with one specifically researching reading comprehension of the ELL students and specific interventions. The same six articles did incorporate cultural factors related to communication barriers. Two of the articles focused on sociocultural factors and marginalization.

**Language and Linguistics**

Adjustment to language, linguistics, and medical terminology were discussed as one of factors in the success or failure of the ELL nursing student by all eight articles. Chan et al. (2016), Crawford & Candlin (2013), Lum et al. (2015), Muronda (2015), and Rogan & Miguel (2013) all note that there are factors of non-verbal communication differences among minority cultures that can be detrimental to an ELL student’s success. Non-verbal differences can have an effect in both classroom and clinical settings and can lead to potential misunderstandings with patients, peers, and instructors (Crawford & Candlin, 2013; Lum et al., 2014; Muronda, 2016; and Rogan & Miguel, 2013). Accompanying these non-verbal differences, Chan et al. (2016), discussed the verbal struggle as ELL students attempt to change their communication style in
order to work with patients, families, and health-care professionals. This often leads to misunderstandings and an increased level of frustration for the ELL student.

Linguistics plays a role in the ELL student’s ability to assimilate nursing concepts, navigate through expectations in the classroom and clinical settings, and successfully pass exams. Crawford & Candlin (2015) identified that, while most ELL students are proficient in conversational English, they struggle with understanding lectures, test-taking, and clinical expectations related to the complexities of academic English and medical terminology intermixed. Exam questions are often written with complex language and culturally specific terms that lead to ELL students spending more time attempting to understand the words than what the question is actually asking (Moore & Clark, 2016). Thus, the ability to test the students understanding of nursing concepts is lost.

Clinical reasoning and critical thinking require a higher level of communication skills in order to assess a patients’ status, recognize the appropriate interventions, and develop a plan of care (Chan et al., 2016). Crawford & Candlin (2015) reported on several research studies that identified themes of ELL nursing students who struggled to comprehend both theory and clinical teachings, only understood a small portion of traditional lecture, and found the level of academic and medical language problematic. Lack of improvement in English language competency has been identified as a risk factor regarding withdrawal rates of ELL nursing students (Lum et al., 2015).

**Learning Model**

The literature shows the active learning models utilized in nursing programs can be a source of struggle. The active learning model is built to allow students to observe and participate in the learning process through practice, which benefits nursing students by offering
participatory activities and scenarios. The student’s participation aids them in the development of clinical reasoning skills.

Many ELL students, while living in their native country, were taught via a passive learning model through memorization and are evaluated through essay questions (Mangrum, 2015). Life experiences of passive learning make it difficult to functionally learn within an active teaching model. While passive learning style was beneficial in assimilating basic knowledge skills, it does not encourage the practice of problem solving. Problem solving is the basis of clinical reasoning, which is a necessary nursing skill. Differences in these teaching models are a definitive barrier in the development of critical thinking and clinical reasoning skills (Magrum, 2015; Moore & Clark, 2016).

**Cultural Factors**

Sociocultural factors play a role as barriers in the ELL student’s success. Cultural differences often lead to marginalization of the minority. Muronda (2016) found there were numerous social factors that influence the ELL student’s success or failure, including individual, organizational, and societal. Individual and interpersonal factors were related to family stressors, financial issues, and relationships between family, friends, peers, and faculty (Muronda, 2016). Organizational factors related to the program, faculty, presence or absence of academic support services, and overall acceptance from peers and faculty (Muronda, 2016). Societal factors included the overall view of nursing, stereotyping of the ELL student, and the presence, or lack thereof, of cultural competence and acceptance within the classroom and nursing program (Muronda, 2016).

Englund (2018), Mangrum (2015), Muronda (2016) and Rogan & Miguel (2016) referenced findings of ELL student’s feelings of isolation, stereotyping, negativity, lack of
support and understanding from instructors and peers, and increased frustration and stress. ELL students desired to succeed and longed for inclusion, support, and a productive relationship with faculty and peers (Minority Nurse Staff, 2013).

**Interventions**

The research on interventions with this population was relatively new. The reviewed articles discussed support programs were developed with a focus on one of the following: language skills, reading comprehension, interpersonal skills, faculty and program support, or linguistic modification of exam questions. Rogan and Miguel (2013) researched the use of online tools such as podcasts and vodcasts. While many of these findings were singular in nature of only specific type of support, they offered promising starting points. It would be beneficial to consider development of a multi-factorial support program in order to successfully identify and address the ELL student’s needs.

**Theoretical Framework**

Madeline Leininger’s Transcultural Nursing Theory guided the capstone project, as it centered on the development of cultural awareness, not just cultural competence. Leininger discussed that nurses should include a cultural assessment, both of self and the patient, when developing an individualized, holistic plan of care (Petiprin, 2016). While this theory was developed in relation to nursing practice, that practice begins within nursing programs. Faculty, as well as nursing programs, would benefit from performing a cultural self-assessment to identify individual and organizational biases. Leininger recommends a cultural assessment to learn about specific cultures (Petiprin, 2016). By performing such an assessment, the faculty can identify barriers and needs specific to the ELL students within the program. Performing cultural
assessment will also develop cultural awareness of the faculty and majority students. It also sets an example that can be carried forward into the future practice of each nursing student.

While the Transcultural Nursing Theory fits the project as a whole, the most applicable portion of the model was the performance of cultural assessments to identify communication and language styles, interpersonal interaction, and metacognitive learning styles. The cultural assessment of the college and the nursing program helps identify strengths, weaknesses, and opportunities for growth. See Appendix B for Image of Leininger’s Transcultural Nursing Model.

**Organizational Assessment**

The private, Midwestern College utilized for this project is continuously working towards improvement in cultural competence and cultural awareness of their faculty and student population. A Social, Justice, and Inclusion Committee provides faculty and student development regarding different cultural issues for minority populations every semester. The college has a federal funded program called the Trio Program. The Trio Program has been developed to provide academic support for students that are at high risk for failure. The ELL student population does fall into the high risk for failure category. While the program is not developed to the specific learning needs of the ELL nursing student, administration is open to interventions for this particular student population. For the last several years, the nursing program has allowed ELL nursing students to have special testing accommodations including the testing center, reduced distraction testing environment, and extension of test times for timed examinations. It is the students’ responsibility to voluntarily disclose their ELL status and request these accommodations.
The benefit of offering an academic program specific to the ELL student population for the college was multi-factorial. In order to prepare nursing students to provide high-quality care, they need to be fully prepared in all aspects of nursing. Because of the barriers ELL students face, the academic ELL nursing specific intervention program prepared them for the rigors of the nursing profession.

All accredited BSN programs are rated on attrition rates, graduation rates, and state board pass rates. The academic ELL nursing specific interventional program was built to improve the previously mentioned rates for the ELL student population. Improvement in the ELL student’s rates would have a direct impact on the overall rates of the nursing program. Collegiate accrediting agencies for colleges have begun looking at the presence of support services for the ELL student population. Development of academic interventional support program that is geared towards ELL nursing students would demonstrate the advance in cultural awareness to these accreditation agencies.

Facilitators for this program included support from the nursing program administration, the diversity council, the academic support services department, and the Trio Program staff. Barriers were faculty lack of knowledge regarding barriers ELL students face, lack of general understanding of the specific learning needs of the ELL student, potential lack of funding, and faculty members personal bias.

Unintended risks were the inability to offer the academic ELL nursing specific interventional program to every ELL nursing student based on their schedules. Students have families and employment outside of their courses. The ELL nursing students’ personal schedule may not coincide with scheduled sessions. There is the possibility for some students to have
limited access to online videos or tools from home. Lower expectations by faculty was a possible unintended risk of an academic ELL nursing specific interventional program.

Potential unintended consequences could be an increase in enrollment of ELL students in the traditional nursing program. Upon demonstrating success, expansion of the academic ELL nursing specific interventional program to include the other allied health care and nursing programs within the college may become another unintended consequence. There was potential for a decrease in attrition rate of the nursing program as the ELL student population improved study habits and increased understanding of nursing concepts.

The organization was open for change regarding ELL student population. Their readiness allowed for increased understanding and acceptance of the ELL student’s needs and increased the chance for success of an ELL nursing student academic support program.

Methodology

This quality improvement project involved implementation of an academic nursing specific support program that was specific to ELL nursing students. The program was evaluated through pre/post intervention assessments.

Setting

The setting was a traditional bachelor-of-science in nursing (BSN) program in an accredited, private, not-for-profit nursing and allied health college in the Midwest. The college offers certificate, undergraduate, and graduate programs for several health care professionals such as radiology, respiratory therapy, and nursing. There were 1167 students enrolled in the college, with 881 students being enrolled in the undergraduate program (NCES, 2017). Ethnically, 17% of the students in the BSN program identified as Asian, Black or African American, Hispanic/Latino, two or more races, or unknown (NCES, 2017).
The college offers a specific support program for populations who are identified as at high risk for failure through a federally funded grant program called the Trio Program. The Trio Program’s definition of high-risk populations included low income, single parents, first generation college student, learning disability, and ELL. Recruitment for Trio Program is done on registration day, during the nursing students’ first nursing course, or through referral. The student must go through an application process. The Trio Program had a total number of 85 students enrolled during the interventional program period. From the total number of students, 75 were from the traditional BSN program with 14 of those students identifying as English-Language Learners.

The diversity of the college has continued to expand. The Social, Justice, and Inclusion Committee offers faculty and student development regarding different cultural issues for minority populations once a semester. In the Spring of 2018, the college began offering testing accommodations to the ELL student populations.

**Sampling**

The sample for the ELL nursing student support program included any nursing student enrolled in the traditional BSN program who self-identified as ELL. Inclusion criteria were as follows: nursing students who self-identified as ELL; self-identification that English was not their primary language; and were actively enrolled in the traditional four-year BSN program. Exclusion criteria were: if the student did not self-identify as an ELL student, if English was their primary language, or if they were not enrolled in the traditional BSN program.

**Implementation Procedures**

The ELL nursing students within the Trio Program were notified of the availability of this Pilot Program via the Trio Program director. The students were informed they could participate
in the program regardless of their willingness to participate in any assessments, surveys, or evaluations of the Pilot Program. Participation in assessments, surveys, and tests were on a voluntary basis.

Data was collected via two different assessments, the Survey of Reading Strategies (SORS) and the Health Science Reasoning Test (HSRT). These assessments established a foundation of participant understanding, learning styles, study skills, and baseline critical thinking/clinical reasoning skills. The pre-assessments were given during introductory session after participant consent was obtained.

The academic ELL nursing specific interventional program was presented by the project leader as live group sessions that were held twice a week for a period of five weeks. Video-casts were recorded utilizing Yuja, which coincided with each week. The videos were uploaded for those students who were unable to attend the live group sessions. Interventions were developed to address the subsets of healthcare terminology comprehension through reading and clinical reasoning skills. Addressing each subset individually had several benefits: Focusing on one subset alleviated confusion between subsets; participants had the opportunity to choose which sessions they wanted to attend based on their individual needs; separation allowed for continuity of nursing skill development. Sessions consisted of discussion along with group and individual activities. The video-casts offered individual activities, which were sent to participants via email. Interventions and activities were developed utilizing general, everyday scenarios.

Weeks one and two focused on students’ current study habits, reading skills, and the development of new study skills. For example, if a student has a habit of memorizing terms and readings, they may have struggle connecting concepts to one another. These sessions involved group discussions to identify resources outside of reading and lecture notes. They discussed
resources were provided to help students assimilate knowledge, rather than simply memorize information verbatim. Activities were built around practicing integrative, elaborative, macroprocesses, and metacognitive processes. These activities included cumulative brainstorming, think-pair-share, use of mnemonics and numbering rhyming, and crowd-sourcing. All activities involved some form of brainstorming, developing, and learning from other participants knowledge. Specific group activities included teaching the use of the SQ4 method for active reading methods. SQ4 stands for survey, question, read, recite, relate, and review. Specifics for SQ4 and explanations of mnemonic use and number rhyming can be reviewed in appendix G. Individual activities included: crossword puzzles, one-minute reflections, use of SQ4, mnemonic and number rhyming methods with assigned nursing class readings, and identification of two different types of learning resources available to them. The individual activities were discussed and shared during the following weeks sessions.

Weeks three through five focused on development, understanding, and improvement of critical thinking skills. These skills were necessary to developing clinical reasoning and proper use of the nursing process. Sessions were developed through the use of manipulatives, short case simulation, two-minute mysteries, and action and consequence scenarios. The use of manipulatives described the utilization of objective devices that students can use, touch, and move to help them support their thinking process (Herrell & Jordan, 2004). Examples of common manipulatives were household games like Jenga, Scattegories, and Apples to Apples. These games boost critical thinking skills through use of imagination, problem-solving, and time constraints. Group and individual discussions were utilized during throughout each session as the activity progressed.
Video sessions included the live sessions with hands-on activities, which involved the use of manipulatives. Individual activities were made available and uploaded for those students who utilize the video-sessions.

Post-evaluations were completed in the sixth week utilizing the SORS and HSRT assessments. The sixth week occurred during the beginning of the following semester. There was a three-week break between interventions and the post-assessment. Findings from the post-evaluation were compared to the pre-evaluation aggregate mean scores in order to assess effectiveness of the program and identify strengths and weakness of the program.

**Measurement Instrument(s)**

The Survey of Reading Strategies (SORS), which was developed in 2002 by Mothkari and Shoerey, was chosen to evaluate the pilot program. SORS development was based on the Metacognitive-Awareness-of-Reading-Strategies Inventory (MARSI). SORS was developed to assess the individual perception of academic reading abilities and understanding of metacognitive awareness in ELL students at the high school and college level (Mokhtari & Shoerey, 2002). Upon its development, SORS was field tested on two different groups of ELL students at two different United States universities. Internal reliability of the SORS instrument was found to be consistent at .89 or better (Mokhtari & Shoerey, 2002). The SORS questionnaire has been utilized in numerous studies and identified in research articles as late as 2017. The continued reference and use of the SORS lends credence to the instruments’ validity.

The SORS is made up of 30 questions that are measured utilizing a five-point Likert scale (Mokhtari & Shoerey, 2002). Questions were specifically written and modified for the ease of the ELL students understanding. One is defined as “I will never do this”, while five is defined as
“I always or almost always do this” (Mokhtari & Shoerey, 2002). Mohktari & Shoerey (2002) developed the SORS with three sub-categories:

Global reading strategies (GRS): GRS was made of thirteen questions that identified purposeful techniques that learners use to manage the reading habits, and support strategies (SRS).

Problem solving strategies (PRS): PRS was made up of eight questions that identified techniques that learners utilize when a problem in understanding arises while they are actively reading.

Supportive strategies (SRS): SRS was made up of nine questions that identified the resources utilized in helping the reader develop understanding of the text (Mokhtari & Shoerey, p. 4, 2002).

Scoring of the tool was broken into three categories. Categories were high, moderate, and low. Score means of 3.5 or higher fell in the high category, 2.5 to 3.4 in the moderate category, and 2.4 or lower in the low category (Mokhtari & Shoerey, 2002).

While the SORS assessment was a questionnaire built for assessing and raising the general learners understanding of reading process, the sub-categories can be assistive in development of study skills, assimilation of medical terminology and clinical reasoning. The SORS assessed both outcomes.

The Health Science Reasoning Test (HSRT) was developed in 2004 and is based on the Delphi Expert Consensus Definition of Critical Thinking and the California Critical Thinking Skills Test (CCTST) (Insight Assessment, 2019). The HSRT was tailored from the CCTST to provide a holistic measure of health science college students, at the undergraduate and graduate level, critical thinking scores, and is available in eight different languages (Insight Assessment,
The HSRT was a self-administered, multiple-choice instrument that took approximately 45 minutes to complete (Forneris, S., Neal, D.O., Kuehn, M. B., Tiffany, J, Pivec, C.R., Myers, L., Blazovich, L., & Meyer, H., n.d.). Questions of the HSRT were written at the college level utilizing everyday scenarios (Insight Assessment, 2019). Areas of critical thinking were scored included: analysis and interpretation, inference, evaluation and explanation, deductive reasoning, numeracy, and inductive reasoning (Foreneris et al., n.d.). Theses scores are reported in percentiles based on ranking compared to national benchmark for similar cohorts, not how many questions were answered correctly (Foreneris et al., n.d.). The percentile rankings are then reported as weak (>70%), moderate (70-79%), strong (80-89%), and superior (<90%) (Insight Assessment, 2019). KR-20 and Cronbach alpha scores for internal consistency reliability of the HSRT range from 0.77 to 0.83, with a test-retest reliability that exceeded 0.80 (Forneris et al., n.d., The Insight Assessment, 2019).

**Data Collection Procedures**

Demographical data of gender, age, and ethnicity were obtained and reported via the HSRT assessment.

Both instruments were given as pre-test and post-test to assess the effectiveness of the interventions on one or both outcomes. The SORS assessment was completed on paper and kept in an envelope in a locked drawer. The researcher held the only key to access the completed assessments. The participants were only required to write the date of the evaluation on the SORS assessment, therefore maintaining anonymity. The HSRT assessments were completed digitally via an anonymous identification number. All digitally recorded data was password protected.
Ethical Considerations/Protection of Human Subjects

While this pilot program was a quality improvement project, a proposal was submitted to the Institutional Review Board (IRB). IRB review and approval were a necessity for the program to move forward. An explanation letter was provided to each participant with a voluntary consent form. The letter explained that participation in the program would not have any bearing on any course grade or Grade Point Average (GPA). Participation in the interventions were allowed regardless of volunteer status for completion of the evaluations. In order to maintain confidentiality, random identification numbers were assigned to each participant who consented to participate in the digitized HSRT evaluations. There were no participant identifiers provided on the SORS evaluations.

Data Analysis

Data were analyzed using Microsoft Excel, version 16.26. Consultation with the college statistician was performed to identify the appropriate statistical testing. The HSRT scores were calculated and reported by Insight Assessment per the copyright contract.

The outcomes measured and compared included the aggregate group mean overall total scores and categorical means of each assessment tool. Aggregate mean outcomes for both assessments were analyzed and compared using a dependent paired sample t-test. Results with $p < .05$ were considered statistically significant.

Results

At the beginning of the program, five participants ($n = 5$) volunteered and completed both assessment tools. All five participants met the inclusion criteria. Three participants completed all the live sessions. One participant completed two live sessions and utilized the online sessions and activities when their personal scheduled conflicted with the live session
schedule. One participant did not partake in the live or on-line sessions or activities. Lack of participation was due to participants work or clinical scheduling conflicts. Three participants completed the SORS and HSRT post-assessments. Aggregate data analysis was completed on the final sample of three (n = 3). Table 1 shows the demographic make-up of the sample.

<table>
<thead>
<tr>
<th>Demographics Table</th>
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<tbody>
<tr>
<td>Age</td>
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<tr>
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<tr>
<td>37</td>
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<tr>
<td>20</td>
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</tbody>
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A dependent-sample t-test of the SORS assessment found that there were no statistically significant differences between the pre-intervention and post-intervention aggregate mean scores. See table 2 for descriptive statistics of the SORS assessment.

<table>
<thead>
<tr>
<th>SORS Descriptive Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRS</td>
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<tr>
<td>0.82</td>
</tr>
<tr>
<td>PRS</td>
</tr>
<tr>
<td>SRS</td>
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<tr>
<td>Total</td>
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</table>

* p < .05

The overall total score, GRS, and SRS mean scores ranked in the moderate reading strategy range, while the PRS ranked in the high reading strategy range for both assessments. Since the PRS category related to problem-solving, it is possible this finding is a positive insight into the critical thinking abilities and clinical reasoning skills of the program participants. An unexpected finding with the SORS assessment was a decrease in the overall total, GRS, and SRS mean scores. The PRS score was the only score that showed a small increase between pre-
assessment and post-assessment. The increase in PRS could indicate that the participants are utilizing different types of supportive reading strategies to assimilate information they were reading. Standard deviations (SD) in both pre-intervention and post-intervention assessments indicated that there was not much difference in the categorical mean scores. This indicates that the participants all scored similarly to each other. The pre-assessment mean scores for the SORS were as follows: Total overall mean 3.87 (SD = 0.87); GRS 3.53 (SD = 1.01); PRS 4.38 (SD = 0.57); and SRS 3.89 (SD = 0.95). The means for the SORS post assessment were as follows: total overall 3.78 (SD = 0.74); GRS 3.59 (SD = 0.70); PRS 4.13 (SD = 0.76); and SRS score 3.82 (SD = 0.84). See Figure 1 for the comparative aggregate mean scores of the SORS assessment.

![Figure 1. SORS assessment mean scores](image)

The dependent sample t-test performed on the HSRT assessment did not find any significant difference between pre-intervention and post-intervention assessments. See Table 3 for the HSRT descriptive statistics.
Table 3

<table>
<thead>
<tr>
<th>HSRT Descriptive Statistics</th>
<th>t score</th>
<th>p values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>0.04</td>
<td>.97</td>
</tr>
<tr>
<td>Analysis</td>
<td>0.42</td>
<td>.71</td>
</tr>
<tr>
<td>Interpretation</td>
<td>0.45</td>
<td>.70</td>
</tr>
<tr>
<td>Inference</td>
<td>0.20</td>
<td>.86</td>
</tr>
<tr>
<td>Evaluation</td>
<td>1.00</td>
<td>.42</td>
</tr>
<tr>
<td>Explanation</td>
<td>0.06</td>
<td>.96</td>
</tr>
<tr>
<td>Induction</td>
<td>0.18</td>
<td>.87</td>
</tr>
<tr>
<td>Deduction</td>
<td>0.13</td>
<td>.91</td>
</tr>
<tr>
<td>Numeracy</td>
<td>0.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*p < .05

While not statistically significant, the mean scores of all the categories except evaluation, did show an increase in critical thinking skills after interventional strategies were provided. The greatest increase in mean score was noted in the explanation category with a twelve-point difference between pre-intervention and post-intervention. The numeracy category was shown to have the second largest increase with a nine-point difference. Except for the evaluation category, the mean score increases ranged from 3.33% to 6.67%.

When looking at the individual categories, the group’s pre-assessment mean scores ranked no lower than 55%, which falls into the weak skill range. Based on the HSRT rankings the pre-assessment scores fell into either weak or moderate skill range based on mean percentile scores. The increases in the post-assessment showed movement into moderate and strong ranges. The trend of improvement could lead to the hypothesis that the interventions were effective on the improvement of critical thinking skills. Figure 2 shows the mean scores for the HSRT assessment tools.
Standard deviation (SD) of each HSRT categorical means showed a wider range than the SORS. The pre-assessment means for the HRST were as follows: overall score 68.67 (SD = 4.04); analysis 66.67 (SD = 2.31); interpretation 61.3 (SD = 5.51); inference 69 (SD = 6); evaluation 68.67 (SD = 2.89); explanation 68.33 (SD = 4.51); induction 75.67 (SD = 5.69); deduction 60.33 (SD = 2.31); and numeracy 56.67 (SD = 2.3). The post-assessment mean scores were: Overall score 73.67 (SD = 4.62); analysis 69.67 (SD = 6.65); interpretation 66.67 (SD = 5.51); inference 74 (SD = 1.73); evaluation 68.67 (SD = 8.62); explanation 80.33 (SD = 2.89); induction 79 (SD = 3); deduction 67 (SD 6.93); numeracy 65.67 (SD = 2.31). These differences demonstrated that the critical thinking skills were widely varied among the individual participants.

Discussion

Even though there were no statistically significant findings, the interventions provided did have a positive effect on problem solving and critical thinking skills for ELL students. The decrease seen in the pre-assessment and post-assessment may be related to the
subjectivity of the SORS assessment. As a self-assessment, improvement occurs only when the participant feels they have improved. There could be any myriad of variables which may have affected the emotional response of the participants to the assessment questions. Timing of the pre-intervention assessment was mid-semester, while post-intervention assessment was taken after a three-week break between semesters. Confidence in the familiarity of reading habits may have been higher in mid-semester when the participants had a set routine. The beginning of a new semester and new classes brings several unknowns, including new material, instructor expectations, and development of a new schedule and routine.

The variances noted in the HSRT standard deviations could be related to several factors: participant age differences, the academic progression level the participants are at within the nursing program, teaching method participants experienced in their primary education, or level of participation in any of the provided interventions.

Although generalizations cannot be made from this program due to sample size, future research is necessary to identify what specific types of academic interventions are beneficial to the different categories noted with the assessments used to evaluate the program: problem-solving, analysis, interpretation, inference, evaluation, explanation, induction, deduction, and numeracy. Benefits of interventions on reading and study skills should be evaluated with an objective assessment in order to attain true affects.

Limitations

There were several limitations identified with this project. This pilot program focused on one specific nursing program within one school, thus limiting the pool of participants. Due to the small sample size, results cannot be generalized to the population as a whole. Additionally, there was a three-week semester break between the final interventional session and the final
assessment. Some participants may have continued to practice interventional strategies provided during the break, while others may not have practiced any strategies. This time delay could have affected the results of the final assessment. Finally, the SORS assessment was a self-assessment, therefore this tool may have the limitation of not being an objective assessment.

**Plan for Sustainability**

Sustainability for this project is multi-faceted. First, appropriate interventions should be identified related to the demographic of the population. Minority populations may differ based on geographic location. Some areas of the country may have a higher percentage of Hispanics compared to other regions of the country that have seen an increase in African immigrants. This would assist the ELL student in overcoming individual barriers to meet the set outcomes. Upon identification of said interventions, information and education should be disseminated to faculty regarding barriers, resources, and interventional activities. Faculty will need to be provided education on the specifics of potential barriers, how to assess for barriers, and the best approach in addressing them. As with any program, ongoing evaluation of interventions and the overall program is a necessity in order to continue progressing forward and ensure positive benefits for the ELL nursing student participants.

**Implications for Practice**

Nursing programs are overseen by many organizations, including the American Disabilities Act (ADA), Title VI of the Civil Rights Act of 1964, Higher Learning Commission (HLC), the Commission of Collegiate Nursing Education (CCNE), and Accreditation Commission for Education in Nursing (ACEN). These organizations maintain several facets for student success including student support and testing accommodations. The HLC, CCNE, and ACEN have a set of standards that colleges and programs are expected to meet in order to obtain
accreditation. At least one of these standards has regard to provision of cultural and socially
diverse concepts. The HLC and ACEN have set a specific standard regarding first time state
examination success. Ensuring success of the ELL program could facilitate the college to meet
and sustain those set standards.

Title VI of the Civil Rights Act of 1964 provides regulation to any school, college, or
university that receives federal funding of any type regarding racial or national discrimination
(U.S Department of Education, 2018). This includes maintaining that ELL students are offered
the same educational opportunities, have equal access to educational resources, and are provided
opportunity to participate in meaningful learning (U.S Department of Education, 2018). The
majority of colleges and universities, public or private, that receive federal funding are required
to follow compliance of this act. A legal obligation exists to ensure that ELL students are
provided the opportunities to receive the same level of education that native students receive.

Faculty are typically educated to teach their students using universal design. Anytime a
barrier is discovered that hinders a nursing student from success, nursing programs and faculty
are obligated to ensure that all students have the same opportunity to succeed. Years of research
had identified the barriers within this population. Accountability to the under-represented ELL
nursing student population falls under the onus of the college, nursing program, and faculty to
ensure they are offered every opportunity for success.

**Conclusion**

Decades of research has shown that true barriers exist specific to the ELL nursing student
population. While the findings from this academic ELL nursing specific interventional program
were not statistically significant, positive results were noted. Due to the small sample size, it
would not be feasible to generalize the results to the general ELL nursing student population.
Considering the positive effect noted on the mean scores, interventions have a definitive potential to improve critical thinking skills. Future research is needed to identify specific interventions that have direct positive effects on reading skills, study skills, and specific areas of critical thinking.

Provision of interventional programs to assist the ELL nursing student in overcoming the identified barriers will allow for a better chance at success in both school and their nursing career. Achieving increased educational success of the ELL nursing student population will have a direct impact on diversity in the nursing workforce. Increasing diversity leads to an increase in cultural awareness and provision of culturally competent care. In turn, this will lead to a decrease in healthcare disparities within vulnerable, under-represented populations.
References


Appendix A

Search Flow Diagram
Does participation in a nursing specific ELL support program improve nursing skills and student satisfaction in nursing ELL students?

**Population**
- ESL nursing students
  - (C) 93
  - (P) 33
- ESL students in nursing programs
  - (C) 111
  - (P) 1

**Problem**
- ESL nursing student attrition rates
  - (C) 90
  - (P) 3
- ESL nursing students retention rates
  - (C) 116
  - (P)

**Intervention**
- Student support program
  - (C) 5
  - (P) 207

**Limiters**
- Research articles, 2013-2018, peer reviewed, English
- All combined using “AND”
  - (C) 31
  - (P) 40

**Final Keepers**
- 8

**Search in Cinahl Plus Complete (C) and ProQuest (P)**
- (C) 32
  - (P) 33

**Search google scholar using all PICOT portions**
- (C) 90
  - (P) 92

**Population**
- 24,500
- Problem 8,020
- Intervention 22,600

**After Limiters**
- 2,410

**All combined using “Or”**
- (C) 32
  - (P) 33

**All combined using “Or”**
- (C) 90
  - (P) 92
Appendix B

Image Leininger’s Transcultural Nursing Model
Appendix C

Literature Matrix Tables
## PICOT

**Does participation in a nurse specific ESL student success program improve mid-term exam scores for nursing ESL students, compared to nursing ESL students not participating in the program?**

<table>
<thead>
<tr>
<th>Citation/ Level of Evidence</th>
<th>Participants/Setting/ Sample size</th>
<th>Purpose/Background</th>
<th>Methods/Design &amp; Limitations</th>
<th>Findings/Summary Strengths/Weakness</th>
<th>Applicability to Own Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chan A., Purcell, A., &amp; Power, E. (2016). A systematic review of assessment and intervention strategies for effective clinical communication in culturally and linguistically diverse students. <em>Medical Education, 50</em>, 898-911. DOI: 10/1111/medu.13117</td>
<td>Search identified a total of 199 articles, and 43 of these articles were deemed appropriate for inclusion in this review based on whether they addressed assessments or intervention studies.</td>
<td>There were two aims to this study: 1. Evaluate the effectiveness of assessment tools in identifying and describing the clinical difficulties of Culturally and linguistically diverse (CALD) healthcare students. 2. Determine whether communicative speech and language skills were obtained and published.</td>
<td>Search Terms were not clearly defined. Articles were identified through a search of PubMed, CINAHL, Web of Science, Scopus, and ERIC databases, using principles of the Cochrane systematic review protocol and advice from the health research librarians. Inclusion and exclusion criteria were defined clearly.</td>
<td>13 articles addressed assessment and 30 articles addressed communication-training programs. Intervention studies focused on the following: Speech and language skills (n = 20) Interpersonal Skills (n = 7) Faculty level support (n=5) 17 studies reported positive findings on student satisfaction. Only 8 studies reported improved skills post-intervention/training. Study sizes ranged from 110-37,930 participants. Many assessment tools found within the studies identified difficulties in the domains of speech, pragmatics, comprehension, and the high level language needed.</td>
<td>This article supports my research because it notates the lack of objective evidence regarding assessments and specific intervention content, duration, and pedagogy that would benefit ESL students. Evidence-based support program implementation necessary to ensure positive outcomes for the ESL students. This will benefit all stakeholders: the students, educators, patients, and nursing programs/colleges.</td>
</tr>
</tbody>
</table>

**Level of Evidence: I**

While a meta-analysis was not performed, it was a large systematic review.
| Programs improved their clinical communication skills | between 1990 and March 2015. Studies were screened by title and abstracts by the first author and then sampled independently by second author. Selected studies were reviewed for eligibility within set inclusion and exclusion criteria. Disagreements on studies were resolved by consensus between all reviewers. Ethical approval was not required as it was review of previously obtained data. Quality was measured by the Best Evidence Medical Education guide and the Educational Interventions Critical Appraisal Tool. | for clinical communication and decision-making. Strengths: Studies identified that educators utilize intervention strategies that have positive outcomes in student satisfaction. Some evidence found in the intervention studies that a collaborative approach to programme design and implementation have a higher methodological quality when compared to those devised by a disciplined specific educators alone. Positive outcomes were reported in programs that worked on one domain, such as accent modification or writing. Weaknesses: There was a low number of assessment studies scored their findings as high impact. Minimal evidence of feedback given to students was noted. There was no cross-over from assessment studies to intervention studies identified. The authors lacked confidence in a conclusion that intervention programs resulted in changes to communication skills. A lack of quantitative reporting was noted in regards to results of post-testing. There was limited evidence |
The Kirkpatrick hierarchy measured impact.

Meta-analysis was not conducted due to the heterogeneity of programme design and outcome measures.

in regards to which specific communication skills offered improvement. The authors were unable to perform a meta-analysis of either the assessments or interventions due to insufficient data.

| Crawford, T., Candlin, S. (2013). A literature review of the language needs of nursing students who have English as a second/other language and the effectiveness of English language support programs. Nurse Education in Practice, 13, 181-185. DOI: 10.1016/j.nepr.2012.09.008 | Literature review that indicates sporadic research into the nursing education of ESL students and the challenges they face. | Key terms were not defined clearly. Search method was not discussed. Thorough discussion of challenges of the ESL students and the need for research regarding the effectiveness of support of these students. Inclusion and exclusion criteria were not defined. Ethical approval not required for literature reviews. | Challenges identified and discussed:
1. Adjustment to language and culture
2. Use of academic English
3. Effectiveness of English language support programs. The authors did notate findings from different studies within each of the challenge areas discussed. Strengths: The authors do a good job of identifying specific challenges and providing sufficient evidence to support these findings. They also noted that there were mixed reviews of language support programs and discussed the need for further research in this area. Weaknesses: Reliability is weak based on lack of discussion of search method, inclusion and |

| Level of Evidence: I Literature review, although not a systematic review or meta-analysis | Unknown number of research articles | While this literature review is one of the weaker ones, it provides some good discussion of challenges other than communication issues within the ESL nursing student population. While communication issues are one barrier, many studies that I found regard only communication. There are several barriers to consider with this population. In order to develop a successful academic support program, there needs to be a clearer understanding of all barriers. |
|---|
| **Level of Evidence:** III |
| This was a purposive sample of 3258 students enrolled in one of 27 participating pre-licensure nursing programs in Texas. Initial data identified 3305 students, however, due to incomplete data regarding student status, 47 students were removed. |
| The purpose of the study was to examine the associations between English as a second language (ESL), a reading comprehension program, and attrition rates of nursing students. |
| Two research questions were addressed: |
| 1. Is there an association between ESL status and attrition rates in nursing students in initial licensure programs within Texas? |
| 2. Is there an association |
| This was a secondary analysis of a database using retrospective, longitudinal data. |
| 27 initial RN programs agreed to participate in the Nurse Innovative Grant program sponsored by the Texas Higher Education Coordinating Board. The Statewide At Risk Tracking and Interventions for Nurses (SATIN) survey, was administered to the students via each nursing program. This survey examined the association of selected variables representing concepts in the Nursing Undergraduate Retention and |
| In answer to question one: when controlling for the variables of age, ethnicity, race, sex, and first-generation college student status, ESL was not found to be a significant predictor of attrition (OR =1.287, 95% CI [.992, 1.671], p = .058). |
| In answer to the question two there were a couple of different findings. |
| 1. ESL students aged >46 were almost 3.5 times more likely to be off track or out of the program than younger ESL students (OR = 3.396, 95% CI [1.540, 7.491], p = .002). |
| 2. Weaver program use was found to be a significant predictor of ESL student attrition regardless of age, ethnicity, race, sex, and first-generation college status (OR 2.155, 95% CI [1.169, 3.975], p = .14). |
| A reading comprehension program alone is probably not going to be effective in improving attrition rates of ESL nursing students. New |
| The information in this study highlights that there are several factors that affect the attrition rates of ESL students. These students require early identification and specific interventions that go beyond language and reading comprehension. This supports my research in further identification of lack of understanding of what the barriers are within this population. |
between participating in a reading comprehension program and attrition rates in ESL nursing students in initial licensure programs within Texas?

Success (NURS) model.
Data was collected from June 1, 2011 to May 31, 2013.

Inclusion and exclusion criteria were clearly defined.
The survey was administered to students in groups in the university computer lab.
Students were directed to a website link for the survey. If students did wish to participate, they stayed in the computer lab, but were allowed to utilize the internet for other reasons. All students were directed to stay until all were finished.

At risk students were identified and provided an access interventions need to be identified to improve both reading comprehension and attrition rates.

Strengths: This was a large study and had adequate power to answer the research questions.

Weaknesses: The students were responsible for participating in all interventions. While the Weaver program did track usage, it was unclear how student participation in other interventions was tracked. The riskiest students are those that generally have low reading comprehension scores, so this is difficult to generalize to just the ESL population. Therefore, the Weaver program is not a viable intervention to this specific group. The researcher had no way of controlling the questions asked.

**Level of evidence:** III.
This was a correlational study.

| The sample and setting were 331 undergraduate nursing students enrolled in one of four Wisconsin University campuses. | The purpose of the study was to investigate the relationship between marginality and minority status in undergraduate nursing students enrolled in one of the four universities in Wisconsin that offer a baccalaureate nursing program. | A non-experimental, descriptive correlational method was used to gather quantitative data. Strong discussion defining marginalization and specified it to the subcategories of racial/ethnic, LGBTQ, gender, and non-traditional minorities. Several articles reviewed and included in the discussion of the rationale for this study. Marginalization was measured with the Koci Marginality Index-70 (KMI-70) instrument. This uses subsets from the Minnesota Multiphasic Personality Index-2 code for the Weaver reading program. | Overall, there was a significant difference found in the mean scores between minority ($M = 177.5$, $SD = \text{29.3}$) and non-minority students ($M = 166.4$, $SD = 18.1$); $t(329) = 4.3$, $p \leq .001$. Further testing of the subcategory racial/ethnic minority revealed a significantly higher mean score ($M = 199.1$, $SD = 27.4$) compared to non-minority students ($M = 166.3$, $SD = 27.4$); $t(329) = -9.9$, $p \leq .001$. ESL students reported higher marginality scores ($M = 186.9$, $SD = 33.6$) compared to primary English-speaking students ($M = 170.3$, $SD = 23.0$); $t(329) = -2.4$, $p = .037$. One-way ANOVA testing did show significant mean differences between non-minority and minority groups $F(2326) = 29.05$, $p \leq .001$. Demographic data table, and statistical test results tables included. IRB approval was obtained prior to data collection. This study supports my research in the suggestion of marginalization. In this study’s review of literature, the author notes that minority students report feelings of loneliness and isolation, with common behaviors of unaware/unsupportive peers and faculty, discrimination, and lack of respect for their cultural differences. This lack of support attributes to higher attrition rates of the student population I am researching. |
(MMPI-2), which has test-retest reliability and internal consistency in a range of .57-.91. Reliability of the KMI-70 to evaluate BSN students and was found to have a strong internal consistency reliability (Cronbach’s \( a = .95 \)) through a pilot study.

IRB approval obtained from each of the four programs. The students were contacted indirectly via email with information about the study and the link to consent form, questionnaire, and KMI-70. The surveys were submitted anonymously through a research service company.

Data was analyzed by independent sample \( t \)-tests and validity

| Strengths: Reliability of the KMI-70 was established. Validity of all findings were tested with one-way ANOVA’s and Tukey Post Hoc analysis of all mean scores. This study provides quantitative data, which to this point, has been minimal. |
| Weaknesses: Limited to a geographical region that is made up primarily Caucasian students, limited number of minority population. |
| Findings of this study do suggest that there is a significant issue of marginalization of minority student within the nursing education field. |
Lum, L., Dowedoff, P., Bradley, P., Kerekes, J., & Valeo, A. (2015). Six studies that researched internationally educated nurses. The purpose of article was to provide a descriptive review. Key terms identified: internationally educated nurses, English language. This literature review documents that IEN’s struggle with communication proficiency despite meeting English language entry requirements. This article highlights the lack of rigorous research within the population of ESL nursing students and the need for academic interventions.

Established by ANOVA testing. Limitations were: the racially homogenous geographic locations, small sample size of sub-demographic categories, only 27.5% of the total BSN population participated, the KMI-70 is a lengthy tool and time consuming to complete, the KMI-70 is a generalized tool and may not be effective in gathering data from this specific population, the scope of the study is specific to the BSN program and may not be appropriate for other nursing programs (i.e., ASN, accelerated, or graduate).
| Challenges in oral communication for internationally educated nurses. Journal of Transcultural Nursing, 26, 83-91. DOI: 10.1177/1043659614524792 | (IEN’s) were reviewed. Five were qualitative and one was quantitative. of current research pertaining to English language challenges. | education, professional communication. Inclusion and exclusion criteria were not identified. Search method was not discussed. A summary table of the chosen IEN studies is present. Limitations: A small number of studies that were identified for this article. Lack of empirical research is present. The studies described had very small sample sizes, therefore it’s difficult to generalize their findings. Lack of cross-populations studies noted. Most of the research has been done using a survey design, which can affect reliability. criteria. This follows the IEN’s through nursing programs and into employment. This review provides evidence that IEN’s seeking nursing degrees/practice in English speaking countries need to have specific educational needs identified and addressed. Nursing curricula should include English language education to develop further proficiency from a communicative and pragmatic standpoint. Further longitudinal, larger studies need to be performed. Weaknesses: There was a noticeable lack of description of search methods. Other than identifying the key search terms, there was no description of databases utilized, or specific inclusion and exclusion criteria discussed. Strengths: The authors discuss at length the utilized article finding and note that lack of empirical evidence surrounding this topic. nurses. It gives credence to my research in regards to the need for researching interventions that can potentially increase the attrition rate of ESL nursing students. |

**Level of evidence: I**

While not a meta-synthesis, it is a descriptive review that includes discussion of several studies.

---

**Note:**

The table structure has been maintained to ensure readability and comprehension of the content. The text has been formatted to reflect the original content accurately, including the citation and level of evidence.
This descriptive study does not discuss any type of search method other than defining search terms.

Moore, B. S, & Clark, M. C. (2016). The role of linguistic modification in nursing education. *Journal of Nursing Education, 309*-315. DOI: 10.3928/01484834-20160516-02

**Level of evidence:** II

This was a randomized, controlled trial.

<table>
<thead>
<tr>
<th>Moore, B. S, &amp; Clark, M. C. (2016). The role of linguistic modification in nursing education. <em>Journal of Nursing Education, 309</em>-315. DOI: 10.3928/01484834-20160516-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample size was initially 790 nursing student participants with 146 eliminated based on predetermined exclusion criteria for a total n = 644. 135 of the participants were ESL students. Participants were located in Texas, Nevada, and Minnesota.</td>
</tr>
<tr>
<td>The purpose was to explore a method to improve ESL nursing students’ scores on multiple choice examinations used for course evaluation. There were two parts to study: 1. Analysis of nursing students’ scores on a linguistically modified exam and comparison of ESL students scores to non-ESL students’ scores. 2. Comparison of the above</td>
</tr>
<tr>
<td>Students from three different states enrolled in either a BSN or ADN program were chosen from a convenience sample. They were then randomized into four different subgroups. Inclusion and exclusion criteria were identified. IRB approval was obtained from each program prior to data collection. Theoretical framework identified and briefly explained. Strong discussion of literature review that included several articles. Literature review was divided</td>
</tr>
<tr>
<td>Three hypotheses were stated in this study: Hypothesis 1 was not supported by findings. While the observe mean score of the experimental test (71.63) for both ESL and non-ESL was higher than the observed mean of the control test (71.14), it was not found to be statistically significant. No significant effect was found after controlling for the covariates in the ANCOVA [F(1638) = 0.39, p = .534]. Hypothesis 2 was supported by findings. Non-ESL students scored statistically significantly higher than ESL students on both the experimental and control exam. The combined mean score of non-ESL students was 71.84, with the combined score of the ESL students was 69.64. ANCOVA results demonstrated statistical significance after controlling covariates [F(1638) = 4.26, p = .039]. Hypothesis 3 was not supported. The mean score of the modified exam of the ESL students was a</td>
</tr>
<tr>
<td>This article focuses on the best practice of utilizing linguistic modification when developing test questions. Testing is form of evaluating nursing students. This supports my research in the sense that ESL attrition rates can be improved through proper evaluation of these students. Proper evaluation leads to identification of those students who are considered at-risk, as well as barriers to their success.</td>
</tr>
</tbody>
</table>
Stated scores to the scores of ESL and non-ESL students’ scores on a standard, non-modified multiple-choice exam. Strong discussion of background and identified problem through a thorough literature review that was based on the authors chosen conceptual model. and discussed based on key terms of attrition, linguistic medication, best practices, and fairness. Examples of invalid moderate exam questions, linguistically modified exam questions, and fairness exam questions included in tables. Reliability of the linguistic modification questions was established through an experimental, posttest-only research study and results were analyzed by a 2x2 ANCOVA model.

The instrument used was a 50-question test, in which the questions were retrieved from a current Medical- statistically significantly higher than the non-ESL students. ANCOVA results demonstrated no statistical significance between student type and test type \( F(1638) = 0.01, p = .932 \).

Strengths: The study was performed in different geographical locations to ensure higher diversity among the test population. The linguistic modification was subject to a rigorous process to ensure reliability. The exam was given by the program faculty, not the authors, thus eliminating some bias. Reliability of the instrument was established. The minimum number of participants within each group exceeded the minimum set to achieve statistical significance.

Weakness: The exam was given to students in their final semester—this limits identification of at-risk students as most may have either left or failed out of the program. The exam should have been given with the understanding that the students’ leave when finished to decrease the amount of distractions, as was experienced in some instances.
Surgical Nursing textbook after obtaining publisher permission for use.

Control groups were given test questions as written. Experimental groups were given the linguistically modified questions.

The procedure for linguistic modification of test questions was performed in four steps and thoroughly described.

A pilot study of 60 questions and test item analysis identifying the 10 lowest scoring questions was performed prior to finalizing the exam for the study.

Student perceptions of the exam questions clarity and difficulty
were assessed utilizing a Likert scale.

The examination was not timed.

Mean exam scores were generated by Parscore testing software. These scores were used for comparison and differences between groups were identified using a 2x2 factorial ANCOVA.

The minimum number of participants within each group in order to achieve statistical significance in measurement of moderate effect was 45. The minimum was met in all groups.

Demographic, ethnicity and Mean exam scores included in tables provided.
Limitations: self-identification of ESL status, better exam questions may be available to identify students with limited English proficiency. There were some unexpected time limitations experienced by faculty giving the test. Some topics had not been taught to the students at the time of the exam (not all students had been exposed to the same content, although that was the expectation). Student exhaustion due to time of day exam was given. Students effort questioned as “exam did not count”.

| Muronda, V. C. (2016). The culturally diverse nursing student: A review of the literature. | This is literature review of 20 primary and secondary research studies, meta-analysis, and | To determine facilitators and barriers to the success of culturally diverse nursing students. | Key search terms identified: culturally, diverse, nursing, student, education, retention, cultural diversity, research and study. | Findings were discussed by dividing the results into each level of the SEM and identifying risk factors within these subgroups. While the majority of the studies were performed through qualitative interviews, case studies, This article supports my research in the importance of identification of barriers that are individual to each at-risk student. Culturally diverse students can have barriers on several levels. Recognition of these |
| Journal of Transcultural Nursing, 27, 400-412. DOI: 10.11177/1043 659615595867 | literature reviews. | Articles were identified through CINAHL, EBSCO host, PubMed, and Sage. The search method is described at length and synthesis table of keeper articles is included in the appendix. Three of the nineteen studies used mixed methods, while the rest were quantitative. The synthesis table provides the study design and data collection methods, but does not provide individual statistical findings. The overall findings of the articles are pooled into the discussion of each Social Ecological Model (SEM) level. Limitations: No located studies utilized a social phenomenonology, and semi-structured interviews, three utilized mixed methods, three quantitative studies used experimental design, and two utilized a quasi-experimental design. Use of the SEM can assist in developing a holistic approach in development of interventions after identifying at-risk students and their individual barriers. Gaps in literature were identified in regards lack of nursing theory frameworks, and lack of studies applying the SEM to the identification of the facilitators and barriers to the success of the culturally diverse nursing student. Implications for further research include continuation of exploring barriers and facilitators for retention of culturally diverse nursing students with the SEM. By creating a realistic view of the problem, multidimensional interventions can help guide the development of academic support programs within this population. Strengths: Discussion of summative article findings within barriers can help identify facilitators and develop a support program that will encourage success of the ESL student. | Level of evidence: Level I; Systematic Review |
Determinant of health theoretical frameworks. This review only looked at the US. The focus is on the BSN student only.

Each subgroup of the SEM gives identifies numerous risk factors that can affect the ESL nursing student. This literature review looked at several different research methods that included both qualitative and quantitative designs.

Weaknesses: Lack of actual discussion of actual quantitative statistical information was noted. There is minimal discussion of the actually quality of each study. It is not clear whether or not the article synthesis was performed by the author or if other reviewers assisted.


The sample is 266 ESL first year undergraduate nursing students at the end of their first semester at an Australian University.

To evaluate an innovative, online program called “Clinically Speaking” that assists ESL nursing students in developing their clinical communication skills and practice readiness.

This was an evaluative, mixed methods study of a program that was initiated in 2004 with long term evaluations that identified gaps. Online resources were built in response to these gaps. This evaluative study is an ongoing development and evaluation for continuous improvement. Evaluation is done

The authors discuss the findings divided into the subgroups: online terminology tool, podcats, vodcasts, and podcasts and vodcasts.

94 of the 266 students surveyed utilized the online resource in some form. The majority of the 94 were ESL students. There was a variety of quantitative data that is shared in several tables within the article related to amount of usage, demographics, what portions of the tool they used, and student perceptions.

This article supports my research in regards to communication skills in the ESL nursing student population. ESL students already have to interpret English words into their own language to gain understanding. Medicine has it’s own language, and could be considered a third language for many of these students. By offering resources through multiple learning mediums, we can improve their chances of
| **Level of evidence:** Level II; Mixed method, non-experimental, evaluation study | through a survey compromised of closed-ended and open-ended questions. Quantitative data was analyzed using descriptive statistics and content analysis applied to qualitative comments. Literature chosen supported the authors rationale for both program development, use, and evaluation. Evaluation studies that are result in development of the language resources were approved by the ethics board of the University. Since evaluation of learning resources is part of teaching, it does not require direct submission to for ethical approval. Limitations: Survey evaluation limited to | Two themes were noted: “an effective learning tool”, and “effective learning medium”. Positive comments ranged from “the best way for international students to improve their skills, effective in learning pronunciation and spelling, learn effective and proper communication, and helped them feel prepared and more confident.” The vodcasts helped reinforce learning. Suggested improvements by students were “extending podcasts to include definitions, colloquial alternatives and sentences to illustrate the use of words.” Discussion regarding the fact that ESL students are potentially at higher risk for failure in clinical practice related to inappropriate or misconstrued communication. Nursing education programs need to enable ESL students to achieve improved communication skills through clinically-based, practice-integrated learning. Strengths: two themes noted regardless of ethnic background. This student tool continues to be improved and shows that different developing understanding of critical thinking skills, as well as communication skills. |
one setting and cannot be generalized. This study focused on a very unique area of application, so findings are unable to be generalized to other populations.

learning mediums increase both communication skills and increased retention regarding dynamic learning. Unique in using online technologies.

Weaknesses: Only about 1/3 of the sample utilized the tool. This was only surveyed in regards to improving clinical communication and learning. It would be interesting to research this type of learning tool regarding theory.

Online programs offer mobility and flexibility in improving clinical communication skills and practice readiness. Further research would be beneficial in evaluating if this type of resources in theory and in regards to addressing other barriers found within the ESL nursing student population.
Appendix D

SQ4 Active Reading Strategies

Study Skills
Active Reading, Notetaking and Study Strategies

Active Reading

Reading is a passive activity which makes it absolutely necessary to take deliberate steps to be actively involved to improve comprehension and retention of material. One frequently suggested method for reading textbooks is the SQ4R method.

**S=Survey**
Briefly survey the chapter, noting the headings, bolded terms, tables and figures. Read the chapter summary. This provides an overview of the chapter content and a framework for organizing the material.

**Q=Question**
Turn each section heading into a question that you want answered. Write these questions into your notes or on notecards. Use question words like what, why, how, explain, describe, define, compare/contrast, analyze, etc.

**R=Read**
Read the chapter, section by section. Stop after each section and be sure you understand what you’ve read. Take notes as you go.

**R=Recite**
Use your notes to answer your questions. Recite information verbally or in writing. If you study with a partner, take turns reciting information aloud.

**R=Relate**
Make connections between the knowledge you already have and new information. Attempt to relate new information to important events like personal experiences, lab exercises, other readings, etc.

**R=Review**
Look over the material to assure that you have included all the main points. Reflect on the meaning and application of the major points. If something seems unclear, return to the text and reread.

Mechanics of Notetaking in and out of class:

- Write your notes legibly the first time; do not plan to rewrite them because you probably will not have time.
- Cornell Notetaking methods are not just for high school. This is a great notetaking strategy
- Take notes in your own words rather than writing verbatim what the professor says.
- Use abbreviations, but do not abbreviate so much that you can’t decode your notes later.
- If you miss a point, skip some space and come back to it later. You can get the information later from the professor, the textbook, the PowerPoint if it is available or a classmate.
Pay attention the entire class period. Choose a seat that minimizes distractions.

After class review your notes; add or clarify information while the lecture is still fresh. Attempt to write a summary paragraph that captures the main ideas of the lecture.

Review your notes often. Don’t wait until right before a test to look back at them.

**Study Strategies**

1. Create a distributed reading and study schedule. If you are assigned 100 pages of reading, break it into smaller, more manageable chunks and complete it over a period of a few days to avoid information overload; 100 pages over 5 days is only 20 pages per day. Create regular blocks of time in your schedule when you will read/study for particular classes and stick to it.

2. Find a study space that is comfortable for you and gather all of the things you will need so you don’t waste time collecting them each time you are ready to study.

3. Highlight within the text. Only highlight main ideas. Star really important concepts. When you study, go back and only read the highlighted and starred items.

4. Create flashcards using 3'' x 5'' index cards. Write the questions/terms on one side and the answers on the other. Carry them with you, you can get through several cards while waiting in line, before/after class, or while eating.

5. If you prefer digital notecards: Quizlet is a great FREE app which allows you to create your own notecards or use sets created by others.

6. Create concept maps. Begin with the main idea of an upcoming test in the middle of a blank piece of paper and map out everything you know about that topic. This can be particularly helpful for visual learners.

7. Use mnemonics for difficult concepts. For example, HOMES is a mnemonic that assists in remembering the beginning letters of the Great Lakes.

8. Do not try to cram the night before a test. The best thing you can do as a test gets closer is to study the contact that is most challenging for you.

9. Prior to a test, eat, sleep and utilize deep breathing or other relaxation techniques.

**Mnemonic Peg System**
A peg system is a technique for memorizing lists. It works by pre-memorizing a list of words that are easy to associate with the numbers they represent (1 to 10, 1-100, 1-1000, etc.). Those objects form the "pegs" of the system.

To rapidly memorize a list of arbitrary objects, each one is associated with the mnemonic image for the appropriate peg. Generally, a Peg List only has to be memorized one time, and can then be used over and over every time a list of items needs to be memorized.

**Example Usage**

Create a **Number Rhyme System** where each number from 1 to 10 have a rhyming mnemonic keyword:

- one – bun
- two - shoe
- three - tree
- four - door
- five - hive
- six - sticks
- seven - heaven
- eight - bait (for fishing)
- nine - line
- ten - pen

If you have a list of things to memorize, like a shopping list, you can associate each item of the list with a number rhyme image. So, if your shopping list is: carrots, milk, bread, eggs, rice, etc., make associations like this:

- One is "gun" -- imagine a gun shooting a pile of carrots, the first item on your shopping list, or a bun with a pile of carrots in it
- Two is "shoe" -- imagine cleaning your muddy shoe with a bottle of milk.
- Three is "tree" -- imagine bread growing on a tree.
- Four is "door" -- imagine throwing eggs at a door.
- Etc.

Once you’ve associated each item in your shopping list with a number peg, you'll be able to mentally walk through the numbers, recall the rhymes ("what was the gun shooting?") and recall the item ("carrots").
Appendix E

Capstone Timeline
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