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Implementation and Evaluation of a Structured Mentorship Program

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2022

In Partial Fulfillment of the Requirements for the Degree

Doctor of Nursing Practice

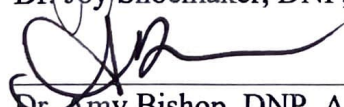
DNP Final Scholarly Project Team



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Abstract

The project addresses mentorship in a graduate nursing anesthesia program. The goal is to improve the existing mentorship program and to implement a durable and consistent system that gathers and responds to feedback from the students. Two literature reviews form the underpinnings of the structure and evaluation components of the project. Three structural components were identified in the review as highly effective in multiple studies of diverse mentorship programs. The first component is establishing an effective dyad matching scheme. The second component is establishing clear goals. The third component is maintaining the relationship and achieving goals through frequent and consistent meetings. In evaluation, an effective tool to assess the program was identified, with small modifications to allow for both quantitative and qualitative responses. A Plan, Do, Study, Act model forms the core of the implementation process. Finally, baseline and ongoing data collection will be used to further guide continuing improvement of the mentorship program.

Keywords: mentorship, nursing, anesthesia, doctorate

Implementation and Evaluation of a Structured Mentorship Program

Introduction

Mentorship has a long and storied history; its etymology is rooted in *The Odyssey* by Homer (2018). The goddess Athena, disguised as the wise and aged Mentor gives advice to Telemachus, who asks, “What, Mentōr, must be my approach? How am I to greet him? I’ve no experience yet in subtle discourse; a young man feels embarrassed when interrogating his elders” (Homer, 2018, p.51). Athena replies ironically, “Tēlemachos, there are some things you’ll figure out for yourself, and for others you’ll have divine guidance—I don’t think you were born and raised without the gods’ good favor” (Homer, 2018, p.51). The emotions of Tēlemachos are common to all young learners embarking on a journey into a new field: divulging nervous feelings, being assured that they will be fine in the end. The exchange captures the mindset of the nurse who leaves the comfort of their normal environment of critical care and enters graduate school for anesthesia.

Continuing further on the etymological journey, *Les aventures de Télémaque*, fils d’Ulysse [The Adventures of Telemachus, Son of Ulysses], authored by the Archbishop of Cambrai which uses Telemachus’ further education by Mentor as an allegorical vehicle for that period of French history (Fenelon, 1825). The modern popularity of the term mentorship likely owes a great deal to the work, as it was “the greatest bestseller of the eighteenth century” (Janssen, 2012). This idealized relationship of a wise elder imparting knowledge and guidance to a young student is a resonant, recurring trope throughout both literature and history.

The value of wisdom and experience in shaping the thought and character of pupils during educational development is not confined to the Western canon alone. Confucius, in the *Analects*, “The Master said, ‘If a man keeps cherishing his old knowledge, so as continually to be

acquiring new, he may be a teacher of others” (Confucius, 2018, p.3). He contends that character, virtue, and education are inseparable, and that mentorship is a noble act, “Now the man of perfect virtue, wishing to be established himself, seeks also to establish others; wishing to be enlarged himself, he seeks also to enlarge others” (Confucius, 2018, p.4). Similarly, in the Abrahamic traditions, there are analogous ties between education and character, “Whoever walks with the wise becomes wise, but the companion of fools will suffer harm” (King James Bible, 1769/2021, Proverbs 13:20). More succinctly, “Iron sharpens iron, and one man sharpens another” (King James Bible, 1769/2021, Proverbs 27:17). This emphasis on a relationship that fosters strength, growth, and wisdom, is universal and powerful. The project is an attempt to harness the power of this repeating pattern of human behavior and to craft a program that reflects the importance of mentorship in students’ educational flourishing.

Background

When approaching the project, there were several basic premises that were accepted which narrowed the scope and guided the formation of the literature review. First, the Council on Accreditation for Nurse Anesthesia Programs (COA) (2021) states in its accreditation policies and procedures manual that students should evaluate “advising/mentorship” and that “evaluation data collected [should be] used to monitor and improve program quality and effectiveness” (p.222). Second, in the specific program being assessed, advising is performed by faculty, with adequate feedback and improvement mechanisms in place. While this alone is enough to satisfy COA requirements, there exists a more informal, student-led mentorship program that runs in tandem with faculty-led advising. Finally, while there are informal feedback mechanisms for the mentorship program in place, no data collection is currently performed on the student-led mentorship program, which hinders any consequent assessment, evaluation, and improvement.

Significance to the Profession

Significance to Student Registered Nurse Anesthetists

In NA programs there exists a specific set of circumstances that are unique to their students. First, unlike many graduate level programs, NA programs accept only those who gain at least a year of on-the-job experience in the intensive care unit (ICU) (COA, 2021). While this experience familiarizes the student to many of the practical concerns of NA programs, such as advanced airway management, paralytic medications, and vasoactive medications, it also means most of the time the student is out of the academic setting for at least two years upon matriculation. Thus, the incoming student often discovers their academic skills atrophied over the years of working in the fast-paced, high-stress environment that is the ICU. These capable professionals are now novices once again as they reenter graduate education, and the aim of the project is to provide them a compatible mentor to aid them in their journey

Significance to Faculty

Mentorship in NA programs support two things, career development and psychosocial support. Effective mentorship programs foster, “professional skills and attitudes that translate to interpersonal, academic, and career success” (Alisic, et al., 2022, p. 852). Student-led mentorship programs can alleviate some of the burden on faculty, by providing guidance to other students. The workload of the NA program faculty is already high, with Lee, et al. (2022), noting “transition to the practice doctorate for entry into practice as a CRNA has lengthened nurse anesthesia education and increased faculty workload at a time when nursing programs throughout the nation are already struggling to maintain faculty.” Additionally, “supervision and mentorship of [...] scholarly projects are frequently not adequately accounted for in faculty workload calculations” (Lee, et al., 2022, p.1.). If faculty can divert limited resources away from

functions that can be performed effectively through mentorship, the NA program will benefit from less faculty turnover. Lee, et al. (2022), noted that the “average program administrator turnover rate of 15% from 2016-2020. This rate of turnover equates to roughly nineteen new program administrators annually or the average turnover of all program administrators every six to seven years” (p.1).

Problem Statement (PICOT)

In summation: mentorship is a COA requirement; mentorship and its evaluation are led by students at the program being assessed; there is no formal data collection and ongoing improvement performed by students. This leads to the two-front approach taken in the project: First, build out a more formalized and structured mentorship program, which lends itself to better assessment and improvement. Second, after implementation of that structured program, begin the ongoing process of evaluation and improvement by the students of their mentorship program. The PICO (population, intervention, comparison, outcome) question that is formed to address these two concerns: In graduate nurse anesthesia programs, when comparing formalized and structured mentorship programs against informal or non-existent mentorship programs, from which do students benefit and which do they prefer?

Objectives

The objectives for the project stem from the two aspects of the mentorship program that will be addressed. Two reviews of the literature were conducted, one to determine the highest yield interventions when initially structuring a mentorship program, and the second to develop a method of evaluation that will provide useful data about the program. In implementing the project, a model will be identified that provides mechanisms for continuous evaluation and improvement based on the feedback provided. With a local dataset, in tandem with larger

literature reviews, future classes will be able to tailor and continually refine the mentorship program to address specific needs of students in the particular NA program during their future Doctor of Nursing Practice (DNP) projects which should foster durable change and improvements.

Literature Reviews

The literature reviews are outlined below, with the bulk of the evidence for the project derived from the results. On occasion, the papers obtained via the literature review referenced an older seminal work, or work pertaining to fields other than NA. Despite their lying outside the strict confines of the search, some of these were so broadly cited in the works below that they are also directly referenced within this work to avoid indirectly citing their ideas.

Literature Review - Structure

A literature search was performed on Academic Search Complete, AHFS Consumer Medication Information, Alt HealthWatch, APA PsycINFO, BIOSIS Citation Index, CINAHL Plus, Cochrane Library, Consumer Health Complete, Consumer Health Reference eBook Collection, Food Science Source, Fuente Academica, Health Source: Consumer Edition, Health Source: Nursing/Academic Edition, Kanopy, MedicLatina, MEDLINE, Natural & Alternative Treatments, Oxford Reference Online, ProQuest Nursing and Allied Health, Psychology and Behavioral Sciences Collection, PubMed, Science Direct, Springer Nature Experiments, USP DI Advice for the Patient, Web of Science Core Collection, and Wiley Cochrane Library, and ProQuest Dissertation and Theses, searching document titles for the terms “mentor*” and “anesth*” with the operator “AND.” Since there are many variables in the development of an educational program, its stresses, and the fast-paced change of healthcare, results were limited to the last five years to ensure that data would pertain to the current and near-future classes. Thirty-

five results were returned, after 10 duplicate or French translations were removed. Eight articles without full-text access were discarded, along with a news article about an anesthesia program opening, and another regarding the breast implant manufacturing company Mentor. This left 17 articles that pertained to anesthesia and mentorship. Of these articles, 4 were written about programs abroad, and 4 by Canadians. Since education and healthcare in the United States are both singular in their design and execution, these articles were excluded. This left 9 articles that were reviewed and synthesized. Refer to Appendix B.

Literature Reviews - Evaluation

A literature search was performed on Academic Search Complete, AHFS Consumer Medication Information, Alt HealthWatch, APA PsycINFO, BIOSIS Citation Index, CINAHL Plus, Cochrane Library, Consumer Health Complete, Consumer Health Reference eBook Collection, Food Science Source, Fuente Academica, Health Source: Consumer Edition, Health Source: Nursing/Academic Edition, Kanopy, MedicLatina, MEDLINE, Natural & Alternative Treatments, Oxford Reference Online, ProQuest Nursing and Allied Health, Psychology and Behavioral Sciences Collection, PubMed, Science Direct, Springer Nature Experiments, USP DI Advice for the Patient, Web of Science Core Collection, and Wiley Cochrane Library, and ProQuest Dissertation and Theses, searching document titles for the terms “mentor*”, “anesth*”, “eval* or assess*”, “gradua*” with the operator “AND.” This search returned no results, so “anesth*” was removed. This gave 38 results, which were further limited to the last decade. Offline results were removed, leaving 8 full-text online articles. One article addressed an undergraduate midwifery educational program with professional mentors evaluating the new graduates, and was excluded. Another article addressed a pharmacist residency search mentor, who would help navigate the process of applying to various programs. The focus was too

discipline specific and narrow to provide any value to the project and was excluded. Refer to appendix A.

Analysis and Synthesis

The analysis and synthesis will address the structural components of a mentorship program, as well as the best approach to take in evaluation of those components and mentorship as a whole. The project will implement the three highest yield, consensus-driven elements that are consistently noted across the review. These are: first, a dyad matching process that is driven by the participants; second, a regular meeting, at least quarterly; third, a goal-driven focus to those meetings, determined by core-competencies or curriculum depending on context.

Analysis and Synthesis - Structure

The first article regarding structural components directly relates to the project. Bass (2017), a CRNA, constructed her DNP project around self-efficacy and mentorship at a single NA program. The sample size for the project is small with a total number of 17 participants. Bass investigated mentorship as an intervention to improve self-efficacy. Bass discusses in broad about stress and mentorship in NA, providing ample evidence for mentorship's role in affecting stress. Also, noted within the article are the large expectations for SRNAs that include developing relationships with preceptors, participating in cases and growing as anesthesia providers. The author speaks about the possibility of improving self-efficacy to help with confidence of the SRNA, reduce stress and by doing those two things improve patient care. The results showed a positive correlation with the use of mentorship to increase self-efficacy (Bass, 2017). Bass's (2017) article shows the use of mentorship improves self-efficacy, which in turn improves patient care. This article is a low level of evidence, but is very specific to the SRNA population that is being looked at for this specific DNP project. Also, this article supports a more

in-depth assessment of what mentorship can provide the SRNA population. Lacking from this article are specifics about the structure of the mentorship program. Additionally, many of the articles cited provide context to guide the project, and provide a touchstone for future classes' efforts to improve the mentorship program being addressed by the project.

The second article uses traditional medical education to inform the field of nursing education. Gonzalez and Donnelly (2016) write with the purpose of investigating residency programs with formal mentorship programs and the structures used in these programs. In their study, surveys were distributed to the program directors of all Accreditation Council for Graduate Medical Education (ACGME) accredited anesthesia residency programs within the United States. With a 34% response rate, 88% of those were formal mentorship programs. Also, three quarters of the program directors thought structured mentorship programs were the best ways to meet the needs of the residents. This article discusses how mentorship is underutilized within anesthesia. Many of the programs that provide mentorship programs only recently established that support. Regarding structural components, the programs that did respond with a structured mentorship program made sure to provide time to meet and to encourage further meetings. Of the programs surveyed, there was no clear consensus on dyad matching mechanisms: some were randomly assigned and while others used input from mentees. In free text responses, multiple program directors said giving the option to change dyads would be ideal if personalities and interests were different or another mentor emerged. Within this article the pairs were formed between resident physicians and faculty members, not peers. The top goals ranked by the directors were: helping with career planning; professionalism; achieving work-life balance; and assisting with research and academic projects (Gonzalez & Donnelly, 2016). Applying Gonzalez and Donnelly's (2016) article to this DNP project, despite having surveyed

only anesthesia residency directors, many of the lessons translate into nursing anesthesia mentorship programs. The program directors believe that the structured mentorship program can help residents in numerous ways, from career development to work-life balance, and these benefits can also be extrapolated to the SRNA. One structural element that will be utilized from this work is the dyad matching scheme. Another component that will be implemented relates to how the program directors focused on ranked goals to direct the mentorship programs. For the project, since the mentorship program is student-led, the goals will be set based initially on goals derived from the curriculum, rather than those of a director, with survey response data driving any adjustments made to those goals.

The third article follows the form of the second, using medical education as a touchstone. Gupta and Reinsel's (2017) article questioned to discover if anesthesiology residency programs provided career development guidance and mentorship and what form it took. A survey was sent to 129 program directors of accredited programs and 53 total complete responses were returned. Of that 53, 47 were mentorship programs. Since a broad range of programs were surveyed, the largest structural commonality that was shown to be effective was regularly scheduled meetings, generally monthly or quarterly. It was delineated if these mentors were peers or faculty. Some of the benefits found for mentorship from this survey included discussions about retirement plans as well financial goals and it was noted that this stemmed from a trusting relationship. Barriers to successful mentorship programs identified by the study included lack of skilled mentors and insufficient time. Specific barriers for anesthesiology were not identified (Gupta & Reinsel, 2017). Gupta and Reinsel (2017) derive the information from program directors. Despite only surveying directors, and the study investigates anesthesia residents, the project will implement several of the key components that the article identifies in successful mentorship programs. Their

work indicates mentorship programs with regular meetings form durable relationships based on trust. The DNP project will also ensure, since mentors will be drawn from the class above, there will be adequate numbers of mentors for the incoming class.

The fourth article is a highly specific one, again drawn from medical education. Neelankavil et al., (2020) discuss mentoring in cardiothoracic anesthesiology and approach the topic by surveying program directors. This article explains the importance of mentorship by addressing different aspects of fellowship such as clinical care, educational expertise, and exposure to scholarly work. “Impactful mentorship remains an essential ingredient in the development of successful scholars, including physician scientists who typically lead discovery in the specialty” (Neelankavil et al., 2020, p.522). Throughout the article, the various institutions discussed use different ways to deliver the information about the categories stated above; however, the exact format of mentorship dyad formation or structure is not described. What is stated within the article about mentorship is it can come in many different forms such as role modeling, coaching, teaching, tutoring but with a sustained relationship in each case. Benefits found from mentorships included increased career satisfaction, improved productivity, and a better work-life balance (Neelankavil et al., 2020). Neelankavil et al. (2020) supports numerous different structures for mentorship, and shows that throughout cardiothoracic anesthesia fellowships various forms of mentorship are being used. For the benefit of the project knowing the exact structure to help with formulating a structure for this mentorship program, but it does support the use of mentorship. The recurrent theme from Neelankavil et al. (2020) is that the relationship must be sustained and interactive, which supports our implementing consistent, goal-directed dyad meetings. These items are utilized in the project

The fifth article centers, not on students, but on program directors. Capdeville et al.'s (2018) article sample is derived from the survey responses of cardiothoracic anesthesiology program directors. The article focuses on the program directors' role and how it impacts the accreditation for anesthesiology programs of cardiothoracic centers. The focus is on the importance of a strong program director and how to prepare to become a program director. The authors discuss the lack of mentorship for these directors and how frequent turnover can lead to accrediting problems (Capdeville et al., 2018). The article lacks specificity about student mentorship or mentoring and is less useful for this specific project. Capdeville et al. (2018) do not speak of any mentorship programs that are in place for these cardiothoracic program directors, only noting that their lack is a problem. Also, the sample population is very specific to physicians that specialize in cardiothoracic interventions which is vastly different from the SRNA population that is being looked at for the project. Capdeville et al. (2018) state the use of successful mentorship decreases burnout. This supports the ongoing implementation and improvement of the project broadly.

The sixth article addresses topics not covered specifically in previous sources. Nafiu and Haydar (2019) wrote about mentorship and its impact on faculty and minority groups. One of the first points made is within anesthesia mentorship is not utilized even though mentorship provides benefits. Benefits are highlighted include improved confidence, career satisfaction, and productivity. Mentoring can also improve diversity and inclusivity. For mentoring to succeed, active participation paired with a skilled and experienced mentor is essential. Underrepresented minority faculty were found with decreased rates of promotion and increased time in introductory positions. "Where misplaced deference or sycophantic behavior can be as limiting as ignoring counsel altogether," (Nafiu & Haydar, 2019, p.316). This article notes that

mentorship is an intervention that is effective in reducing these disparities. Specific characteristics for these mentors include receptive, unselfish, nurturing, fair, durable, and orienting. This article suggests having multiple mentors is often needed to meet all of these characteristics. For the structure of the mentorship pairs, regular contact and access to the mentor's knowledge is needed to help move the mentee forward. During these scheduled sessions, clear goals are helpful to provide structure and definition. Open and clear communication is also essential for the pair to function and move forward towards the goals (Nafiu & Haydar, 2019). With this DNP project in mind, Nafiu and Haydar's (2019) article shows that mentorship can be an effective tool in increasing and fostering diversity. Utilizing effective dyad matching, and frequent, goal directed meetings is also supported, and will be incorporated into the DNP project. Nafiu and Haydar (2019) assert that students, especially those who might lack more informal and network dependent mentors, benefit greatly from formalized mentorship programs. While the stated purpose of the project is not to address diversity in NA programs, this article supports the implementation of the project's interventions from that specific perspective.

The seventh article delves further into mentorship and support. Pollard et al., (2021) discuss the underrepresentation of women in anesthesiology and using mentorship as a way to close this gap. Women when compared to their male counterparts within anesthesia are less likely to find mentors. This study was conducted at a Minnesota anesthesiology department where junior faculty were identified as the mentees and women in leadership positions were identified as possible mentors. An email was sent to the possible mentors and the mentees identified inviting them to participate in a speed mentoring event. The mentees were residents, fellows, and junior faculty, 18 of them women and three males. The speed mentoring involved

30-minute sessions for the mentees to talk with the mentors. A survey was distributed prior to the speed mentoring sessions to see how many mentors the mentees currently met with and rate their satisfaction. The survey was sent out at the one-month, three-month, six-month, and 12-month markers after the speed session. Overall, the mentorship satisfaction increased from a 4.5/7 to 6/7 at the 12-month mark. A free text response was also available and was filled out by some participants who stated positive comments towards the speed session, even encouraging face-to-face time with mentors from different sites. Also, both mentees and mentors were satisfied with the speed mentoring sessions, finding them worthwhile and saying that they would recommend it to colleagues in the future. Limitations to this study include the small sample size at only one institution. There was no control group, therefore it is hard to say the speed mentoring was the reason the mentees acquired more mentors or improved satisfaction with mentorship. The high satisfaction from the speed mentoring suggests a positive correlation for further research (Pollard et al., 2021). Pollard et al., (2021) provided another possible way of selecting mentors with a speed dating technique, and while it differs slightly from this DNP project's proposed dyad matching scheme, it still incorporates mentor and/or mentee input. The article showed positive outcomes with the speed dating method for dyad matching process. Also, support from the free text responses encouraged having frequent meetings with mentors, which will support this DNP project plan for regular meetings required for the mentorship program. Again, while fostering an inclusive environment for women to succeed in NA programs is not an explicit goal of the project, this article supports the conclusion that formal mentorship can be a tool to produce more positive outcomes in that regard.

The eight article emphasizes aspects of clinical training in NA programs. Scott-Herring and Singh (2017) conducted a study looking at CRNAs ability to precept SRNAs within the

operating room. The SRNAs in the study were dissatisfied by having preceptors who differ in teaching styles, teaching abilities, lack of interest in teaching all together, and at times intimidating the SRNA. A needs assessment survey was distributed to 130 CRNAs who precept at two institutions; 85 responded. The areas needing improvement based upon this survey included COA requirements for preceptors, Bandura's Theory of Self-Efficacy and application to SRNAs, and identifying adult learning needs. Therefore, Scott-Herring and Singh conducted a four-hour preceptor workshop for CRNAs who worked for two different institutions. This class was for AANA credits, breakfast was included, and it was free. A pre and post survey was distributed to the CRNAs who attended the class, and 33 out of the 40 who participated completed the surveys. The overall feedback from the workshop was positive. The preceptors noted the need to provide honest feedback, set expectations, and communicate with the SRNA. After the course, preceptors scores improved on the survey scores about how knowledgeable they were for what was expected as a COA preceptor and what self-efficacy was in SRNAs. Eighty-two per cent of the preceptors never received formal teaching on how to precept. In the future, conducting this course yearly would be ideal. Limitations for this study include the small voluntary attendance and also the lack of randomization. While this DNP project will not involve training of mentors, it could be the focus of future improvement. The focus different part of anesthesia training and does not discuss mentorship, but the concept of having clear role identification is noted. From this article it can be noted the importance of setting clear expectations for all members involved. This concept can be discussed for mentorship programs as well. Clear expectations to the mentors and mentees will occur for this DNP project. Even for future projects the possibility of having a specific class for the mentors to attend to improve overall mentoring.

The ninth article is highly relevant to the project. Morstatt (2020) studies what SRNAs want in a mentorship program. The author created a survey, which was sent out to 2,971 students registered with the AANA. The survey distributed looked at five different categories: 1) demographics, 2) general preferences about mentoring, 3) functions of a mentor 4) aspects of mentoring models and 5) open-ended questions. A total of 387 responses from the survey occurred, which was over the target number of 261. Half of the results stated a desire for informal mentoring in the multiple-choice section, but in the open-ended questions having defined relationships and guidelines was identified as desirable 27 times. Morstatt (2020) hypothesizes this differentiation might be occurring because SRNAs do not want the time commitment of a structured program but want the guidelines and definitions of the structured program. Forty-two point five per cent stated they wanted a peer ahead of them in their program to be their mentor. Themes that emerged from the qualitative responses included wanting both a CRNA and SRNA mentor, or a newly graduated CRNA mentor or a mentor who desired to be a mentor. Based upon the research conducted for this article, no evidence to support who is best for the mentor role was identified. Mentorship pairing assigned by anesthesia programs based upon personality and common interests received the highest response of 66.1%. This theme supports what the literature says about wanting common interests and personalities for successful dyad matching.

The most important mentor characteristic identified was similar personalities in both the multiple-choice section as well as the open-ended questions. When discussing what the mentor could offer the mentee, the highest ranked item was clinical advice, followed by future career advice, and then emotional support. When asked which mentoring model was ideal, multi-level was first, followed by group mentoring, and the lowest score was speed mentoring. Little

evidence supports any one model over the other but throughout the open-ended responses Morstatt (2020) found the multi-level described multiple times. Other findings found within the open-ended questions not addressed in the multiple-choice section included support during critical times during the NA program. These times include the start of the program, when clinicals begin, and when searching for a career (Morstatt, 2020). This article provides a vast amount of information pertaining to SRNA's and what they want in mentorship. Therefore, for this DNP project having volunteer mentors that are peers ahead of the new students was chosen for the format. Also, having well defined roles within the mentorship program will occur. The majority of the respondents wanted dyad matching based upon the similar personalities; therefore, the ultimate goal of the project will be to create a mentorship dyad with similar personalities (Morstatt, 2020). Providing support during critical times throughout will occur, as well as having designated "mandatory" meetings with mentors. Some of these mandatory meetings will correspond with transitional periods of the program such as the beginning when mentoring will be established, when clinicals begin, and then prior to the end of graduation or when job hunting begins.

The goal of this analysis and synthesis was to determine effective strategies for assessing the success of a mentorship program, but it resulted in articles that afforded interesting and novel ideas for structure and implementation, in addition to their value for assessment and evaluation, which will be addressed in this section to avoid confusion as to attribution. Whenever possible, care will be taken to parse internally and provide the reader a clear understanding of what the work showed, and how it will be significant to the project. The largest tension uncovered in the review was between quantitative versus qualitative evaluations. While quantitative assessments provide a wealth of trends and ease the burden of analysis, they lack the rich depth and detail that

is provided by qualitative study. It is the intention of the project to incorporate aspects of quantitative evaluation into our assessment, as well as encouraging students to expound on their evaluation narratively, if they so desire.

Analysis and Synthesis - Evaluation

The first article addressing the evaluation component of this project stems from medical education. Bhatia et al.'s (2016) article outlines the implementation of a new mentorship program for a physician residency program. The initial dyad was formed by residents proposing three possible mentors and being assigned one based on overall requests and availability. Their program implemented four structural components for mentors and mentees to participate in: quarterly development meetings, a one-on-one simulation session, a direct clinical observation session, and mentors to assist and observe all presentations by the mentee. In their last year, mentors assisted mentees in the job search process. Finally, four years after initiation, a survey was administered to all participants, with a response rate of 86.67%, concluding that high levels (>5 out of 6) of comfort on the following topics when they were addressed with the mentor: research or career development, clinical issues or performance, talks or presentations, and job prospects (Bhatia et al., 2016). This mentorship program utilized a faculty/student dyad, which is juxtaposed against our project, which is being adapted for a student/student dyad. Despite this difference, there is a similarity in how the dyads are being chosen, with the incoming class providing input to improve the relationship's fruitfulness. Indeed, Bhatia et al. (2016) conclude, "an individual's active participation in mentor selection can yield better outcomes" (p. 58). So, that structural element which is addressed by our project, was consistently rated higher. One of the shortfalls of the program's evaluation, as noted by Bhatia et al., (2016) is "We did not use a standardized programme evaluation [...] data were collected retrospectively through a survey

and did not include direct comparison between prior mentorship programmes” (p.58). The intention in the project is to address that very point by surveying every class with an identical survey, which will yield data from three classes that will reflect the informal student-led mentorship program currently in place. With a robust baseline, there will be data to compare against, to show improvements or lack thereof.

The second article informed aspects of the qualitative component of the evaluation. Drossman et al. (2011) outlines a mentorship/fellowship teaching opportunity for graduate students in the atmospheric sciences. In this program, fellows would be implementing a new form of pedagogy, which, along with the mentor, would instruct undergraduate student classes in a team format with senior faculty. The fellows then wrote a ten-page narrative assessment of their experiences with help from open-ended prompting questions. The students who were being instructed were also evaluated on their understanding of concepts prior to and after the implementation of the program by the normal testing assessments of the class (Drossman et al., 2011). The evaluation and assessment performed in this program utilized a narrative format, which provides a wealth of data. Drossman et al. (2011) concluded, “our qualitative data support the efficacy of a collaborative mentoring program” (p.79). Without access to the vast amount of qualitative assessment, however, it is difficult to convince readers to come to that same conclusion. Drossman et al. (2011) cite the quantitative data garnered from the undergraduate testing but note that “comparing annual exam scores is problematic because our program does not use standardized assessment” (p.79) This failure to quantify and standardize data within the paper makes identifying specific inflection points where improvements to a program can be made, as well as measuring the efficacy of those changes, difficult to do. The major point that will be incorporated into the project from this is to include a place for narrative/qualitative data,

which can provide a richer and more nuanced view of how the program is running, and also provide clues for how to address any issues suggested by the quantitative data.

The third article is an informative study of a mentorship program in a STEM (sciences, technology, engineering, and mathematics) field. Feldon et al. (2015) focus on mentor and mentee assessment of specific skill sets in STEM disciplines. The dyads in this study were student/faculty assignments made mostly at random with occasional choices made by a faculty member to pursue a relationship with a promising student. There were qualitative interviews performed, as well as quantitative assessments by both mentors and mentees individually. Notable findings included sharp variation in mentor and mentee assessments and demonstrations of research skills and knowledge. Feldon et al. (2015) address possible reasons: disciplinary knowledge progresses slowly; demands on faculty time force them to rely on abstract impressions; and research structure in STEM fields may contribute to this variation (Feldon et al., 2015). Despite the discordant nature of the findings, Feldon et al. (2015) stipulate, “[...] the intent of this analysis is not to discount the necessity of the mentor-mentee relationship. Many graduate students need [...] mentors to define the way forward to professional accomplishment” (p.363 2015). Feldon et al. (2015) contend, “increasing the specificity of the learning objectives and the extent to which they are identified explicitly for STEM graduate students may enhance efficacy and precision of feedback offered by [...] mentors” (p.364). This reinforces the mentorship program’s need to integrate specific objectives to focus the mentorship relationship and provide concrete points for feedback. Furthermore, Feldon et al. (2015) reinforce the need for quantitative data to provide clarity, “as a methodological consideration, the data reported here indicate that extreme caution should be used when relying on interview data” (p.364).

The fourth article uses a different methodology for evaluation, which would be time consuming and thus prohibitive for the project. Gomez et al.'s (2014) study addresses mentorship in the Graduate Education Diversity Internship (GEDI) program. Gomez et al. (2014) describe mentorship as a core feature based on the premise that it "is a powerful personal and professional development tool – one that is multidimensional and can serve different purposes" (p. 50). The study used Q methodology, which asked participants to rank a set of statements along a continuum that answered the question, "In your opinion, what should be the most important characteristics of a GEDI mentor? A mentor..." (Gomez et al., 2014, p.56). This study provides some quantified data that reflects obliquely on their experience in the GEDI mentorship program. Interestingly, the question answered is an idealized version of the GEDI mentor, or, what a participant believes should be a qualification. The results do not speak to any specific experiences, which would be answered by a follow-up question, "Did your mentor exhibit the qualities you most value?" Gomez et al. (2014) came to some interesting conclusions regarding the value of mentorship program by mentees. First, "When mentors and proteges perceive they have a voice in the matching process, they may invest more in the relationship" (Gomez et al., 2014, p. 62). Second, the top valued answer was: "A mentor that meets with me regularly" (Gomez et al., 2014, p.56). Finally, the second highest was "A mentor who listens to me and understands what I want to achieve [...]" (Gomez et al., 2014, p.56). These three answers point to the major takeaways for the project, namely, dyad matching with participant input is important, and goal oriented and regular meetings are paramount. Although the Q methodology provided insight for these authors, it was not utilized for the project for reasons outlined above.

The fifth article provided a validated tool which is used in the project. The mentorship program outlined by Tiew et al., (2017) presented several key aspects: compatibility matching

for mentors and mentees; focus on goals developed from critical competencies; and evaluation with a 10-aspect assessment both pre- and post-participation. The program and evaluation focused on achieving the goals of the mentorship program; departmental and organization objectives; social and professional success; development and contribution; and development of career path (Tiew et al., 2017). This article provides ample evidence for how to organize, develop, and evaluate the effectiveness of mentorship. Echoing previous studies, Tiew et al. (2017) conclude by noting that “carefully deployed mentor-mentee matching may help to improve the success of mentoring” (p.80). Their goals for the mentorship program are clearly defined and their evaluation of the program includes assessment prior to participation as well as after participation, which provides data that addresses the effects of the mentorship program against a baseline expectation. The instrument is streamlined and utilizes clear, quantifiable data to provide guidance for successes and opportunities for improvement. Tiew et al. (2017) note, “An examination of mentee responses on the tool may provide mentors with an improved understanding of issues that matter most [...or] the scale could also be used to provide feedback to mentors [... or] a revised version could also be used to guide the content and processes in leadership programs” (p.81). The mentorship program utilizes the tool developed in this paper, with permission being given by the authors.

The sixth article was a comparative study of evaluation by mentors and mentees. Kajander-Unkari et al. (2016) study was performed to assess the self-evaluation of nursing student’s competence against the evaluation performed by their mentors. Kajander-Unkari, et al. used surveys to collect data independently from students and their mentors. The surveys divided competence categories and nursing skills and were found to be incongruous with “two-thirds of the students assessing their competence higher than their mentor” (Kajander-Unkari et al., 2016,

p.308). This study sheds little light on how to structure or assess a mentorship program, but it does provide an interesting viewpoint of evaluation. In future assessments of the mentorship program being addressed in the project, it could be fruitful to apply evaluation to mentors and mentees separately and assess whether there is congruence between the two parties' experience of the mentorship relationship.

Methodology

Framework

The purpose of the project is to develop a structured mentorship program from evidence found in the literature and implement it in a NA program. The overall goal is to provide NA students a program with structure and feedback so the experience will be standardized and improved based on the student's experiences. The project will follow a Plan-Do-Study-Act (PDSA) model to improve the mentorship program. The four-step process will allow for development, implementation, analysis, and correction of a mentorship program. The initial "Plan" phase allows for problem identification, predictions, and a proposal of a solution to the problem. The "Do" phase is the action of implementation of the "Plan" phase with observation of how the plan is working. The "Study" portion allows for analysis and reflection of the results from the "Do" phase. The final step of "Act" allows for conclusion and the addressing of any ongoing issues or problems if the results were different than intended (Agency for Healthcare Research and Quality, 2020).

Plan

After reviewing and synthesizing the literature, no single one-size-fits-all method of implementation was found. Several implementation goals for mentorship programs from the literature that were highly efficacious and consistent throughout were: frequent meetings,

adequate partnership pairs, and establishing clear goals for dyads (Gonzalez & Donnelly, 2016; Morstatt, 2020; Nafiu & Haydar, 2019; Neelankauil et al., 2020). These overall goals will also be set for the NA mentorship program that is presented below.

Mentorship Program Leader

This mentorship program will be run primarily by students who are interested in professional development and leadership positions while attending the NA program. A benefit of using students as the facilitators for the mentorship program is that it will prevent an increased workload for program faculty. The student who volunteers to be the head of the mentorship program is the Mentorship Program Leader (MPL). The MPL is in charge of providing expectations and information about the mentorship to the mentees and mentors, facilitating the matching of dyads, and communicating to faculty about mentorship. The MPL is also the point-of-contract person for mentees and mentors if a problem arose with a matched dyad. Studies showed one of the barriers to mentorship is poorly matched dyad (Gonzalez & Donnelly 2016). If a dyad is not working after an attempt at problem solving, the MPL will change the mentor-mentee pair.

Matching Dyads

This structural component was drawn largely from Morstatt's work (2020), which found the two dyad matching schemes preferred by SRNAs were: "Assigned to the student by the anesthesia program based on personality, common interests, and life experiences" at 66%, and "Student should choose a mentor from a pool of mentors" at 13% (p.44). While these data suggest that ideally a MPL should take a larger role in matching based on compatibility, the demands on that single student's time would be so great that it could jeopardize the sustainability of the MPL role and thus the larger project's ongoing quality improvement efforts.

Consequently, greater weight is given the preferences of the incoming class in the dyad formation. Not only would the time commitment for the MPL be too large for one student, but to come to know the incoming class in time to assign personality-based mentors would be difficult. Within the literature, numerous different ways were used to match dyads. An overarching theme for matching dyads is the input from the mentees. Allowing the mentees and mentors to give input into the matching process improves commitment to the process (Gonzalez & Donnelly, 2016; Morstatt, 2020).

For the project's mentorship program, the incoming class of 2025 attended the NA program meet and greet session, becoming acquainted with the current class of NA students. After the meet and greet, the class of 2025 placed the top three names of who they preferred as mentors. These requests went to the MPL who matched the dyads based upon the requests and knowledge gained through the meet and greet session regarding the personalities and interests of the incoming class. The mentors and mentees were made aware that if there is dissatisfaction with the dyad, the MPL can be contacted to rearrange the pairings to accommodate the request.

Mentorship Goals and Commitment

The literature provides no strict guidance about how frequently the dyad should meet. Regular meetings help build trusting relationships for the mentorship dyad (Gupta & Reinsels, 2017). Literature also indicates that having clear and personalized goals is essential for mentorship success (Gonzalez & Donnelly, 2016; Neelankaul et al., 2020; Pollard et al., 2021). Morstatt (2020) found that incoming SRNAs were ambivalent about the question, “Although the sample preferred informal mentoring when asked in a multiple-choice question, in the open-ended questions that asked about ideal components of a mentorship program, formal mentoring components, like guidelines and defined relationships, appeared 27 times” (p.61). The tension

between these two seemingly conflicting responses arises due to the intense time demands of NA programs on the first year SRNAs as they reenter a didactic environment, as well as those time constraints on more senior SRNAs as they begin their clinical practice in earnest. Students are wary of adding another scheduling obligation that might interfere with what they perceive as their core activities, like studying and clinical. Nafiu & Haydar (2019) state, “regular contact and ready access to the mentor’s wealth of experience, knowledge and contacts is essential for the protege, especially early on” (p.318). It is important to front load the positive aspects of mentorship to ensure student participation and engagement.

For the mentorship program, there is a commitment from both the mentee and mentor to meet once a month. The monthly meeting is a minimum but does not stop the mentee and mentor from meeting more frequently. At the NA program for the project, curricula for the first and second year are fairly congruent, with frequent reviews necessary by the upper classes for classes, clinical participation, and board certification preparation. This provides ample opportunities for discussion of specific classroom and clinical content areas, in addition to broader concerns of the mentee.

Do

For the mentorship program to be initiated it was first proposed to the faculty leadership at the NA program and approved by the IRB. Once the faculty approved the mentorship program proposal it was initiated with the next class of NA students. The initial group for the project was the incoming class of NA students attending the NA program. The sample size for the project is the number of students in the class of 2025 attending the NA program, twenty-four students. The mentorship program was described and presented to the incoming class via an email from the MPL. This email provided the new NA students information about how the matching process

was based upon requests they make after the first meet and greet. See appendix E for the informed consent e-mail that was also distributed to the students. All the steps above have been performed, and all previous classes have participated in the baseline data collection. The dyads were formed according to the outlined plan, and regular meetings have been occurring, with the MPL encouraging the goal formation and monthly meeting schedule.

Evaluation and Study

Whether developing or improving a mentorship program, ongoing assessment is critical to determine if outcomes are positive or negative and identify any aspects that need addressing to achieve those positive outcomes. Feedback is key to a successful mentorship program because it assesses the effectiveness and needs of the students who this program is designed to help (Gonzalez & Donnelly, 2016). Three of the journal articles in the literature review utilized quantitative analysis to drive their conclusions regarding their mentorship programs. The common points among the quantitative group were that there should be baseline data collected prior to changes or implementation; datasets should be divided by classes if the program spans multiple years; and standardized tools should be utilized for the evaluation (Bhatia et al., 2016; Gomez et al., 2014; Tiew et al., 2017). Drossman et al. (2011) utilized an entirely qualitative measurement tool that emphasized narrative, which yielded large amounts of data that were useful in identifying very specific strengths and weaknesses. Feldon et al. (2015) used a combination of qualitative and quantitative evaluation, which showed that there can be tension between qualitative data obtained when compared with qualitative.

Taking all of these considerations into account, the specific tool used by Tiew et al. (2017) has been used to collect data related to the project, with permission, obtained from the authors. The version intended for use in the DNP project is posted in Appendix C. Additionally,

there will be a section after the quantitative portion for participants to expound or clarify on any aspect of the mentorship program. In order to assess the outcome of structuring the mentorship program more formally, a baseline dataset has been obtained by distributing the survey to the previous informal mentorship program participants that remained in the program, two classes. As the incoming class transitions to their second year, after one year of the new structure, the survey is being repeated by the MPL. Results of all data will be placed in a shared drive that can be propagated to the next MPL. As each successive class turns over, the new MPL will gain easy access to data which should show program successes and identify further opportunities for improvement. The data will be stored on a protected online spreadsheet. Finally, an online tool has been used to perform all surveys, allowing the format of the survey to remain unchanged from class-to-class, as well as being automatically anonymized to protect the students and encourage honest participation.

Act

The information gathered from the study portion of the process will guide what is implemented in this “act” section of the project. First, student responses will be used to determine the efficacy of the new dyad formation system implemented by the project. The expected outcome, if the student body is analogous to the populations of the studies in the literature review, will be an improved perception of mentor and mentee relationships over the previous random matching. If the evaluation shows the opposite, it will be necessary for the authors and the MPL to decide whether to revert to the previous random matching. If it is determined that the data were skewed by outliers, or negative responses were due to a confounding variable, then the program would continue unchanged, and reassessment would be performed the following year. Finally, the tension between adequate time to achieve goals and

create a trusting bond will be balanced against the perception of another time burden laid on students' often overcrowded schedules. The frequency of meetings will be adjusted depending on the response from the student body in the evaluation phase. Goal modulation will be addressed in light of this time demand, and it is hoped that qualitative responses from students will also inform any changes to the goal formation.

Cost and Budget

The only costs for the project, as noted previously, are the infringements on student's time. As such, care must be taken to demonstrate value with the mentorship program, and any changes that increase demands on student's schedules must be evaluated as rigorously as pecuniary changes. Indeed, if any changes made by the project, or subsequent MPLs, show no significant positive changes in the evaluation portion, they should be considered for discontinuation, in an effort to foster meaningful participation and investment in the program. All other aspects which in the past might have required grant funding, are all performed via free online software, both secure surveys and spreadsheets are readily available for free, allowing the project to move forward with less barriers to implementation.

Timeline

As noted above, the project began with the class of 2025, with baseline data obtained from the previous classes. The project will continue until the class of 2025 completes their first year and is surveyed. Outcome data will be evaluated and summarized, with the next MPL being part of another cycle of Plan, Do, Study, Act to encourage continuous improvement. While the mentorship program will continue on in the format outlined in the project, the project itself will be concluded.

Measuring Success

The outcome being investigated as determined by the PICO is whether or not students benefit and prefer a structured mentorship program over the previous unstructured format. If the survey results improve from the baseline, then it is obvious that the structural elements were a net benefit. The converse, if results all trend downward, then the structural elements likely should be abandoned. If the survey trends are mixed, then it would be up to the MPL to determine if any given element should be changed, but the evaluations should certainly continue. Thus, each successive MPL will possess the information at hand, to make a decision regarding the success or failure of any given changes made during the previous year.

Future Improvement

Beyond the refinement of the existing mentorship program, there were several opportunities for improvement beyond the scope of the current project. First, Morstatt (2020) notes that when comparing minority composition of CRNAs as a whole with the respondents to her own survey, she found it doubled from 11% to 23% noting, “It is unclear if the increased percentage of minority respondents in this survey reflects an increase in the number of minority students entering the profession or a heightened level of interest in this topic among minority SRNAs” (p.59). This sentiment is echoed by Nafiu and Haydar (2019) stating that it is an “[...]undeniable fact that mentoring is critical for career advancement and personal growth, and underrepresented minority groups are compared to others who are less likely to have or know that they need a mentor” (p.129). Both authors note that the impact of mentorship on minority groups in anesthesia is an under researched topic (Morstatt, 2020; Nafiu & Haydar, 2019). Pollard et al. (2021) when discussing gender in anesthesia, bluntly reports, “Women are underrepresented in leadership positions within medicine. Women are less likely to identify mentors than men” (p.32).

After the project is complete, there exists the opportunity to utilize the local data after several cycles and analyze it for any disparities between subgroups, from gender, age, and race. From there, a future DNP project could easily be developed to address any problems suggested by the local dataset. Additionally, since several authors have begun addressing this topic in the literature, a review performed several years hence will likely uncover new research on which new interventions can be developed.

Other future improvements will likely arise from the data collected in the project. Furthermore, as students lead and control the mentorship program, it can be directed quickly towards any class-specific issues. With students empowered to help themselves, future classes can tailor the program as the data and larger NA program context suggest. Another direction for future improvements if needed could be educating the mentors on what their roles, and the standards for the program would be.

Concluding Statement

The jarring change from professional ICU nurse to graduate student in a NA program can be difficult to navigate. Mentorship is a COA requirement that is intended to smooth this transition. The project addresses a lack of formalized structure and evaluation in a SRNA-led mentorship program. Literature reviews illuminated three structural elements that are widely supported, and also produced a tool to measure and assess quality of the mentorship program. Prior to implementation, the tool has been used to collect baseline data from the existing student body. After implementation, data obtained from students experiencing the new structural elements will be used to evaluate the efficacy of those changes. From this local dataset future DNP projects can address program specific needs or problems. While the SRNA mentorship will inevitably fall short of the divine interventions of Athena for her mentee Telemachus, the project

will create durable mechanisms for quality improvement and help build relationships that provide support and guidance as SRNAs embark on their journey through graduate education.

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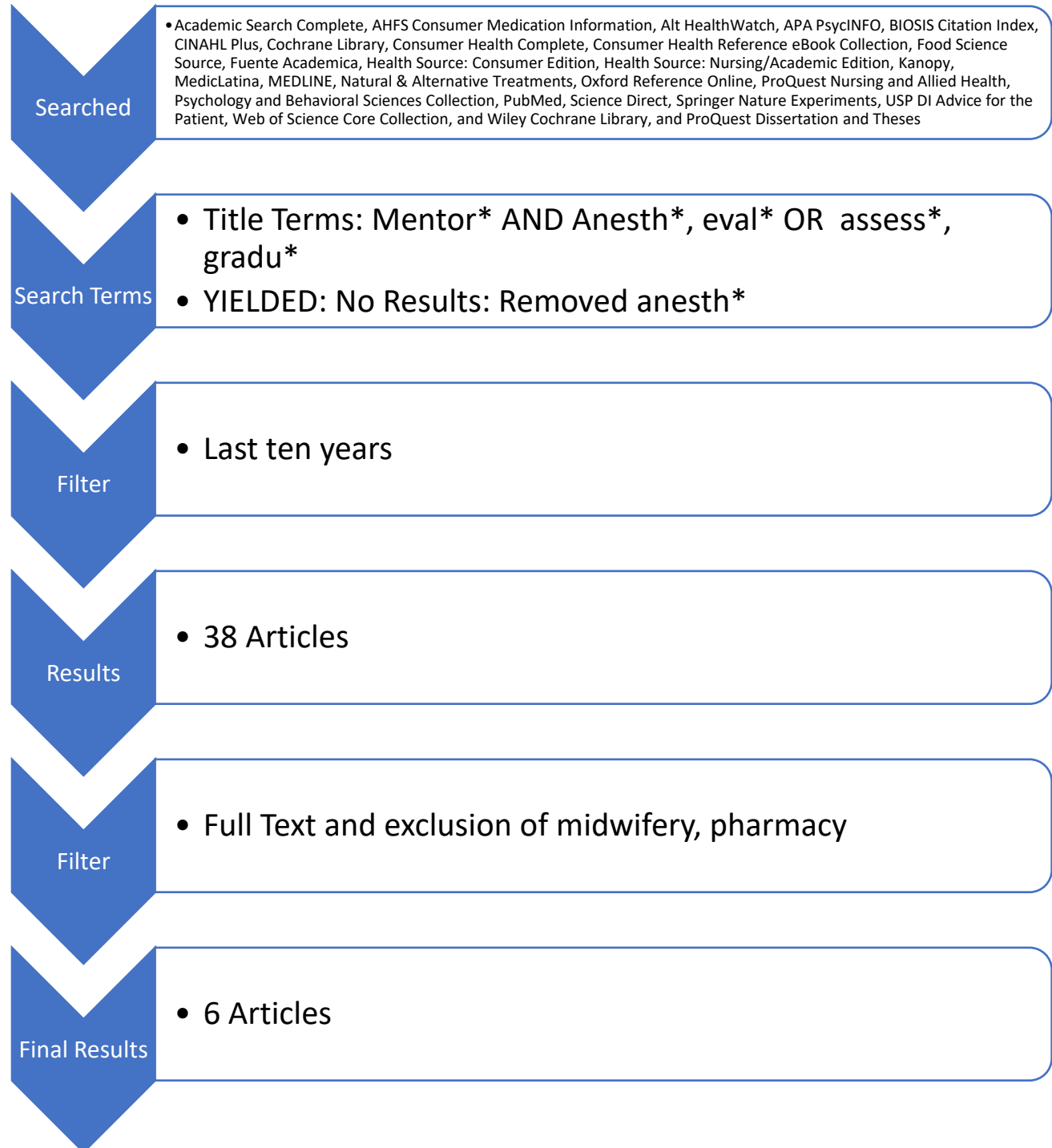
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Appendix A: Literature Search Results- Evaluation

Appendix B: Literature Search Results-Structure

Appendix C: Evaluation Tool

Using a scale of 1 = Strongly Disagree (2) = Disagree (3) = Agree and (4) = Strongly Agree, answer the following questions, “My Mentor helped me...” (Circle #)

- 1) ...understand how to achieve program objectives
1 2 3 4
- 2) ...be aware of how the people I work with perceive me
1 2 3 4
- 3) ...know what kind of clinical activities/tools help me
1 2 3 4
- 4) ...be aware of my strengths and development needs
1 2 3 4
- 5) ...know what kind of learning activities I need to pursue to meet my development needs
1 2 3 4
- 6) ...be aware of the program vision and mission and understand how I can contribute these
1 2 3 4
- 7) ...how to network effectively to learn more about organizational resources
1 2 3 4
- 8) ...be aware of current trends in anesthesia
1 2 3 4
- 9) ...feel comfortable requesting and receiving feedback
1 2 3 4
- 10) ...have a good sense of the career path I want to pursue over the next five years
1 2 3 4

In the space below please elaborate on any aspects of the mentorship program you felt were helpful, neutral, or were a negative. You may continue writing on the back of the form, if necessary.

Appendix D: IRB Approval Letter

INSTITUTIONAL REVIEW BOARD

- ☐ Original Review
- ☐ Continuing Review
- ☐ Amendment

Dear Dr. Ballard,

With regard to the employment of human subjects in the proposed research:

HS # 21/22-37**Ballard, Bedinghaus & Bedinghaus: Implementation and Evaluation of a Structured ...**

THE INSTITUTIONAL REVIEW BOARD HAS TAKEN THE FOLLOWING ACTION:

- | | |
|--|--|
| <input type="checkbox"/> Approved | <input type="checkbox"/> Disapproved |
| <input type="checkbox"/> Approved with Stipulations* | <input type="checkbox"/> Waiver of Written Consent Granted |
| <input type="checkbox"/> Limited/Exempt/Expedited Review | <input type="checkbox"/> Deferred |

*Once stipulations stated by the IRB have been met by the investigator, then the protocol is APPROVED.

1. As Principal Investigator, you are responsible for ensuring all individuals assisting in the conduct of the study are informed of their obligations for following the IRB-approved protocol.
2. It is the responsibility of the Principal Investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the Principal Investigator leave the university, signed consent forms are to be transferred to the IRB for the required retention period.
3. If this was a limited, exempt, or expedited review, there is no need for continuing review unless the investigator makes changes to the proposed research.
4. If this application was approved via full IRB committee review, the approval period is one (1) year, after which time continuing review will be required.
5. You are reminded you must promptly report any problems to the IRB and no procedural changes may be made without prior review and approval. You are also reminded the identity of the research participants must be kept confidential.

Signed: Noam Shpancer
IRB Chairperson

Date: 1-28-22

Appendix E: Informed Consent E-Mail

Dear [Student],

This e-mail is to inform you of the opportunity to participate in a DNP project while enrolled in the Otterbein University-OhioHealth Grant Medical Center Nurse Anesthesia Program. This is strictly voluntary. By accepting you will participate in a mentorship program where you would be paired with a student in the class above you to help with transitioning back into the student role and navigating graduate level coursework. Participants will drive the assignment of mentors after a meet and greet session, which will be either in person, or online, as dictated by pandemic conditions. The time commitment for the mentorship program will be a meeting once a month with your mentor. At the end of the first year, participants will complete a ten-question survey, which will be used to assess the impact of the mentorship program. The participant responses will be anonymous. These are the only expectations, requirements, and risks related to this experiment. For further clarification, please contact us.

By replying to this e-mail, you will be consenting to participate in this DNP project.

Thank you for your consideration and time,

Caroline Hillman RN, BSN, SRNA

Cary Bedinghaus RN, BSN, SRNA