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Addressing Need for Research-Focused Nurses By Increasing Interest and Socialization at the Undergraduate Level

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ADDRESSING NEED FOR RESEARCH-FOCUSED NURSES BY INCREASING INTEREST AND SOCIALIZATION AT THE UNDERGRADUATE LEVEL

by

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ABSTRACT

The U.S. shortage of qualified nursing teachers and researchers is affecting national health care outcomes. Methods such as fast-tracking Baccalaureate nurses into graduate programs and embedding leadership development early into nursing curricula have been proposed to address faculty and research shortages.

Early interest in nursing research careers increases likelihood of enrollment in graduate education. One way undergraduate nursing students may develop an interest in research careers is through a mentored apprenticeship with research-active faculty. In this thesis, the author uses an autoethnography methodology to examine the benefits that a mentored research apprenticeship model brought to her undergraduate experience. Her experience incorporated a variety of roles in an adolescent intervention program with Dr. Anne Norris (PI) at the University of Central Florida College of Nursing. Several themes about the experience were defined in the results.

Early research exposure that socializes a student to the nursing research world may provide a means for addressing the nursing faculty shortage. This socialization can generate interest in a research career and promote undergraduate students with the essential tools and insights needed to pursue this career pathway. However, findings from this study suggest a student-mentor relationship early in the undergraduate education experience is essential.

DEDICATION

Love to my family, friends, and faculty for their endless support. Special thanks to Denise Crisafi, Kelly Astro, and others at the Burnett Honors College for the years of encouragement.

This thesis is dedicated to all faculty members committed to providing research opportunities for undergraduate students.

All of my gratitude to “Mighty Girl” Dr. Anne Norris— I have not only learned from you what it takes to be a great nursing scientist, scholar, and educator, but I have also learned the true meaning of mentorship.

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INTRODUCTION

The American Association of Colleges of Nursing (AACN) is a national voice for collegiate nursing education, accreditation, and curriculum standards (AACN, 2013). Their 2012 report noted that only 0.77% of 2012 nursing school enrollments were in research-focused doctoral programs (Fang, Li, & Bednash, 2013). This number is inadequate to address the need for nursing faculty researchers (Nardi & Gyurko, 2013). Developing a research interest that can lead to the pursuit of a research-focused doctorate and more nursing faculty researchers is reliant on early socialization to research at the undergraduate level (Powell, Green, & Slade, 2002). Baccalaureate of Science in Nursing (BSN) programs now face the challenging task of developing innovative and effective methods of teaching research that empowers and motivates students (Kennel, Burns, & Horn, 2009).

The purpose of this thesis is to describe the author's observations and experience with research during her undergraduate nursing education, using them to describe a model for increasing interest and socializing undergraduate students in research. The model will be compared with other models for increasing student interest and socialization to research that are available in the literature. Lastly, congruency with the current AACN position statements regarding research-focused education standards in nursing will be discussed.

BACKGROUND

The following background information has four parts. It begins with a brief historical overview of nursing research. Secondly, it describes the significance of increasing research socialization experiences to meet the growing need for research-focused nurses. Thirdly, some potential barriers preventing students from considering research careers are discussed. Finally, the goals and characteristics of an effective model are presented from evidence in the literature.

History of nursing research and evidence-based practice

"What you want are facts, not opinions... the most important practical lesson that can be given to nurses is to teach them what to observe- how to observe" (Nightingale, 1859, p. 105).

Florence Nightingale, pioneer of modern nursing, saw nurses as autonomous practitioners with an obligation to collect empirical evidence. Her early recommendations for collecting evidence were not actualized until nurses received a more formal education over a decade later (American Nurses' Association/ANA, 2010). In the 1960's, nurses were publishing patient care improvement articles in scholarly journals and designing theories incorporating science disciplines such as sociology, biology, and psychology. By the 1980's, more focus was placed on increasing research utilization by practicing nurses (Polit & Beck, 2010). Today, nursing care is provided using an evidence-based practice (EBP) approach that involves methodological problem-solving based on best clinical evidence and healthcare consumer values or

preferences (ANA, 2010). The nursing field constantly needs new researchers adding to the knowledge base to maintain quality outcomes in the changing health care environment. Nurse researchers today operate in a variety of settings; while many simultaneously teach in schools of nursing, increasing numbers of practicing nurses conduct research in the clinical setting to improve patient outcomes (Polit & Beck, 2010).

Meeting need for research-focused nurses

Increasing undergraduate interest in nursing research is critical. The International Council of Nurses (ICN) states that a shortage of academically qualified nursing faculty is negatively affecting nursing research productivity on a global scale (Nardi & Gyurko, 2013). A goal in the Institute of Medicine's (IOM's) *Future of Nursing* report is to double the number of nurses with a doctorate by 2020 to adequately address the shortage of qualified teaching and research professionals in nursing (Institute of Medicine, 2010).

The Robert Wood Johnson Foundation's 2010 *Charting Nursing's Future* states that an interest in nursing research and academic careers needs to begin early to increase the likelihood of enrollment in post-baccalaureate graduate education. The Institute of Medicine's (IOM's, 2010) *Future of Nursing* report recommends that at least 10% of all BSN graduates matriculate into graduate programs within five years of program completion. This is a challenge for students who lack the exposure needed to meet admission expectations for a research-focused doctorate, such as demonstrating a commitment to a research career (Dunbar-Jacob, 2013).

Generalist (i.e., Baccalaureate prepared) nurses develop interest in academic and research-focused careers by participating in nursing programs that prepare them for evidence-based leadership in research, education, and practice (IOM, 2010; Reutter, Paul, Sales, Jerke, Lee, McColl, Stafford, & Visram, 2010; Vessey & DeMarco, 2008). Many program curriculum standards come from the AACN's *Essentials* documents, developed from national consensus of competency expectations for Baccalaureate, Masters, and Doctor of Nursing Practice programs (AACN, 2013). The AACN *Essentials* advocate for greater undergraduate interest in research-focused careers. One specific educational goal of the *Essentials of Baccalaureate Education for Professional Nursing Practice* is to prepare generalist nurses for increasing graduate level study, including careers in research (AACN, 2008). Unfortunately, Reutter et al. (2010) maintain that considerable improvements in nursing programs must be made to increase undergraduate student interest and participation in research. Nursing programs that provide these opportunities for early research exposure prepare undergraduates for lifelong learning (IOM, 2010).

Barriers to a research career

For many undergraduate nursing students, the first and only exposure to research careers is through an introductory methodology course. Many undergraduate students do not regard this course as favorably as other courses in the basic nursing curriculum (August-Brady, 2005). Some consider research a "dry", "abstract", or "seemingly irrelevant" topic when compared to more concrete clinical skills and medical content (Kennel et al, 2009). Students learn kinesthetic nursing skills and make

immediate use of them in the clinical setting (Meeker, Jones, & Flanagan, 2008). The typical introductory research course exposes undergraduate students to skills necessary for careers in research, but does not provide socialization through meaningful and innovative projects (Green, 2002). Moreover, the actual environment of a practicing nurse researcher is different than what students grasp from reading a research book in a traditional methodology course (Kennel et al., 2009). Unfortunately, designing independent undergraduate projects presents many challenges to nursing students (Vessey & DeMarco, 2008) and simply including guest researcher presentations in the classroom have a limited, short-lived impact (Meeker et al., 2008). Students who are proactively involved in faculty research projects are more confident and appreciative of the value research adds to the nursing profession (Kennel et al., 2009; Rash, 2005). In a 1996 study by Pond and Bradshaw, active involvement of students in real data collection created a more positive perception of research when compared to traditional lecture formats (Pugsley & Clayton, 2003).

Financial decisions also influence nursing student interest in research careers. Many nurses decide to pursue clinical and other business-related roles for higher salaries; nurse practitioners can make approximately twenty percent more than nursing faculty with comparable academic degrees (AACN, 2010b). In addition to an inability to offer competitive wages to nursing faculty, schools struggle with adequate funding for research-focused higher education programs and research productivity (Nardi & Gyurko, 2013). The faculty shortage further perpetuates limited availability of nursing

program seats available to qualified students, which decreases the applicant pool of future nursing researchers.

Even if interested in faculty and research roles, many baccalaureate-trained nurses are told that they need years of clinical experience (hospital floor work) prior to applying to graduate programs; as a result, they do not apply for advanced degrees until middle age (Fontaine & Dracup, 2007). The IOM (2010) supports fast-track nursing programs such as BSN to master's and BSN to doctoral programs (AACN, 2010a). Increasing the number of nurses prepared with research and teaching degrees cannot happen without also changing attitudes among school and college of nursing faculty. Faculty who adopt approaches that involve undergraduate students in research experiences will increase undergraduate research socialization, move their own research forward, and possibly change attitudes regarding the need to delay pursuing graduate education in favor of clinical experience.

Elements of an effective research exposure model

An ideal research exposure model establishes appreciation, fosters student identification with the research career path, teaches appropriate consumerism, and connects research with practice (Reutter et al., 2010). Engagement in research activities is an ideal way to socialize students to research. Evidence shows that students who are engaged in research activities become better research consumers (Reutter et al., 2010). The engaged, "hands on" approach is currently used in the clinical setting to help undergraduate students develop their own nursing identity, gain

important clinical skills, and connect and commit to the profession (Hickey, 2010). Evidence supports experiential learning as a means to create interest in the research process, provide relevance of research to practice, and allow easy adoption of research as a student value (Reutter et al., 2010).

In clinical education, the preceptor model is an effective way to bridge the student's theory-to-practice gap and enhance student learning (Hickey, 2010). This model may provide similar benefits if used in the context of a research-focused learning experience. Active nursing researchers draw from their enthusiasm and knowledge of current projects to engage students, make research relevant, and can challenge students to be actively involved in questioning process (Halcomb & Peters, 2009). Mentorship, role modeling, and active participation in a researcher's larger study where students do not feel intimidated by their limited clinical and research skills enhances confidence and boosts appreciation of the overall process, even if students only participate in selected roles (Reutter et al, 2010; Mandleco & Schwartz, 2002).

OBJECTIVES

This thesis will use an autoethnography methodology to describe and systematically analyze the author's personal experience with undergraduate research in order to understand the culture of a nurse researcher engaged in interdisciplinary research (Ellis, Adams, & Bochner, 2011). The author's experience will be evaluated against various exposure models in the literature that guide students into the seemingly incomprehensible world of research. Specific objectives for this thesis are as follows:

1. To use an autoethnographic method for describing the author's observations and involvement with research during her undergraduate baccalaureate nursing education.

2. To compare and contrast the author's undergraduate research experience with other approaches and models for increasing interest and for socializing undergraduate students in research that are described in the literature.

METHODS

Authoethnography. The author will conduct an autoethnography using her experience and observations as an undergraduate research assistant in the Mighty Girls®(MG) intervention. This description will include (1) details about the research experience and the variety of roles filled by the undergraduate nursing student, (2) observations of other undergraduate nursing students who participated briefly as part of their clinical coursework, and (3) an interview with the author's faculty member regarding her impressions of undergraduate student collaboration and its' impact on the research effort. The experience summarized in this autoethnography will be compared and contrasted with other approaches that have been summarized in peer-reviewed journals.

Research Setting. The University of Central Florida (UCF) College of Nursing's Bachelors of Science in Nursing Program and the Mighty Girls® Program shape the setting for this study. The UCF College of Nursing (UCF CON) **Bachelors of Science in Nursing (BSN)** is a limited-access program (UCF College of Nursing webpage [www.nursing.ucf.edu]). Potential candidates apply for admission after completing prerequisite courses, typically in their first two years of undergraduate education. The Basic BSN track is 5 semesters of full-time coursework. The curriculum includes science courses as well as clinical rotations in underserved communities, long-term care facilities, hospitals, and other agencies. After completion of the program, students can sit for their RN licensure exam (NCLEX-RN) and practice in entry-level (i.e., generalist) roles, with the ability to advance into leadership positions and graduate

studies. This program enrolls approximately 100 to 120 students each year. However, additional programs (i.e. accelerated-track BSN, concurrent-track BSN, regional BSN campuses) sum to a total enrollment at the undergraduate level of more than 250 students annually.

The **Mighty Girls® (MG) Intervention** is a multi-modal (classroom, computer) pregnancy prevention intervention designed for early adolescent Latino girls (Norris, 2014; Norris, Hughes, Hecht, Perragallo, & Nickerson, 2013). The MG classroom component teaches core content on communication competence and peer resistance with topics including goal setting, evaluation of risky choices, and resistance to media influence. DRAMA-RAMA™ is the accompanying MG skill-building computer game. Players communicate directly with adolescent avatars on the screen that are controlled live by an interactive performer ("inter-actor"). Players earn points for resisting the avatar's pressure to engage in risky behavior. The choices made by the player personalize the storyline, similar to a choose-your-ending storybook.

The CON provided two research offices for this research project, both of which were located across the hall from the PI's faculty office. One office was used by the project manager, the other was used for coding and as a work space for students associated with the project.

The experience reviewed in this autoethnography come from multiple preliminary research activities that occurred in order to refine the MG intervention. This included: meeting with a consultant to develop a new scoring system for the game; revising the

MG curriculum to relate more directly to the game; testing the game under free choice conditions; managing the activities in a summer camp used to test the refined curriculum and new game stories; and further refining of the MG curriculum based on test data and experience. Table 1 describes these various activities in the context of specific roles on the project.

Table 1: Student Roles and Activities in the MG Intervention Preliminary Research

Student Roles	Specific Activities
Curriculum Refinement	Redesign MG curriculum materials to incorporate super-heroine motif—original "comic book" graphic art, color palettes, and superhero language Revise curriculum using feasibility trial facilitator feedback Attend daily meetings with PI and project manager regarding curriculum editing Test revised curriculum in MG summer camp Evaluate camp participants' opinions and retention of skills taught through curriculum
Game Refinement	Participate in consultant meetings to design game scoring Incorporate curriculum theme into game scoring language and names for scoring metrics (POW, V-BAM) Co-facilitate focus group at middle school conducted to generate details for new game avatar ideas Co-facilitate focus group with MG camp participants' about their game play experience
Research Support	Participate in development of new scoring approach: Scoring feasibility trial videos and participating in workshops and meetings regarding scoring Assist with game testing by narrating during live game testing Assist with game evaluation by co-facilitating "pizza party" discussion and activities (e.g., rate your favorite character) with study participants at end of open game play *MG Summer Camp Manager:* Design camp flyers/brochures Create schedule of activities, and additional activities as needed Communicate with participant's parents and guardians Ensure participant safety Coordinate nursing student teaching of health and career content *Multipurpose research assistant:* Note taking in conference calls and meetings Organizing print materials for focus groups Curriculum booklet printing and binding

RESULTS

Autoethnography

According to Denshire (2010), autoethnography "opens spaces where writers can be both vulnerable and critically reflective" of their personal experiences. A reflexive autoethnography highlights personal developmental milestones met along a continuum (Ellis, Adams, & Bochner, 2011). For the author, this personal and professional trajectory spans the time period from a pre-nursing undergraduate to baccalaureate final semester at the UCF College of Nursing (CON). The results section begins with a review of how the research experience was initiated. Second, an overview of the author's various research activities are described. Third, themes that emerged during her research experience are examined (see Table 2). These themes do not reflect a chronological progression. Hence, a timeline of the author's research experience is provided in Figure 1. After discussing the themes, the author describes her research-related interactions with peers in the nursing program and in the MG project. *Note: A first-person voice is used for all proceeding autoethnography sections.*

Table 2: Themes Identified in Autoethnography

1. Connecting with the nursing profession early
2. Transitioning from pre-nursing to nursing student
3. Changing perception of the researcher's role
4. Observing and modeling researcher behaviors
5. Performing leadership roles
6. Being part of the interdisciplinary research team
7. Developing a mentor-mentee relationship
8. Making classroom relevant to the profession

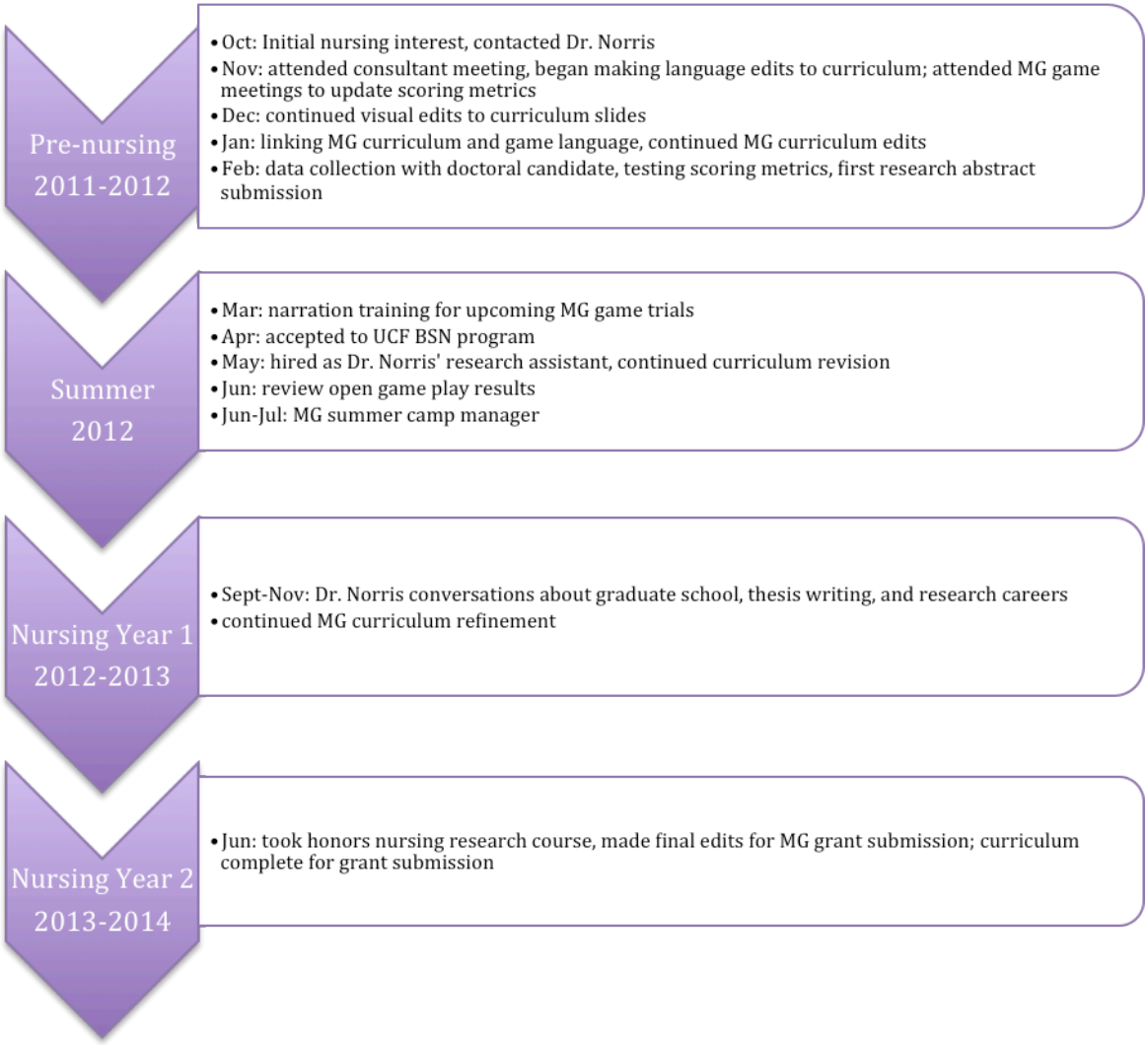


Figure 1: Timeline for Research Experience

My experience began by attending a hospital presentation on nursing, where I hoped for an opportunity to speak with a UCF nursing faculty member. I explained my nursing interests to an instructor whom I met there and she encouraged me to contact Dr. Anne Norris, a UCF Nursing professor who was currently working on an adolescent intervention for a research project. My heart raced as I wondered if an expert faculty researcher would be willing to bring an inexperienced pre-nursing student like me into their project. I sent an eager email the very same day. To my surprise, I received an equally enthusiastic reply just a few hours later. Dr. Norris invited me to learn about her project, read her grant abstract, and join her for upcoming training sessions. That fall, prior to completing my nursing prerequisite courses, I began my research experience at the UCF CON.

Overview of student activities

Initially, I attended meetings and spent time in the student research office reviewing papers related to the project at my convenience. I spent three or more days a week there, enjoying the newness of the environment, embracing how different it was from my previous classroom experiences with research. The feeling of freedom in learning- ungoverned by a syllabus or grading sheet- was enticing. I initially focused on learning the team member roles, the project aims, and the basic research language. There were many individuals involved with this project: professionals in technology, performing arts, education, management, marketing, graphics, and game design. The team also included key individuals with content matter expertise. These included: (1) the project manager, a mother of a middle school girl, originally from Chile, and active in her

local community; and (2) two young Latinas, who had joined the research team as high school students to help develop the game. The team was highly collaborative, with Dr. Norris making it clear that she expected everyone to participate, regardless of his or her academic credentials. Joining this team felt similar to moving into a new country in which one is unable to communicate with little more than a few acknowledging head nods when spoken to. It was an immense learning curve, but immersion in the project environment allowed me to become comfortable more quickly than I anticipated. At meetings, the research team never put me on the spot for answers, but welcomed me and warmly encouraged me to ask questions or offer contributions. I worked in an assistant office across the hall from Dr. Norris, allowing me to ask questions frequently and take advantage of the many opportunities to learn about the project.

After several weeks of developing a basic understanding of this research project, I began to assume greater roles in the project related to curriculum refinement and research support (Table 1). My first task was to more closely link the language of the intervention curriculum with that of the accompanying game. My past experience as a visual and performing artist enabled me to revise the curriculum power point slides and participate in revising curriculum activities. I also provided research support as a multipurpose assistant in the office. Essentially, Dr. Norris included me in anything that she felt would be a valuable learning experience or something I would be interested in seeing. I participated whenever I felt able to contribute. Experiencing many roles in the research project was instrumental to my understanding of the project's interdisciplinary complexity

Themes

Eight themes emerged, which are displayed in Table 2. As can be seen from the timeline (Figure 1), these themes were derived from experiences that began prior to entering the UCF BSN nursing program and continued into my final semester.

1. Connecting with the nursing profession early

I quickly became attached to the MG target population (low income middle school Latinas), given my initial passion for improving adolescent health. I learned about specific Latina cultural norms, such as personalismo, or the importance of relationships and putting people ahead of tasks. I met local Latina students who were participants in game and curriculum testing when Dr. Norris invited me to join her for visits to local middle schools. As I made a connection to the population, I wanted to learn how nurses could prepare these middle school Latinas to appropriately respond in situations that could lead to risky decision-making. The MG project was an example of how patient education can be designed to promote healthy choices. I began to view education as one of the greatest roles a nurse can perform.

The MG project laid a strong initial foundation for my understanding of the nurse's role in health promotion prior to beginning a nursing program. My understanding of the MG curriculum nursing implications came from hours of reading and refining sessions. Using my new knowledge of the target population and personal experiences from middle school, I would role-play risky scenarios in my head, asking myself how I would have responded as an adolescent. I determined that my twelve-year-old self

would have needed some practice to communicate in a “Mighty Girl” way. I made notes on the corner of my page to remind myself to look clear, confident, and convincing with my words and body language, which was a key component the team had decided to build into the MG curriculum after consultation with Dr. Michelle Miller-Day, a communication scientist. The more I reflected, the more new content I developed. I was further inspired by the research office walls, covered in pages of sharpied, colorful, bubble-font ideas from adolescent collaborators of the past. Pasted magazine collages reminded me of “differences between middle school and high school” wardrobes. Pictures of the prototype game characters were surrounded by honest middle school opinions about game characters in the video game used as the skill building component in the MG program: “she is annoying”, “I want to be her best friend”, or “his hair is weird”. I grew attached to the long hours of editing, my newfound labor of love.

2. Transitioning from pre-nursing to nursing student

The research experience began during my nursing school application process, which allowed me to redirect my anxiety regarding the competitiveness of the nursing program admission process into work on the research project. In contrast, my fellow pre-nursing students filled their social media pages with anxious and apprehensive comments about the admission process.

I was unlike the other pre-nursing students in that I was becoming increasingly familiar with the nursing College during the pre-admission period. Some of them came to the UCF CON front desk to ask questions about the admission process, or to request

a glance of the classrooms. They were having a first look while I was in my fourth month of a research experience at the College. I had already settled into my routine on the fourth floor and become acquainted with various nursing faculty members.

I remember the day I got my admission email. I came to the college and bolted upstairs, receiving numerous “congrats” from faculty members already familiar to me along the way. Grinning ear to ear, I entered Dr. Norris’ office to find a cake, a UCF CON ball cap, and a homemade sign saying, “Welcome to the College of Nursing”. It was such an emotional moment as I sat down at her table. The previous months of research project curriculum editing made the waiting process less fretful and more manageable. The environment was familiar: I knew where my classrooms would be and already met some students who were a year ahead in the program. I even had an informal relationship with my teachers for the fall semester, and could not wait to tell them the good news. I may have just received my program acceptance letter, but the UCF CON was already my home.

3. Changing perception of the researcher’s role

In early undergraduate years, my negative opinions of research were not formed by actual nursing research experiences. I saw research as a career that offered limited room for imagination and creativity, rigidly following uninspiring prompts of topics I did not enjoy. My previous exposure was writing papers for literature reviews or final project reports in class. Such experiences made it challenging to see how enjoyable and fulfilling the research process could be.

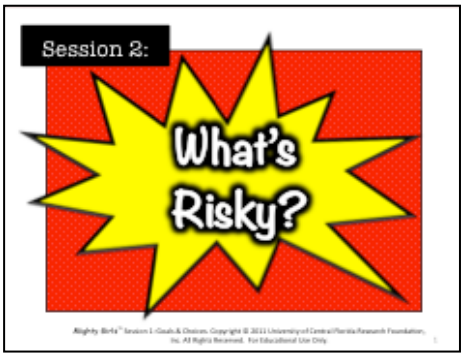
The creative opportunities with Dr. Norris' research project utilized my interdisciplinary interests and were completely contradictory to my previously dry and boring experiences. Notes I made in consultant meetings reminded me of the importance of "capturing the interest of the audience", so I began to explore ways to make the MG curriculum and game more visually engaging. My previous performing and visual arts training inspired me to integrate a superhero motif into the MG project. I re-designed the presently pink-and-purple slides to reflect a strong, "Mighty" style. I used primary colors, dreaming up the world of the "Mighty Girl"- a competently communicating, comic book super-heroine. My goal was to prevent more traditional gender stereotypes in theme with the research project's theme of empowerment. I found the hero theme empowering, and my inner artist saw it fun and engaging. I got lost in hours of designing graphic color palates and fonts for each session's power point presentation. The visual design elements were later incorporated into other areas of the MG intervention, including the curriculum, DRAMA-RAMA™ game, and project logo (see Figure 2).

I also learned that research is truly a team effort. Each day, after a few hours of individual work, Dr. Norris, the project manager, and I would convene to review additions collaboratively over a cup of tea and dark chocolate. Their mutual support of my curriculum updates and positive feedback helped me gain confidence with curriculum editing and settle into a productive routine. One curriculum element developed collaboratively was the "Mighty Moment", a physical exercise at the beginning of each lesson that presented a mini-scenario and asked girls to respond

using their body language and voice in a “clear, confident, and convincing way.” My raw ideas would be reviewed with the research team and refined. We would perform the scenarios and practice our mighty voice and body language; the resulting scripts were magical. I would leave each day feeling productive and energized by the research process. I viewed nursing research as a continuously dynamic, creative, and interdisciplinary experience.

I gained a newfound respect for previously dreaded abstract writing. Before I understood the implications of abstracts, my writing was uninspired and mechanical, following the classroom prompts. Dr. Norris emailed me her abstracts and articles to review before they were submitted. Short of a few changes in sentence structure, I had little to offer in additions. Most importantly, I was simply engaged in reading and learning. I connected with the content and developed an appreciation for the time Dr. Norris spent writing at her computer. Each of her submissions was necessary, as it was a potential article in a journal or new grant that would improve the success of the MG intervention.

MG super/comics theming	
Power point slides	Primary color palettes, unique to each session Original comic graphics, bold lines Use of action bubbles to demonstrate conversations/thoughts
Curriculum	Mighty Moment at beginning of each session Creative superhero metaphors Education motifs: The Mighty Way, Mighty Moment
Game	Scoring acronyms: V-BAM (voice & body language always matter) & POW (power of words)



MG Introduction Slide for Session 2

MG Content Slide for Session 3

MG Activity Slide for Session 4

MG Logo designed by E2i Studios, UCF Institute for Simulation and Training

Figure 2: Student Contributions to MG Visual Style

I was learning that research involved many elements other than writing and reading articles. I would often be working on curriculum edits in my assistant office across the hall when Dr. Norris would interrupt to take me on a field trip or to a creative meeting. I grabbed paper and a pen to take notes, and joined her in a brisk walk to the UCF Institute for Simulation and Training (IST) conference rooms. Here, contributors to the game design would present their new improvements to the game, and the team would discuss new scenarios, character elements, and player scoring. The entire team contributed to the discussion, and I was often invited to give my input as well. I watched as Dr. Norris evaluated the input and selected ideas that appropriately matched the theoretical concepts guiding her research. It was exciting to watch her in the PI driver's seat, directing the process of converting ideas on paper into a real intervention to improve health outcomes. Over time, I watched each edit evolve into a more precise, well-ordered, and effective intervention product. Through participation with the collaborative creation of new ideas, I learned that team meetings were probably the most important part of the research process.

4. Observing and modeling researcher behaviors

I was Dr. Norris' shadow for the first months in the project because I wanted to see and learn everything I could. I listened to her phone conversations with community partners, such as contacts at the middle schools where we would be performing game testing. I followed Dr. Norris to meetings with game developers, interactive performers, consultants, and the project manager.

After a few weeks of observing, I began participating with the game scoring refinement process. Game scoring measured a player's use of the communication skills that were taught in the accompanying curriculum and was critical to the impact of playing the skill building video game. Team meetings emphasized that the scoring needed to be sensitive to the intricacies of player's verbal and nonverbal communication, including posture, vocal tone, eye contact, and word choices. However, what was being scored also needed to be universally recognizable as reflecting competent communication as defined in the project's theoretical framework. Game players would be scored for the words they used to resist being pressured to make choices defined in the curriculum as risky, and given bonus points for their "mighty" delivery – the use of their voice and body language to generate responses that were clear, confident, and considerate. Another challenge was for the scorers to all engage in scoring the same moment of communication – what the group defined and learned to recognize as a minimal scoring unit (MSU).

To test the scoring process, I joined other members of the research team to review previously videotaped game play that was generated from feasibility trials. I eventually gained more confidence in scoring appropriately, and I noticed I was beginning to evaluate the players' responses in a nearly identical way to Dr. Norris. It was a miniature victory each time I realized that I was picking up on relevant data. Sometimes, I would hear her voice in my head with little reminders, such as scoring "MSUs" in their entirety.

Analyzing “mighty” versus “non-mighty” communication patterns in the context of game scoring also helped me create examples to include in the MG curriculum. I needed examples that were specific and grounded in context because Dr. Norris’ project involved tailoring intervention messages for concrete operations thinking (Piaget, 1963, 2001). Early adolescents are transitioning from concrete to formal operations thinking, but tend to rely on concrete operations in the middle school years when formal operations are not fully developed.

Sometimes, opportunities for learning caught me by surprise. My first attempt at an abstract occurred after four short months of research experience. Dr. Norris asked me if I wanted to present my contributions of redesigning the MG curriculum and power points at a research conference. At first I thought she was kidding, but I soon learned she never would joke about a potential learning opportunity. While she was absolutely willing to provide me with an opportunity that was new and out of my comfort zone, she supported me every step of the way with the abstract writing process. We communicated via email and phone over the course of a few days to create a presentation outline and discuss the format for the abstract. On the day it was due for submission, I spent considerable time just staring at dozens of example abstracts, feeling lost and out of my element. It seemed that every time I struggled, another email would pop into my mailbox with more hints and modifications to my initial draft. Dr. Norris remained calm, encouraging, and positive even with the upcoming deadline. The back-and fourth emails, text, and calls went late into the evening. The edits made greater sense and I started having “ah-ha” moments more frequently. I could not believe

how much I had learned in such a short period of time about the submission of an abstract. By the end of the day, I sat in my driveway, laptop open, Dr. Norris on the phone helping me with the final edits. I realized from this experience that she would go above and beyond to support my research socialization experience. It mattered very little to both of us that the abstract was not approved, because the experience alone was so valuable. I was now better prepared for future paper submissions, armed with the tools to complete this previously daunting task.

5. Performing leadership roles

As time passed, I gained a better understanding of the project and a greater confidence in my role on the team. Prior to beginning the nursing program, I had six months of exposure to many parts of the MG project, including curriculum editing and scoring game trials. At a certain point, I became more comfortable with this and was noticing fewer major edits when I met with Dr. Norris. I was then hired to work as Dr. Norris' undergraduate research assistant for the summer, where I would be managing the MG summer camp. Our middle school participants would be testing the latest version of the curriculum and provide feedback on new game stories. Beyond the MG program, many additional elements were added to create a full-length day for the middle school participants. For example, two accelerated track (second bachelors' degree) nursing students came form our college to teach health topics as part of meeting course requirements in their community health clinical course. The middle school campers explored career opportunities in nursing and science, including computer science and

engineering. For example, the girls toured the Nursing Simulation lab and played with computer equipment used in simulation and gaming.

Throughout the whole week, I kept the wheels turning as students moved from one activity to the next and filled time when planned activities ran short. I wanted to exceed Dr. Norris' standards with the camp execution, and remembered the anxious feeling when things did not run as smoothly as I would have hoped. I borrowed skills from my previous experiences as production stage manager of my own theatre company, an adolescent drama teacher, and an undergraduate student mentor in the honors program. I used resources from my previous mentoring roles and the adolescent camps where I had worked in the past. Because I had spent so much time studying the style of effective adolescent interventions through the development of the MG curriculum, I offered advice and helped the nursing students modify their lessons to more effectively reach the middle school girls.

6. Being part of the interdisciplinary research team

Many of my research experiences were interdisciplinary. I worked with experts in interactive performance, communication science, and game design. I will describe an example from each of these three disciplines to illustrate how I learned to work with these individuals and how this work ties back to my nursing research socialization.

Early on I was able to participate in meetings with an expert consultant in communication science - Dr. Michelle Miller-Day, co-creator of the "Keepin' it REAL" (Hecht & Miller-Day, 2007) substance abuse intervention program. She presented a

workshop on communication competence, coding verbal and non-verbal behavior, and an analysis of how to increase the impact of the intervention by building in more consistency between the classroom materials and the game, and sharpening our focus on elements of communication competence. Using notes from the workshop, I reviewed assertive communication components, including body language and strong words (i.e. avoiding “maybe” or “uhh”), to come up with a tie-in. Using the “Mighty” theming, I decided to highlight these assertive communication components by developing two acronyms: P.O.W (the Power of Words) and V-B.A.M. (Voice and Body Language Always Matter). These superhero-esque terms were introduced early in the classroom sessions. To connect this with the game, posters with “P.O.W” and “V-B.A.M” skills were posted in the room where adolescents played the game. The game scoring also incorporated these two elements by making them the two scoring columns at the bottom of the screen.

Later, in the spring before the start of the nursing program, I visited the UCF IST for meetings with computer and gaming students and faculty, where I learned the MG game character design process. The game character prototypes in the game were designed to simulate real middle school children. In some meetings, I got to see the preliminary sketches of characters and learn how certain adolescent stereotypes (i.e. best friend, popular boy, studious girl, class clown) and developmental levels were used to shape the physical and psychological persona of different characters. Dr. Norris linked physical characteristics to different Tanner developmental stages (Tanner & Whitehouse, 1976), and equipped the artists with information about these stages.

I was able to join in the research team's conversations regarding how certain characters would be developed, such as their clothing choices, and posturing. I shared information with these designers that was gathered from interactions with middle school contributors at the summer camp and from after-school program visits. One former MG camp participant was particularly involved in character development, and I was able to interview her to assess her thoughts about different sets of character drawings. As she was on the lower spectrum of developmental maturity relative to the other campers, her opinions of the most appealing best friend characters and the most attractive boy character were different from the feedback we had obtained. This information was useful in predicting what decisions younger game players would make in current storylines, but also what upcoming storyline options could be offered to players that appealed to a variety of girls spanning the early adolescent developmental spectrum.

In the summer, I spent time with the interactive performers (inter-actors) learning how to narrate live game play. Their workspace was a quiet studio filled with computer monitors and microphones; it felt comparable to the backstage areas of a theatre. In the workspace, these professional individuals taught me how to (a) communicate directions in a live game session and (b) provide personalized performance feedback to players at the end of the session. The inter-actors improvised their responses to players, but followed a general script. At the same time, they were responsible for evaluating player's verbal and non-verbal responses in pre-determined minimal scoring units (MSU's) and providing instant feedback through the points bar at the bottom of the screen. I enjoyed paying close attention to players' decision-making to ensure I was

scoring them appropriately, as these attentive and improvisational elements evoked in me the thrilling feeling of a live performance. At the end of the game, my role as the narrator was to give descriptive feedback of the player's voice and body language, providing examples from their game play experience. I quickly learned how to tie content points from the curriculum into player feedback. Through the experience, I developed specialized role proficiency, better understanding of the curriculum-game connection, and a strong working relationship with the interactive performance team.

The interdisciplinary experiences described above kept me constantly engaged in the research process. My varied contributions to the research allowed me to remain engaged in the entire research project, and I felt that I was a well-rounded and valuable asset to the research team.

7. Developing a mentor-mentee relationship

The research environment was fast-paced, fun, and filled with laughter, fostering a close relationship with my PI. Dr. Norris and I kept our doors open to share ideas across the hall. Frequent laughter breaks motivated me to spend many hours in front of the computer. We enjoyed working together, as demonstrated by our holiday plans to "eat buckeyes" (my homemade chocolate and peanut butter recipe) and "talk brilliant ideas." Beyond research-related tasks such as writing progress, Dr. Norris would often poke her head in my office to ask how I was doing. She always seemed to know if I was having a good or bad day. I felt comfortable and I was encouraged to let down my guard to share my personal beliefs, fears, and goals. Dr. Norris was the first to know how I did

after a big test or my first day at clinical. When I began my mental health rotation, I listened to her stories about working as a psychiatric nurse. I asked questions often, typically about career options, graduate school, test taking, clinicals, or general life as a nurse. I requested her advice with difficult situations at home and school, and took her advice to heart. As a nursing student, I found my greatest support during stressful times to be with Dr. Norris at the fourth floor research offices.

Dr. Norris made time for me when there was obviously not a free second left in her day. She wrote scholarship recommendations, which I graciously received at school, state, and national levels. She cared about me and wanted to know how I was doing in classes and clinicals and recognized my need to go home when I was sleep-deprived. She encouraged me to eat healthy and exercise. I was motivated by her ability to make a little time for herself, too, with occasional pottery classes or weekly yoga. I admired her ability to complete work and still balance time for health and family.

As my mentor, it was very special to share major events in my nursing experience with Dr. Norris. In my fist year of the nursing program, she was my guest at a UCF Nursing scholarship luncheon. I was so proud to have her sit next to me and share details about the MG intervention with our table. In the fall of my second year in the nursing program, she attended a March of Dimes awards banquet and was my biggest fan, cheering with excitement as I walked across the stage to receive the “Nursing Student of the Year” award. Dr. Norris was the first person I made eye contact with when they read my name and the first person I hugged after the presentation. As

she was proud of me, her research assistant, I was equally proud to call her my mentor. Besides the great honor of receiving an award, the ceremony reminded me of the mutual enthusiasm we shared for improving public health outcomes. The roles we played in improving adolescent health as nurses made this celebration so important. I knew that Dr. Norris' continuous support and the unique experiences she offered to me through research produced our close, meaningful mentor-mentee relationship.

8. Making classroom relevant to the profession

Throughout the research experience, I observed middle school girls blossom in their ability to communicate competently with strategies we discussed in MG sessions. Even the shyest adolescent female in the MG Summer Camp stood in front of the classroom on our final week and demonstrated "assertive" verbal and nonverbal communication in a group skit. Our spunkier students reiterated the importance of communicating in a clear, consistent, and confident way, and they avoided demonstrating "attitude". By the time I began my nursing courses, I had a connection to the research profession and unique experiences as a member of Dr. Norris' team.

Participation in research enabled me to model nursing behaviors prior to starting the nursing program. I found myself looking forward to my first nursing course in community health because I already had some understanding of how nurses identify population health disparities and use data to design useful initiatives. Prior to beginning the research experience, I thought community health "just wasn't my thing". I originally did not apply to UCF Nursing because I heard from advisors that they placed a greater

emphasis on community health than many other undergraduate programs. Now as I sat in the classroom, I found myself asking questions that related to the MG project, while my nursing peers struggled and criticized the course's lack of appeal and application to their upcoming jobs in the hospital setting. I would learn through this course that my work in the MG intervention was considered "primary prevention", which is providing health promotion by teaching healthy lifestyle behaviors to prevent the development of health problems (e.g., diabetes).

Participation in the research project also impacted my ability to search for articles to use as examples of evidence-based nursing practice throughout my clinical courses, and my appreciation for the nursing research methods course in my final year in the nursing program. In my clinical courses I was determined to find not just any article, but the most appropriate one and keep critical of the articles that I found. For example, I would pay attention to the article's source, the author credentials, the study elements (i.e. sample size, study location, other publications by author) and the study limitations. My peers commented that I was very detail-oriented about finding the best data for our group projects.

I perceived the research methods course as being dense, but enjoyed making connections between this course and the MG intervention study. I realized all of the theory testing, project design, data collection methods, and analysis I had observed or participated in as part of my involvement with this multifaceted project. My familiarity with these aspects of the research process made the class immediately applicable. It

appeared to me that a few students strove to understand the research methods class because they wanted to write an undergraduate thesis. However, the majority of my peers commented that they were bored or frustrated with the nursing research course because the content was abstract and not relevant to their future practice.

Promoting research to other students

Since entering the nursing program, my peers have referred to me as the "research girl." Many of them would ask me about the progress of the MG project, and even those that did not would inevitably find our conversation focus back to the project and to research. I encouraged peers to attend journal clubs, talk to faculty members about assisting with projects, and read about current nursing research topics that interested them. Many students responded positively to these suggestions. Still, I sensed that most were lost as to how to initiate the daunting task of becoming involved with research, or even beginning a literature search. As is typical among eager students, my classmates and I would have frequent casual conversations after class about our nursing interests. I would suggest an article written by a nurse researcher related to their topic of interest. I would suggest they talk to a faculty member at our college who was specializing in that topic and explained how easy it was for me to initiate a conversation with my research mentor about her project. I also encouraged my peers to check out the website of a graduate program that was specializing in research about their nursing topic and their response was typically head nod or a polite "cool... thanks for the info." Many also responded with a nervous laugh. When I followed up with

fellow students to see how they were doing, they inevitably reported not following up on my suggestions.

I was able to encourage some of my closer friends in the nursing cohort to participate in research or ask questions about nursing research. Three of my friends provide examples of this exposure on a spectrum. My closest friend, G., told me numerous times that her goal was to simply work in the hospital and that she wanted nothing to do with research. After months of persuading her to explore it further and discussing the benefits of research, she ended up defending an undergraduate thesis in her area of interest. She personally thanked me in her defense for pushing her to find an avenue in nursing that she now loves and plans on pursuing a doctoral degree. Another friend, K., did not participate in research activities, but often sat with me and talked about my participation in the MG intervention. She attended my defense where she confidently expressed her opinions about how research classes could be better taught to generate more interest among undergraduates. The third example is J. who also initially had no interest in research, but ended up browsing graduate program websites in search of faculty conducting research in her area of interest. These searches happened after we discussed her nursing interests, and I shared with her what Dr. Norris had taught me: To look for faculty conducting research at schools that offer PhD's in nursing. J. displayed a more enthusiastic opinion of research after browsing. While these three examples reflect various levels of research socialization, they are similar in that all three nursing peers did not have a prior interest in nursing research

and graduate school, but demonstrated a positive attitude after they discussed research with me.

Observations of other nursing student involvement in research

Nursing students participated in the MG project on two occasions while I was working on the research team. Our interactions during (1) game scoring and (2) the MG summer camp are described below.

While I was the only pre-nursing student on the MG team, two undergraduate students from the nursing program joined at the same time as me. They would come into our game scoring meetings in their starched white UCF scrubs with stethoscopes hanging out of their pockets. I dreamed about the day when I would be in their shoes. They often commented about how busy they were with their nursing projects, papers, and clinical schedules, but still managed to rush down to the research office on a weekly basis to practice utilizing the new scoring metrics using video footage of live game play. Their participation diminished greatly as they progressed through the nursing program, and within a year, they ceased coming altogether.

Later, two nursing students participated in the MG summer camp by creating and delivering a hygiene curriculum to satisfy teaching hours required for their community health course. I observed their efforts to create and deliver the hygiene curriculum, and I realized how much I had learned from creating developmentally appropriate and effective curricula. For example, the students used lengthy power point slides with highly detailed slides in lieu of short presentations and interactive learning activities.

They had difficulty planning enough content to fill the lesson time. Months of my participation with the research project helped me learn how to apply classroom content using appropriate developmental theories and teaching-learning principles. As I was also familiar with the MG project and camp aims, the time I spent with participants yielded valuable data that helped further refine our curriculum and game interventions.

In both of these examples, the nursing students had alternate commitments in the nursing program that prevented or limited their ability to learn more about the MG project or seize opportunities to learn more about research. They did not profit from frequent interactions with Dr. Norris as I did. However, their presence eased my transition into the nursing program, and in turn, I was able to provide them with a greater understanding of research project. As I progressed into the bachelor of nursing program, I also had to slow down my involvement with research, given the high workload required for my courses and clinicals. Fortunately, I was already familiar with the project and still able to play an active albeit diminished role in the research project.

Comparative Student Research Exposure Models

In this section, the author's research experience will be compared with three identified models of undergraduate research exposure from the literature: (1) research methodology coursework, (2) independent student project/thesis, and (3) student-faculty mentorship. After discussing the mentorship model, the author's experience will be compared to phases Hay's Mentoring Life Cycle (1995).

Research methodology coursework

One model for research exposure is to use the required research methods course to prepare nursing students with a general overview of research techniques, proper literature searches, and techniques for critically examining evidence (AACN, 2008). Sometimes, this model incorporates evidence-based projects, proposal development, research poster presentations (Meeker et al., 2008), and/or data collection and manuscript writing (Green et al., 2002).

This model has two disadvantages when compared with the author's experience. First, it often involves graded projects. Unfortunately, focusing on the quantitative aspect of learning (grades) has been shown to redirect college student energy away from the learning process (Lipnevich & Smith, 2008). Second, students in this model do not have frequent interactions with faculty researchers, missing valuable socialization opportunities as well as the ability to immerse themselves in a real research project. However, the course model does provide students with a breadth of information about research. Students get a survey view of the research process, learn methodology principles, and can link learning to evidence based nursing practice. The knowledge and skills learned are vast, but the experience is not as rich or as personal as the author's.

Independent student project/thesis

The student-directed thesis project provides a high quality experience for students who are motivated to design their own research project. Engaging in an independent research project encourages creativity and risk-taking, traits that new

graduates can carry with them into their nursing career (Vessey & DeMarco, 2008). Furthermore, the autonomy of this process has been linked to student pursuit of graduate education.

This model also has disadvantages when compared with the author's experience because students may not have the adequate preparation, time, or confidence to execute original research at the undergraduate level. Even with a strong interest in research, the demands of an undergraduate nursing education can limit the scope of what a student can accomplish. Additionally, faculty actively involved in their own research may lack the time to direct a student initiated undergraduate research project.

Moreover, a student generated research project does not afford students the same depth of experience as when students join a faculty-led interdisciplinary team actively working on a complex project. The latter experience can produce a broader and deeper socialization because it creates opportunities for students to work with experts within and outside the nursing discipline.

Student-faculty research mentorship

The mentored research apprenticeship experience described by the author's autoethnography is an example of a student-faculty work/mentorship program. These programs create a synergistic opportunity for faculty and students alike; students assist with faculty projects and in return develop an increased interest in research (Vessey & DeMarco, 2008). Students involved in these programs claim research "used to seem so abstract; it is far more tangible now" (Kennel et al., 2009). Evidence shows mentorship

programs prepare students to critically evaluate current articles and have greater motivation to conduct research (Kennel et al., 2009). Additionally, formal mentorship programs increase student commitment to research-focused graduate studies (Powell et al., 2002). In order for the mentor-mentee relationship to develop appropriately, the faculty member must have a positive and encouraging attitude, a strong knowledge base, and adequate time to spend with the mentee (Webb & Shakespeare, 2008). The author finds these qualities consistent with her faculty mentor.

Consistent with the author's research experience timeline, Christie, Hamill, & Power (2012) recommend utilizing the pre-nursing undergraduate period to provide professional research education, and the faculty mentorship model works well for these students. After admission, nursing students often have to prioritize numerous course and graduation requirements ahead of research participation. As was true in this author's research experience, evidence supports having a mentor prior to admission to provide guidance and support, ease the student transition, and help the student quickly develop confidence in the new academic environment (McKimm, Jollie, & Hatter, 2007).

My research experience related to the Hay's Mentoring Life Cycle (1995)

My experience with nursing research reflects the phases of Hay's 1995 mentoring life cycle (Table 3). At the initial phase, Dr. Norris oriented me to the project with a basic overview of the research. This was a successful strategy for increasing student interest in participation (Vieyra, Carlson, Leaver, & Timmerman, 2013). In phase 2, I was beginning to find my place in the research project by being able to bring my

past visual arts training to utilize in curriculum work. By phase 3, I was developing autonomy in my research project responsibilities prior to the first semester of nursing courses.

Table 3: Hay's Mentoring Life Cycle (1995) and the Author's Research Experience

Timeline	Mentorship Phases	Author's Research Experiences
Pre-nursing Fall 2011- Spring 2012	*Stage 1- Initiation, orientation or courtship phase*	Pre-nursing student/school application Learn about the research project Make curriculum edits Observe research team meetings Receive admission to nursing program
	Stage 2- Getting established, adolescence, dependency, nurturing or honeymoon stage	Design MG visual themes Write abstract collaboratively with PI Refine curriculum
Prior to admission Summer 2012	*Stage 3- maturing, developing independence or autonomy stage*	MG Camp Manager Narrator for live game play Evaluate camp outcomes Connect research experience with courses Finalize curriculum
Nursing student Fall 2012- Present	*Stage 4- Ending, termination or divorce*	**Not addressed*

DISCUSSION

In this section, I will discuss six topics. First, I will discuss the research experience's usefulness in meeting undergraduate research education curriculum standards by evaluating its congruency with AACN position statements. Second, I will discuss possible challenges related to offering research experiences at the undergraduate level. Third, I will discuss developing a culture of evidence-based practice through research experiences. Fourth, I will discuss the personal impact of conducting this autoethnography. Fifth, limitations will be discussed. Finally, I will discuss recommendations for offering research experiences at the undergraduate level.

Evaluation for congruency with AACN position statements

As the accrediting body for baccalaureate and higher education nursing programs, the Commission of Collegiate Nursing Education (CCNE) endorses the *Essentials* documents from the AACN for all phases of collegiate nursing education. The author's undergraduate research experience will be evaluated for congruency with three AACN position statements: (1) *AACN Position Statement on Nursing Research* (2006), (2) *Essentials of Baccalaureate Education for Professional Nursing Practice* (2008), and (3) *Essential Components of Research-Focused Doctoral Programs* (2010). The purpose is to determine the research experience's usefulness in meeting currently recognized undergraduate research education standards.

1. Analyzing AACN Position Statement on Nursing Research (2006)

This AACN statement describes models that promote and support research in the academic setting. Development of new ways to prepare nurses for faculty and research positions early in their careers is described as a “top priority if nursing research is to continue to evolve”. The AACN clearly advocates for encouraging highly motivated students to participate in interdisciplinary research experiences, such as that experienced by this author.

The AACN advocates for all nursing students experiencing, regardless of their educational level, a research-intensive environment. However, the impact this environment can make is reliant on an adequate number of appropriately educated researchers and supportive funding. In part this is because AACN argues that the impact of research education is short-lived without the development of a research support infrastructure. This infrastructure includes offices or centers for research, informal or formal research mentorship programs, internal and external research consultant connections, and opportunities for students to participate in mock manuscript and grant reviews. In this author’s experience, Dr. Norris created many aspects of this infrastructure by: giving her an office in which to work; introducing her to consultants; providing her with grants and papers to review, and articles on scientific writing styles and research methods for her to read and use as resources; and encouraging her to submit abstracts to local and state conferences. The research support infrastructure at

the UCF CON could be improved by creating greater access to similarly structured research opportunities for other undergraduate students.

2. Analyzing Essentials of Baccalaureate Education (2008)

The *Essentials* document provides a framework for Baccalaureate education based on key recommendations from the IOM and prominent stakeholders. It is organized into nine essential themes with expected graduate outcomes.

Essentials I, III, and IV provide strong support for including experiences such as the one enjoyed by this author in undergraduate nursing programs. According to Essential I, Baccalaureate nursing students need a diverse interdisciplinary education, including exposure to social sciences, the arts, and cultural and ethnic diversity (AACN, 2008). The project the author was involved with integrated nursing, psychology, sociology, technology, performance and visual arts. This early exposure to an interdisciplinary approach to addressing a health issue remained relevant throughout the author's nursing program.

Essential III states that nursing students must work productively with inter-professional teams and learn communication, assessment of quality, and the ability to develop and monitor creative action plans (AACN, 2008). The author's research experiences included the development of creative interventions with experts in a variety of fields. Leadership and communication skills were developed prior to beginning the nursing program through various research related activities (e.g., camp manager) and

interaction with an interdisciplinary research team. Observation of leadership behaviors on a team prepares students for assuming future leadership roles.

Essential IV (AACN, 2008) stresses the importance of information literacy and communication competence because these qualities enable nursing students to provide high quality and safe care. This research experience created an opportunity for the student to develop and refine these qualities in a research context. She was then able to these qualities to her clinical work.

3. Analyzing Essential Components of Research-Focused Doctoral Programs (2010)

The AACN's report outlines standards and recommendations indicative of an appropriate learning environment for the Doctor of Philosophy (PhD) program, regarded as the nursing profession's highest formal training. In addition to providing guidelines for a research focused nursing doctoral programs, the report addresses pre-admission student and program barriers. It recommends specific strategies that must be utilized to overcome these barriers and meet the future needs of nursing science.

This report argues that earlier entry into research focused doctoral programs can be promoted by identifying potential student candidates early in their nursing education. Faculty members can provide these promising scholars with a proper foundational education and support. One example of support is the mentorship relationship. Other than research skills, this training must include leadership, teaching, mentorship, and interdisciplinary communication opportunities. A well-prepared research-focused

candidate demonstrates a sustained interest in research and scholarship through past research experiences, publications, and academic excellence.

The author's mentored research apprenticeship promoted career interest through first-hand socialization into the world of nursing research. The skills gained at the undergraduate level provide a foundational training for the doctoral program admission requirements. After the research apprenticeship, the author is more equipped to plan upcoming publishing opportunities. She has a greater appreciation for the research process, and a greater understanding of what a career in nursing research can look like.

Possible challenges to undergraduate students gaining research experience

In limited admission programs, students are not frequently offered nursing research opportunities in their first years as undergraduates. Admissions criteria for UCF Nursing are mainly based on prerequisite course grades and admission test scores; there are no recommendations to gain research experience. Students also do not typically interact with nursing faculty or have easy access to nursing research mentors prior to their admission to a nursing program. Upon entry into the program, students face a challenging workload that is not conducive to gaining an in depth research experience such as that described here.

Likewise, faculty members may have limited availability, and may feel stretched between graduate and post-doctorate students, with little time for undergraduate mentorship. Alternatively, students expressing an interest in research participation may

not have available faculty who match their area of interest, or may not know where or how to begin the process of becoming a nurse researcher.

Developing a culture of evidence based practice through research experience

Fineout-Overholt and Melnyk (2005) argue that “best practice” cultures are created in evidence-based practice environments. Consistent with their predictions, the research experience described here increased the author’s ability to be an independent learner who asks questions, assesses the validity of the data, and critically evaluates outcomes. Through the research experience, she learned how the best practice can be built through the gathering of accurate and reliable evidence (i.e., published literature), and how evidence and data can be used, often in combination, to design effective health interventions that lay the foundation for the creation of new practice standards.

Personal impact of conducting an autoethnography

The autoethnography writing experience provided two major impacts. Firstly, it provided the author with the written language she could use to describe her research experience to others. The resulting text allowed the author to review (1) the phases of her experience and (2) the development of a relationship with her faculty mentor. The result was an emotional pull to a research-focused career. From this ability to organize, analyze, and reflect on the experience, the author was inspired to take further action to share the benefits of the experience: She lobbied for nursing education at the state level, presented her research on numerous occasions, and wrote a resolution about the benefits of research socialization for the National Student Nurses Association.

Secondly, the author developed a deep understanding of the skills acquired from her unique experience. The autoethnography allowed her to review these skills (i.e. improved understanding of data collection, curriculum design, literary searching, and technical writing) and connect them to her future career plans.

Limitations

There are three limitations to consider with respect to this autoethnography. First, as an autoethnography, it is clearly from the author's perspective, so all accounts and analyses are personal. Other students may derive alternate meanings and conclusions about the experience. However, consistency between the results of the analyses described here and the work of others such as Vieyra, et al (2013), Fineout-Overholt and Melnyk (2005), and Hays (1995) suggest that these study findings are not merely an artifact of a unique perspective or a set of non-generalizable set of circumstances.

Second, the opportunities presented in the author's autoethnography may also vary considerably from other undergraduate student-faculty mentorship experiences. Some nursing colleges do not have access to faculty researchers who would be able to serve as student mentors. In many cases, nursing students may not have the time or resources to participate in research, especially if they have alternate academic and personal commitments. Hence, while not an artifact of a unique set of non-generalizable circumstances, the opportunities described here are unlikely to occur without a committed faculty member who is an active researcher who is herself supported by a research infrastructure. For example, the Mighty Girls camp described in this research

experience would not have occurred without the Dean's administrative support for use of the College building space and grounds.

Finally, the opportunities for mentorship may only be present to students who search for these experiences. The author recognizes that not all undergraduate students are able and willing to participate in research. Unfortunately, findings from this study cannot be used to clarify which students would be most likely and which least likely to benefit from an experience such as described here. That issue is a question for future research.

Recommendations

Despite these limitations, there are two recommendations that arise from these study findings. First, although it may be questionable if research experiences should be mandatory at the Baccalaureate level, given limited faculty resources and availability and potentially limited student interest, these findings suggest that such experiences should be recommended. Without opportunities to participate in meaningful work with an active scientist, students may miss gaining early appreciation for the research role, preventing them from connecting and committing to a research-focused nursing career. Second, as discussed previously, these experiences should be encouraged to begin prior to entry into the nursing program when the student has the time to more fully immerse him or herself in a project. Moreover, these findings suggest that this early involvement may facilitate student learning once admitted to the nursing program and contribute to the student's embrace of evidence-based practice.

CONCLUSION

Nursing students develop interest in a research-oriented career through early socialization opportunities. A need to provide early exposure to research careers has been recognized for decades, but the challenge is making these exposure opportunities interesting, interactive, and meaningful for students. In 1974, the title of Carnegie's *Nursing Research* editorial says it all: "The research attitude begins on the undergraduate level." Once enrolled in a Baccalaureate nursing program, students confront many graduation requirements that tend to take priority over research socialization. In contrast, beginning the experience in the sophomore year prior to nursing coursework allowed this author to interact with researchers from a variety of disciplines and to learn how to emulate their behaviors on a real project. The skills developed through her socialization to research also laid a strong foundation for her baccalaureate nursing experience, arguing for the impact of early involvement in research on subsequent academic successes in nursing.

The evidence-based practice emphasis in nursing makes it every nurse's responsibility to engage in research, whether as responsible consumers or creators of new science (Polit & Beck, 2010). A research methodology course alone does not socialize students to a research career; nor does it allow students to experience the joy and passion of research. This author's mentored research apprenticeship allowed her to enjoy learning about research without pressure to follow a syllabus or earn a grade. She alternated between roles of participant and observer, but always was welcomed as a member of the research team. Assuming responsibility for challenging elements of the

research project was voluntary and intrinsically motivated. Once in nursing school, the author understood and utilized the content presented in her courses because the course content helped her become a better asset to the research team.

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