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Nursing Students' and Educators' Perspectives on Using Educational Games as an Experiential Learning Strategy

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NURSING STUDENTS' AND EDUCATORS' PERSPECTIVES ON USING EDUCATIONAL GAMES AS AN EXPERIENTIAL LEARNING STRATEGY

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Title: Nursing Students' and Educators' Perspectives on Using Educational Games as an Experiential Learning Strategy

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This mixed-methods study explored the perspectives of nursing students and educators on the use of educational gaming as an experiential learning strategy. The study investigated if educational games are being used in the classroom, the purpose for which they are used, whether or not educational games are beneficial to students in motivating them to learn content material, and students' and nursing educators' overall experience with and attitude towards educational games.

The sample included senior nursing students and educators from a baccalaureate and associate degree nursing programs. Descriptive statistics and frequencies were conducted to examine the research variables. A Chi-square test was also conducted to determine if there was a difference in student and educator responses on the level of Bloom's Taxonomy of Educational Objectives that gaming questions were prepared.

This study provided additional information into the perceptions of nursing students and educators and reinforced some of the information that was already known regarding educational games. Generally, games have been viewed positively and recommended as a way to motivate and engage students in learning. Despite the evidence supporting gaming as an experiential learning strategy from both a student and educator perspective, there is still resistance to use gaming. Three themes emerged from the data; gaming as a pedagogical preference, gaming as edutainment, and limitations of gaming due to logistics. A statement derived from these themes indicates the following: if experiential learning strategies are the preferred learning style of the

student, if the student can be engaged and entertained and if there are ideal logistical factors then the student will be motivated and learning will occur. This statement can also be explained from the educators' perspective. These statements can lead to theory development in other studies and areas of study. This study may lead to an increase in the use of experiential learning strategies, such as educational gaming, as an innovative way to teach or review course content in a variety of educational settings in an assortment of subjects. Further research to identify the effectiveness of gaming as a teaching strategy would be beneficial to the development of other innovative teaching strategies.

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CHAPTER 1

DESCRIPTION OF THE STUDY

Introduction

Student achievement and competence in a particular area of study are two goals that all universities want to accomplish. For students to attain the goals, they need to be motivated and engaged in their learning. The use of educational games has been identified as an experiential learning strategy that can help students achieve these goals (Akl et al., 2009; The New Media Consortium and Educause Learning Initiative, 2006). Research has also shown that participating in educational games has helped students with retention of knowledge, promotion of problem-based learning, and development of critical thinking skills (Blakley, Skirton, Cooper, Allum, & Nelmes, 2009; Cowen & Tesh, 2002; Hahn & Bartel, 2014; Royse & Newton, 2007). These skills are all qualities that nursing students should possess to be successful and provide quality care in the health profession. These qualities assist in obtaining higher level of discussions which promote better communication skills, and social interaction (Barclay, Jefferies, & Bhakta, 2011). Both components are essential to providing effective and safe patient care in any health profession. Due to the positive effects that educational gaming can provide to students, the National League of Nursing (2005) has recommended the use of gaming as a teaching strategy that should be used in the classroom.

In previous studies, students have voiced satisfaction with the use of educational games in the classroom (Blakely et al., 2009; Cessario, 1987; Cowen & Tesh, 2002; Da Rosa, Delima-Moreno, Mezzomo, & Scroferneker, 2006; O'Leary, Diepenhorst, Churley-Strom, & Magrane, 2005). There is little information available on the perspectives of nursing educators (Blakely, Skirton, Cooper, Allum, & Nelmes, 2010) as well as the students from the same facilities on the use of educational gaming. Nursing faculty and senior students from a state university located in

western Pennsylvania and a private college located in western Pennsylvania were asked to participate in this study. Although the main focus for this research study was nursing education, perspectives regarding educational gaming can be utilized in any field of instruction. Gaming has also been identified as a teaching strategy that can be used at all levels of education (Hahn & Bartel, 2014).

Statement of the Problem

Many college students are being taught using the traditional educational strategies, such as lecture (Murphy & Timmons, 2009). Some students may find the traditional teaching strategies uninteresting (Royse & Newton, 2007). The current generation of students needs to be in an engaging and flexible atmosphere (Kuranda, 2013). Games have been used instead of, or in addition to, the traditional lecture format to help engage students and make the classroom livelier. This study specifically looked at nursing students' and nurse educators' perceptions on educational gaming as an experiential learning strategy. The information obtained from this study will be beneficial to nurse educators when exploring the use of different types of experiential learning strategies to incorporate when teaching the current generation of students.

Purpose

The purpose of this mixed-methods study was to explore the views of nursing students and educators on the use of educational gaming as an experiential learning strategy. This grounded theory study looked at the opinions of both nursing students and nursing educators regarding the use of games in the classroom. This study investigated if educational games are being used in the classroom, the purpose for which they are used, whether or not educational games are beneficial to students in motivating them to learn content material, and students' and nursing educators' overall experience with and attitude towards educational games as an experiential learning strategy. This study may lead to an increase in the use of experiential

learning strategies, such as educational gaming, as an innovative way to teach or review course content in a variety of educational settings in an assortment of subjects.

Significance of the Study

The current generation of college students, known as the Millennials or the Net Generation, tends to be experiential learners; they choose to learn by doing, as opposed to learning by listening (Oblinger, 2004). According to Raines (2002), the Net Generation students prefer to learn through experiential activities, structure, the use of technology, and teamwork. The students' strengths include multitasking, goal orientation, positive attitudes, and a shared style of learning. Gaming has been identified as a way to teach this generation (Blakely et al., 2009; DeVary, 2008, Oblinger, 2004; Royse & Newton, 2007). The Millennials will be leaving college soon, and the Generation Z students are arriving. This generation of students, born in the late 1990s, are much like the Millennials, requiring a flexible and engaging learning atmosphere (Kuranda, 2013).

To make a classroom livelier, games have been used instead of, or in addition to, the traditional lecture format. A game is designed to be engaging while at the same time challenging students to make use of their knowledge in a different way. Although games are not new, their use as a teaching strategy has gained more attention in recent years. *The Horizon Report* suggests that educational gaming is a way of increasing interest and may considerably contribute to adult learning (The New Media Consortium and Educause Learning Initiative, 2006).

Educational gaming is a type of experiential learning in which the students are given information and then apply this knowledge to immediate and relevant situations (Smith, 2002). By using educational games, students have an opportunity to experiment with decision making, problem solving, and engaging in discussion in an active learning environment (Ald et al., 2009; Blakely et al., 2009; Royse & Newton, 2007). Generally, students exposed to gaming in the

classroom are positive about its use (Blakely et al., 2009; Blakely et al., 2010, Royse & Newton, 2007).

Despite many of the advantages of using games as an innovative teaching strategy, educators have been reluctant to use games (Blakely et al, 2010). Preparation time, cost, time constraints, and larger class sizes have been identified as reasons for not using games (Blakely et al., 2010; Cowen & Tesh, 2002; Royse & Newton, 2007). Students' dissatisfaction with educational gaming can be related to the embarrassment of not answering a question correctly, and competition among classmates can be intimidating (Blakely et al., 2010).

This study will address both nursing students' and nursing educators' perspectives on the use of educational games as an experiential learning strategy. It will inquire about their experience with the use of educational games and their attitudes regarding the use of educational games in the classroom.

Theoretical Position

The purpose of a grounded theory study is to produce or develop a theory for a process or action (Creswell, 2013). Grounded theory allows one to look at a process, or something experienced by a group of individuals, and help to explain the reason for this occurrence to happen. A major component of this theory development is that it is generated or "grounded" in the data from the participants who have experienced the process (Corbin & Strauss, 2008; Strauss & Corbin, 1998). Straus and Corbin (1998) state that grounded theory methodology can be used to investigate areas where little data are available. Because grounded theories are drawn from data collection, they have the possibilities of offering insight, enhancing understanding, and offering a significant guide to action (Straus & Corbin, 1998). According to Charmaz (2006), constructivist grounded theories use an interpretive and flexible approach to qualitative research. These theories are developed from present and past experiences, relationships, perspectives and

other research (Charmaz, 2006). The goal of this study is not to generate theory but to provide insight into nursing students' and educators' perspectives and the use of educational games as an experiential learning strategy that could lead to theory development with other studies.

Often associated with grounded theory is symbolic interactionism. Symbolic interactionism provides a theoretical foundation for studies when using a grounded theory approach to research (Charmaz, 2006). Human experiences and social interactions are the focal point for symbolic interactionism (Aldiabat & Le Navenec, 2011; Blumer, 1969; Licqurish & Seibold, 2011). According to Benzies and Allen (2001), symbolic interactionism "provides a theoretical perspective for studying how individuals interpret objects and other people and how the process of interpretation leads to behavior in specific situations" (p. 544). Blumer (1969) states that symbolic interactionism is a theory of "human group life and human conduct" (p. 1).

Blumer (1969) identifies three premises to symbolic interactionism. The first premise is that "human beings act towards things on the basis of the meaning things have for them" (p. 2). The second premise is that "the meaning of such things is derived from, or arises out of social interaction that one has with one's fellows," and the third premise is that "these meanings are handled in, and modified through, an interpretative process used by the person dealing with the things he encounters" (Blumer, 1969, p. 2). It is evident that the component of meanings is important in each of these premises.

Another key component to symbolic interactionism is the use of symbols or words. Symbols are socially created; they display a common meaning among groups, and are a way to communicate with others with intent and meaning (Burbank & Martins, 2009). According to Charon (as cited in Burbank & Martins, 2009), the symbolic interaction process begins when an interaction occurs with a reference group, or the social group.

"This occurrence results in the development of a perspective that guides the person in defining the situation at hand. The person then bases his/her action on this perspective and defines the situation. After the action is completed, the results of the action are interpreted and then alter the person's perspective and definition of the situation. This changed perspective and definition of the situation then influence future actions of the individual" (Burbank & Martins, 2009, p. 29).

The symbolic interaction process can be demonstrated from the perspectives of a nursing student and nursing faculty regarding the use or non-use of educational games. This example is displayed in Figure 1. The following is the description of an example of symbolic interactionism; a nursing student participated in an educational game, according to the symbolic interactionism process this is referred to as the interaction, the experience was played with other nursing students, and they are identified as the reference group. The student shared his/her experience with the educational games as motivating and engaging or boring and a waste of time, this is referred to as the perspective. One nursing student may describe the educational game as beneficial to learning and another student did not benefit from the experience, this identifies the definition of the situation. Because one student found the educational games beneficial, he/she may participate in other educational gaming opportunities, and the student who did not may not be willing to participate again. This is identified as the action. After participating in the educational game, some students may find that educational games helped them to learn course material, and find it to be an engaging and fun way to learn. Others may determine that educational games did not assist them in learning the course material, produced anxiety with not answering questions correctly, and did not motivate them to learn the course content; this step is referred to the interpretation of action. Because of the nursing students' educational gaming

experience, they may decide that they enjoyed the game, found it to be a motivating, and an engaging way to learn course materials. Because of this positive interaction the students would be willing to participate again. If the nursing students did not enjoy the game, found it boring, and caused anxiety; they may be less likely to participate again which alters the perspective, definition, or action. This same process could be demonstrated with the faculty's perspective on the use of educational games.

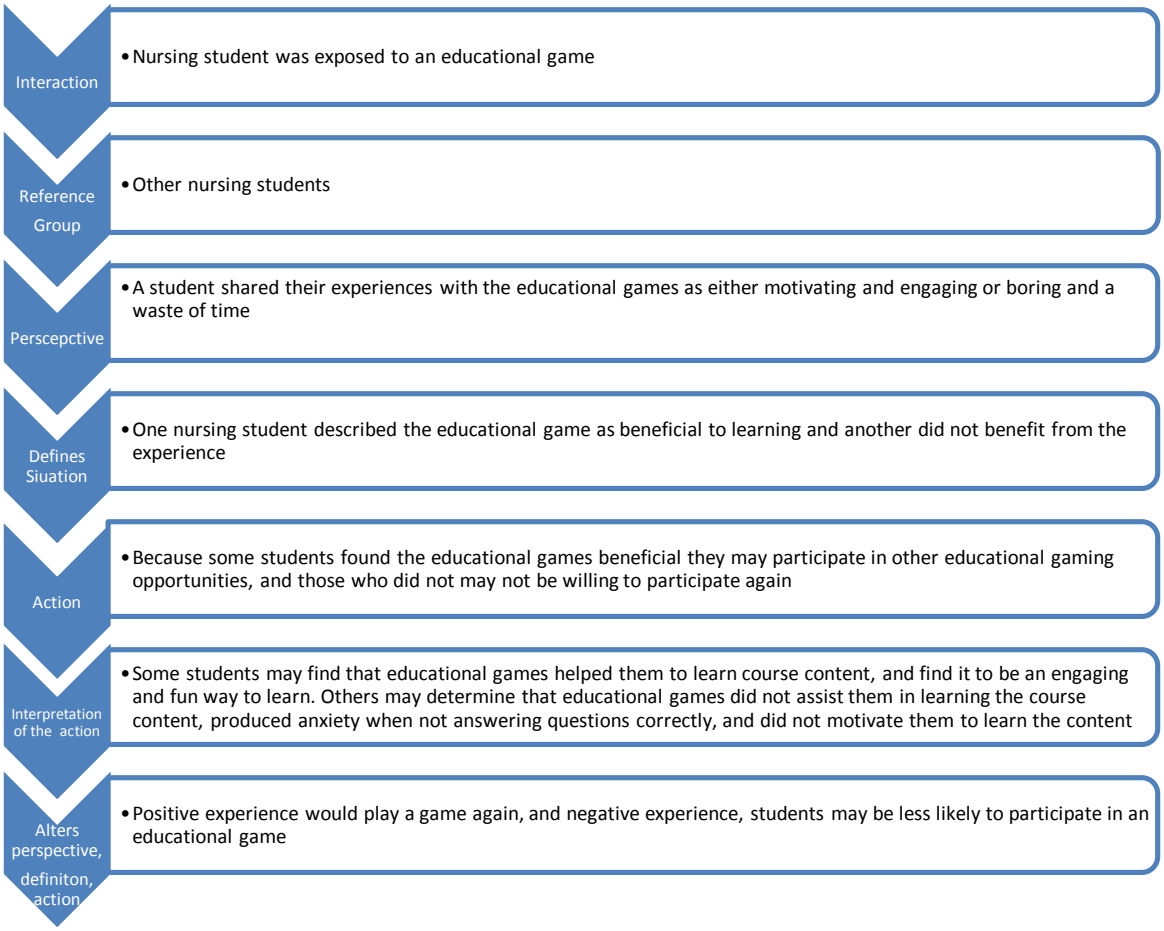

Figure 1. Symbolic interaction process.

Research Questions

After a through literature review, three research questions were used to guide this study.

1) To what extent and for what purpose are educational games being used in the nursing classroom?

2) Do educational games motivate students to learn? (From both the nursing students' and nurse educators' perspective).

3) What is the nursing students' and nursing educators' overall experience with and attitudes toward the use of games as an experiential learning strategy?

No hypotheses are included for the research questions which were based on descriptive analysis using frequencies and qualitative open-ended survey questions and interview questions.

Overview of the Methodology

An explanatory mixed-methods research design was used to explore the perspectives of nursing students and nurse educators on the use of educational gaming as an experiential learning strategy. A convenience sample from two nursing programs in Pennsylvania was used. The population consisted of senior nursing students and nurse educators from the United States. For the purpose of this study, the sample included senior nursing students and nurse educators from a state university and a private college in Pennsylvania. Survey and interview questions were used for data collection and analyses.

Delimitations of the Study

Delimitations of the study included factors that the researcher had control over. The sample of the study was delimited to a convenience sample of senior nursing students and nursing faculty teaching at two facilities located in western Pennsylvania. A convenience sample limited the ability to generalize the study findings to the entire population of nursing students

and nurse educators. An additional delimitation would be that the responses provided limited information regarding past experiences before or during their experience with educational games.

Limitations of the Study

This study will be limited by those who choose to participate in the online survey or those who choose to participate in the face-to-face or telephone interview. Another limitation is that the questions for the survey and interview were adapted from a study that was conducted in another country.

Definition of Terms

This section will provide definitions of key terms that are utilized in this study. The terms are defined as follows:

- Educational gaming: also referred to as serious games, are games developed to teach, expand or reinforce information pertaining to a certain topic (Pimenidis, 2009).
- Experiential learning: when students are given the opportunity to attain and apply knowledge, skills and feelings to a direct and pertinent setting (Smith, 2002).
- Educator: a person (such as a teacher or a school administrator) who has a job in the field of education (Merrian-Webster, n.d.). Within this current study, an educator is defined as a nurse educator, who is faculty in a nursing program.
- Student: a person who attends a school, college or university (Merrian-Webster, n.d.). Within this current study a student is further described as a nursing student at the senior level of their nursing program
- Generation Z: group of individuals, following the millennials, who were born in the late 1990s (Kuranda, 2013).

- Millennials or the Net Generation: group of individuals, born in or after 1982, following the Generation X, who have grown up in an environment that has them consistently exposed to technology (Oblinger, 2004; Sandars, 2007).

Assumptions of the Study

The following assumptions can be made regarding educational gaming: nursing students benefit from participating in educational gaming; they believe that educational games help them engage more in their learning; that gaming helps nursing students to remember the content material; and gaming is an enjoyable way to learn. A limited number of nursing students have experienced the use of educational games in the classroom. Nursing educators like to use experiential teaching strategies and believe that educational games are fun and a motivating way to engage students. However, nurse educators believe that educational gaming preparation is time consuming, uses limited class time, and is difficult to employ with larger classes.

Summary

This chapter introduced the purpose of the research study as exploring the views of nursing students and educators on the use of educational gaming as an experiential learning strategy. This mixed-methods study also used Straus and Corbin's methodology of grounded theory, as a way to explore where little data exists. Symbolic interactionism will provide the theoretical foundation for this study. The delimitations, limitations, and assumptions were also discussed in this chapter. The next chapter will include a review of the literature on experiential learning, educational games as an experiential learning strategy, gaming in nursing education, and gaming in other areas of education.

CHAPTER 2

REVIEW OF THE RELATED LITERATURE

A review of the literature on educational gaming¸ experiential learning, and the theoretical framework was conducted using CINAHL, ERIC, Academic Search Complete, Health Source: Nursing/Academic Edition, Medline, Applied Science and Technology Source, and Education Research Complete databases from 2000 to 2014. Multiple searches included the terms, "educational games," "educational gaming," "experiential learning strategies," "gaming in nursing," "gaming in education," "innovative teaching," and "perspectives on educational gaming" which identified many articles for review. The terms "mixed-methods," "grounded theory, "grounded theory in nursing," "symbolic interactionism," were used to search the literature on the theoretical framework. The same databases were used to examine research related to mixed-methods, grounded theory, and symbolic interactionism.

Restatement of the Purpose of the Study

The purpose of this mixed-methods study was to explore the views of nursing students and educators on the use of educational gaming as an experiential learning strategy. This grounded theory study looked at the opinions of both nursing students and nursing educators regarding the use of games in the classroom. This study investigated if educational games are being used in the classroom, the purpose for which they are used, whether or not educational games are beneficial to students in motivating them to learn content material, and students' and nursing educators' overall experience with and attitude toward educational games as an experiential learning strategy. The purpose of the study guided this literature review.

Introduction

The Millennials will be leaving college soon, and the Generation Z students are arriving. This generation of students, much like the Millennials, requires a flexible and engaging atmosphere (Kuranda, 2013). This generation of college students requires different teaching strategies than previous generations. They prefer to be taught using experiential activities. These groups of students want flexibility, the opportunity to multitask, and they need to be engaged (Kuranda, 2013). Simulation, practical exercises, role playing, online, and computer-based programs are examples of some experiential learning strategies that have been used in nursing education (Blakely et al., 2010). Gaming has also been identified as a way to teach this generation (Blakely et al., 2009; DeVary, 2008, Oblinger, 2004; Royse & Newton, 2007). According to Jones (2003) many college students believe that games should be utilized in education, although 69% of the students surveyed had no experience with gaming in the classroom environment. According to Jones, Jo, and Martin (2007), the use of technology has radically increased and to accommodate the differences from previous generations, it is mandatory that curricula be transformed. Boctor (2012) states that identifying and providing "innovative teaching strategies to address the students' generational diversity is important for maximizing students' retention and progress" (p. 96).

The *2013 Horizon Project Shortlist: Higher Education Edition* recognizes teaching strategies and developing technologies that are likely to influence higher education. This report identifies game-based learning as one strategy. Game-based learning refers to "the integration of games and gaming mechanisms into educational experiences" (The New Media Consortium, 2012, p.6). According to the report, gaming over the last decade has proven to be an effective and favorable learning tool assisting with "collaboration, communication, problem solving, and

critical thinking" (p.6). It also states that although the forms and types of games may vary and can be used over a multitude of subjects, the games usually share similar assets. These assets include games that are: "goal oriented, have strong social components, and stimulate some sort of real life experience" (p.6) that students can relate to in their own lives. In order to reach the current generation, educators need to teach in ways that will benefit student learning. The incorporation of technology and gaming can be ways to accomplish this. Different types of experiential learning strategies needs to be explored.

Experiential Learning

Experiential learning is viewed by Kolb (1984) as a fundamental part of how people learn, grow, and develop. Kolb (1984) defines "learning as the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p. 41). Building on the work of the previous ideas of Dewey, Lewin, Piaget and others, Kolb developed the Experiential Learning Model. The theory is called "Experiential Learning" to stress the importance that experience plays in the learning process (Kolb, 1984). Often described as a learning cycle or learning spiral, the experiential learning theory explains that when a learning experience is "enriched by reflection, given meaning by thinking, and transformed by action, the new experience created becomes richer, broader, and deeper" (Kolb & Kolb, 2009, p. 309). The Experiential Learning Theory displays "two dialectically related modes of grasping experience; Concrete Experience (CE) and Abstract Conceptualization (AC) and two dialectally related modes of transforming experience; Reflective Observation (RO) and Active Experimentation (AE)" (Kolb & Kolb, 2005, p. 194; Kolb & Kolb, 2009, p. 298). The Concrete Experience refers to the experience or activity that the learner is involved in. Reflective Observation involves observation and reflection on the experience from

a variety of perspectives. During Abstract Conceptualization the learner thinks about or analyzes what was observed and Active Experimentation is where the learner acts on or plans new experiences (Kolb, 1984; Kolb & Kolb, 2005; Kolb & Kolb, 2009; Lewis & Williams, 1994).

According to Lewis and Williams (1994) experiential education "first immerses adult learners in an experience and then encourages reflection about the experience to develop new skills, new attitudes, or new ways of thinking" (p. 5). Chickering and Gameon (1987) recommended seven principles of good practice in undergraduate education. Active learning activities and providing prompt feedback are two recommendations identified. To be actively involved in their learning, students must be able to discuss what they have learned, relate it to previous experiences, and make it relevant to the present. Students also need to have feedback so they can discuss what they have learned and identify areas where they might need to improve. Gaming has been identified as one type of experiential learning technique (Lewis & Williams, 1994).

Educational Gaming as an Experiential Learning Strategy

A variety of gaming formats have been used as teaching strategies. Examples of gaming formats include the following: games based on television shows (Jeopardy, Wheel of Fortune, Who Wants to be a Millionaire, etc.), board games, card games, computer games, video games, crossword puzzles, and question and answer quizzes. The *2006 Horizon Report* identified four types of games: simulations, virtual environments, social and cooperative play, and alternative reality games (The New Media Consortium and Educause Learning Initiative, 2006). Simulations are scenarios that replicate real life experiences in a guided and safe learning environment (Akl et al., 2008). Virtual environments are online experiences located in virtual worlds, such as Second Life (Akl et al., 2008). Social and cooperative games are games that

involve competitive and cooperative interaction with other players; examples include television-based games and board games (Akl et al., 2008). An alternative reality game involves some type of gaming element, off and online interactions, collaboration with problem solving and online discussions (Bellocchi, 2012).

The focus for this literature review will be on nursing students' and nursing educators' opinions regarding gaming and the results when gaming has been used as an experiential learning strategy. Little research exists on just the perspectives of students' and educators' thoughts on educational gaming. Although the main focus for this research study will be nursing education, other areas of education that used gaming were also reviewed to display that games can be utilized in any field of instruction.

Gaming in Nursing Education

This section will discuss various ways that educational gaming has been used in nursing education, the use of games, innovative teaching strategies that have been implemented, and the results of the studies. Although no specific type of game proved to be better than another, assortments of games are recognized. Gaps in the literature have also been identified. This part of the literature review is sub-divided into student and educator sections depending on how the researchers reported the data from the students' or educators' perspective and according to the research method.

Students

Qualitative studies. Hahn and Bartel (2014), with assistance from two university biolibranians and two instructional technology staff, developed an educational game as a way to incorporate technology and use gaming as a teaching strategy in the classroom. The game "So You Want To Be An Educator?" was implemented with graduate students in a nursing education

course. The game was adapted from the television show "Who Wants to be a Millionaire®: The Classroom Edition." There were a total of 121 students enrolled in the course and on game day, 91 students were in attendance. The game was used as a way to review course content. A brief, informal evaluation by hand count using "yes/no" questions was counted following the gaming experience. Thirteen of the 91 students had experienced games in previous nursing courses. Eighty-seven students felt that gaming could assist with preparation for an exam and 88 students stated that they would use gaming as a teaching strategy in the future as nursing instructors. Suggested recommendations for future educational gaming use included: obtaining objective assessment related to a specific game (Blakely et al., 2009); more effective evaluation of the learning and attitudes towards gaming and technology as a teaching strategy (Bayer-Hummel, 2010), and a pre and post evaluation to obtain information related to knowledge retention, satisfaction with gaming and gaming use in the classroom (Hahn & Bartel, 2014).

Metcalf and Yankou (2001) developed an ethics game to help their students understand ethical situations that they may encounter as nurses. The authors suggest that "playing an ethical game would allow students to practice making ethical decisions and examine their personal values and biases within a safe environment, where there is no expectation to act on a decision" (p. 212). The study included a sample size of 28 students. They had students take turns defending ethical situations based on content learned in class. Playing the game permitted the students to see that there could be a variety of answers to a situation and clarification of values could be determined when needed. Benefits of the game included gaining confidence in ethical decision making and it offered a fun learning environment. Disadvantages of the game included large class size making it difficult to play the game at times, limited class time made it difficult for scoring, and debating in front of a class caused student stress (Metcalf & Yankou, 2001).

Overall the authors were happy with gaming as a learning strategy and it assisted students in learning content material in a non-threatening environment.

Quantitative studies. Boctor (2012) developed and incorporated a Jeopardy style game, named "Nursopardy," as a way to review and reinforce fundamental nursing topics. The game setup and format was similar to the Jeopardy television game show. The "Nursopardy" game consisted of five categories, based on the 2010 NCLEX test plan, and 26 questions. Following the game, students were asked to complete an anonymous survey relating to their level of enjoyment of the game and whether or not the game was beneficial. Thirty-nine out of the forty students participated in and evaluated the game. A five point Likert scale (1=strongly disagree, 5=strongly agree) was used to obtain data. Overall, the students found the "Nursopardy" game to be beneficial to learning (4.7). Additional results included: students felt that this activity would help answer test questions (4.7), the game helped students to review fundamentals of nursing information (4.6), the game helped to learn new information related to nursing (4.6), and in the future, they would use games to review materials learned in class (4.5). All of the surveys contained positive comments and no negative comments were mentioned (Boctor, 2012). Recommendations for this particular game included: the possibility of rotating team leaders or using smaller groups to allow for more participation from individual students. It was also strongly recommended that there be time to debrief following the gaming activity, and to allow time to discuss rationales for correct answers. During the following semester, an anonymous web-based survey was administered to 28 students at the same school to identify what their preferred learning styles for lab/clinical content were during the previous semester. A five point Likert scale was used. The results revealed a preference for gaming to review clinical content (4.25), rather than lecture (3.60) and skills videos (3.57). Again, the results of this study support

gaming as a viable teaching strategy. Limitations included a small sample size and no comparison group. The researcher also recommended more research relating to how active learning strategies affect learning outcomes and test results.

Lynch-Sauer, Vanden-Bosch, Kron, Livingston Gjerde, Sen, and Fretterrs (2011) conducted a study to determine nursing students' attitudes toward video games and related new media technologies. This study surveyed baccalaureate and graduate nursing students from two different universities (n= 218). The study used a 30- question cross-sectional survey administered through an online survey service, Survey Monkey. The survey determined the demographics of the participants, video game play experience, and attitudes about using video games as a new technology in nursing. Analyses of the results revealed that 41% of undergraduates and 25% of graduate students played games (Lynch-Sauer et al., 2011). To identify what types of games students participate in, students choose from eight different types of games. The three most identified games included: puzzles, simulations, and arcade games. Ninety-four percent of the students liked the idea of using technology to enhance health care education, and 88% of students believed that nursing education should make better use of video games and new media technology. Students were asked their interest in using multiplayer online health care situations that replicate real life practice, and 52% of students reported interest in participating in this type of technology. Another question asked students to prioritize (most to least critical) skills, knowledge, and behaviors that a nurse might experience while in nursing school. The top three items that were rated as the most critical included: patient safety, professional knowledge, and communication skills. Overall, the researchers found the students to view gaming and technology positively and like the proposal of using games in nursing education. Because there is a potential for violence and negative behaviors that can be

associated with the use of video games, the researchers suggest that there is proper "human mentorship, feedback, assessment, and reflection" (p. 521) with any educational experience that involves a simulation or game. This study demonstrated that nursing students in the current generation use technology for both personal gratification and professional development. Lynch-Sauer et al. (2011) encourage nursing faculty to incorporate and explore new media technology programs into their teaching to meet the needs of the present generation of students.

According to Royse and Newton (2007) some beneficial outcomes to using gaming as a teaching strategy include retention of knowledge, promotion of problem-based learning, student engagement, and motivation. In an attempt to provide evidence of the benefits of gaming a variety of studies have been conducted focusing on improvement and retention of knowledge. Although one gaming format does not prove to be better than another; Ballantine (2003) suggests that the research method best supported for evaluating cognitive learning involves the use of pretests and posttests. The pretest determines baseline information and the posttest measures if the knowledge was retained and the objectives were met. The following studies compared the traditional teaching format of lecture to the use of gaming as a teaching strategy.

Blakely et al. (2009) performed a systematic review of quantitative studies on educational gaming in the health sciences and found sixteen papers (Bays & Herman, 1997; Burke, 2001; Cessario, 1987; Cowen & Tesh, 2002; Da Rosa et al., 2006; French, 1980; Fukuchi et al., 2000; Jungman, 1991; Kelly, 1995; Montpas, 2004; O'Leary et al., 2005; Roberts, 1993; Schuh et al. 2008; Sealover & Henderson, 2005; Sprengel, 1992) that compared gaming to the lecture format of teaching. The sample sizes ranged from 16 to 237. The participants in the studies reviewed included a variety of healthcare professionals. Nine of the studies included just nursing professionals. There was an assortment of gaming formats used in the studies.

Examples included team quizzes, question and answer sessions, drawing competitions, card games, games based on television shows, and board games. Variations of pretests and posttests were used in the studies reviewed. In eight of the studies (De Rosa et al., 2006; Cessario, 1987; French, 1980; Fukuchi et al., 2000; Roberts, 1993; O'Leary et al., 2005; Sealover & Henderson, 2005; Sprengel, 1992), following the pre/posttests, participants completed surveys or questionnaires relating to the effectiveness or enjoyment of the teaching strategy used. One of the studies (Keely, 1995) used semi-structured interviews to evaluate the teaching strategy. Although both methods of teaching, lecture and gaming, proved to show an improvement in student knowledge, neither proved to be better. In some of the studies mentioned, games enhanced the learning process and improved the long term retention of knowledge. The authors of this review suggest that qualitative research would be beneficial to determine students' perspectives on educational gaming. They also recommend that research is needed on the relationship that educational gaming has on the student to provide safe and effective patient care.

A study conducted by Frazer (2007) compared traditional lecture/discussion to gaming/lecture and the relationship it had to immediate knowledge and retention of knowledge. The study also looked at nursing students' attitudes toward gaming when used as a teaching strategy. The sample size represented a total of 135 junior and senior level students. The experimental group played an educational card game following lecture and the control group was taught using just lecture. "The study revealed a significant difference between the control group and the experimental groups' immediate knowledge" (p. 104). The control group was found to have significantly higher results, but the researcher felt that it was caused by an error in the process. Due to a distraction the pretest was given to the experimental group following the lecture rather than before; therefore, the experimental group was found to have retained more

knowledge. Students' attitudes regarding the gaming session were positive.

Sealover and Henderson (2005) developed a game lab for nursing students that consisted of four games that were imitations of popular game shows. The games were developed to review medical surgical nursing material prior to the final examination of the course. The researchers wanted to determine if there was an improvement in the individual student test scores following the game lab and also wanted to verify if students felt that gaming was a beneficial teaching strategy. Pretests and posttests, consisting of the same 10 multiple choice questions, were administered to the students. Nine of the 10 questions showed significantly improved test scores from pretest to posttest, improving from 9% to 48%. The pretests and posttests were used for five consecutive quarters with a total sample size of 107 participants. To determine whether gaming was a beneficial teaching strategy, students were given a seven question evaluation survey. The survey was given to the students in three of the five quarters, providing the same size of 74. The survey revealed positive results with a mean score ranging from 3.39 to 3.78 out of 4.00. The researchers felt that their experience and results with the game lab were positive and adequate enough to continue the activity in the course. Students reported to have enjoyed the games and enthusiastic environment, liked working in teams and group interaction. The researchers commented that "students do not need to be entertained to learn, but wise faculty know that a change in pace and adding fun to learning is good for both students and faculty" (p. 250).

In another study completed by Montpas (2004), a Jeopardy review game and traditional lecture were compared to see if there was a difference in achievement and retention of geriatric nursing concepts in associate degree nursing students with a sample size of 68. The group was divided into a comparison and treatment group. The comparison group was given a pretest followed by the lecture, followed by the posttest. The treatment group took the pretest, received

lecture, and played the Jeopardy game, followed by the posttest. In order to assess the retention of the information, both groups were given another posttest two weeks after the original posttest was given. The researcher calculated the mean and gain scores. The results revealed that the lecture method produced higher achievement scores but the use of a game showed greater retention of the material. Gaming proved to be a beneficial teaching strategy in this study.

Cowen and Tesh (2002) also wanted to determine whether gaming and lecture were more successful than lecture alone when teaching about pediatric cardiovascular dysfunction. Participants in the study were junior level nursing students enrolled in a pediatric nursing course; the sample size included 85 students. The students were either assigned to the comparison group or the treatment group depending on the semester they were in the course. The comparison group was taught using the traditional teaching method and the treatment group was taught using the same method but also played the pediatric card game. The game consisted of 50 questions related to pediatric cardiac disorders. Students who participated in the study were given pretests and posttests that were developed by the researchers. The pretests were given one week prior to the pediatric cardiovascular dysfunction lecture and the posttests were given the day following the lecture. The pretest scores did not show any significant difference, revealing that the two groups were equal in their knowledge of the content prior to the lecture. Posttests scores were higher in both groups, supportive that both methods of teaching were valuable. The treatment group answered 94% of the answers correctly on the posttests while the comparison group answered 85% correctly. These results support the use of games in the classroom because they were entertaining and assisted students in knowledge retention. Preparation of developing a game and time constraints for teaching course content are two assumptions of why games may not be used in the classroom. The authors state that after obtaining the results of this study nurse

educators should rethink these assumptions. Students have stated numerous times that "the games are one of the best parts of the course" (p. 509).

Mixed-methods studies. A simulation game, "The Ward," was developed for nursing students as an attempt to address the gap between theory and practice (Stanley & Latimer, 2010). The game was also used to demonstrate collaboration and cooperation in healthcare. The students who participated in "The Ward" game were at the end of their nursing program. The goal of the game was to "promote and support students' understanding of decision making, critical thinking, and team work in clinical practice situations (p. 22). Students participated in the game (n = 96) then were asked to complete a survey regarding the game. Seventy-six students completed the survey. The survey asked questions related to the setup and explanation of the game; if areas such as decision making, clinical skills, critical thinking, etc., were recognized as important items in the game, and the level of reality of the scenarios in the game. Students were asked if the game was enjoyable and then to identify three reasons the game was enjoyable. Other questions wanted students to identify the goals of the game, to rate the game as a learning activity, and to identify if certain qualities were recognizable and how they were demonstrated in the game (team work, critical thinking, and management skills). The final two questions dealt with areas for improvement and final comments. Two weeks following the completion of the survey, students were asked to participate in focus groups. Students had the option to participate; therefore the sample size included 33 participants. Three themes were emerged from the focus groups; relevance to practice, relevance to specific skills, and what could be done better (areas of improvement). From this study, 93% of participants found "The Ward" simulation game to be enjoyable and 7 out of 10 students felt the game to be a valuable learning experience (Stanley & Latimer, 2010). The game demonstrated a variety of activities including:

decision making, clinical skills, ward management, practical nursing knowledge, critical thinking, medication knowledge, and leadership. These were all goals of the game. The game set up and implementation was very time consuming but proved to be a beneficial way to close the gap between theory and practice in this study. The researchers also provided a list of specific recommendations for implementation of "The Ward" game.

A study conducted by Bayer-Hummel (2010) reviewed the effects that the game Jeopardy when used as test preparation had on nursing students enrolled in an associate degree nursing course. The researcher compared two groups, one who participated in the game (n = 30) and one who did not (n = 25) but received the traditional content review questions. The students who participated in the Jeopardy game were asked to complete a two part survey that was developed by the researcher. The first part of the survey included 14 questions using a Likert scale and the second part was three open ended questions. Part one of the survey was completed by 29 students and part two was completed by 24 students. The results support gaming as an enjoyable way to learn and an effective test preparation strategy. Ninety-six percent of students found gaming to be a motivating way to learn and ninety percent felt gaming was enjoyable. Overall, positive comments including that the game "was fun," "loved it," and "it helped to identify areas of weakness" (p. 14). Students felt the use of buzzers, more time to answer questions, and more theory related questions would improve the game. A comparison of the test scores for students participating in the game and those who did not participate were completed. The mean and median scores were reviewed. The participating group scores were 83% and the non-participating group scores were 85%. Although the Jeopardy game did not improve test scores in this study it did encourage "participation, interaction, and enjoyment" (p. 15). Overall, the gaming experience was favorably received by the students and it increased cooperation and

collaboration among the students. The researcher endorses gaming as an effective teaching strategy but recommends further research on the use of gaming in relation to test score improvement.

Educators

Mixed-methods studies. There was only one study found that studied the educators' view on educational gaming in the health field. A mixed-methods study conducted by Blakely et al. (2009) explored educators' perspectives toward the use of educational games in the health sciences. Thirteen educators working in an educational institution were interviewed. The results of the interviews, in addition to a systematic review on the topic, were used to develop an online survey. The use of educational games varied among the 13 participants from not at all to routinely, and a variety of responses were given as benefits and disadvantages. Three main themes were discussed in the interviews; reflective practice in teaching, the impact of games on students from a teaching perspective, and the impact on logistical factors. According to the interviewees, games were seen as a successful teaching strategy and seen as being a "rewarding strategy" (p. 29). Many of the reactions from the students were positive but varied according to the games used. "The amount of time, class size, and teaching environment were identified as key gaming constraints" (p. 30). The survey included 16 questions relating to the educators' use of games, reasons for using or not using, benefits, disadvantages, preferred format of games, and examples of games used. The survey was completed by 97 health educators, but 15 of the responses were incomplete, leaving 82 with complete responses. From the survey, it was reported that only 34% of the respondents used games to support their teaching, "3-5 times a year" and 19.6% never used games" (p. 30). The survey also found that 62.9% of the participants reported that the main advantage of "using games was the enhancement of the

students' learning, enjoyment, and interest" (p. 30). Almost 44 % of the participants acknowledged that the negative reactions of the students such as their unwillingness to participant in the game or their disbelief about the effectiveness of the game were disadvantages to using games. Even though evidence has shown that the use of games enhances the learning process, the results of this study indicate that those who participated rarely used games as a teaching strategy. Despite the "positive attitudes towards the use of games that were expressed by the educators were not always consistent with their teaching behavior" (p. 31). The authors studied health educators' perspectives of educational gaming and recommend that further investigation is needed into the students' perspectives to determine if educational gaming is beneficial to students. Also, research focusing on the effects of gaming, and the impact of gaming on clinical skills would be helpful in future studies.

Gaming in Other Areas of Education

Educational gaming has been used in a variety of courses on an assortment of topics. This section will provide a brief description of how educational gaming was used in other areas of study. Gaps in the literature were also identified. This section is sub-divided into student and educator perspectives and according to the research method used.

Students

Qualitative studies. A qualitative study conducted by Gareau and Guo (2009) reviewed the use of games in three different graduate level instructional technology courses. The number of students enrolled in the courses or sample size was not mentioned in the study. Depending on which course the student was enrolled in determined what role the student played in the study; the game player, the game designer, or both. The study wanted to determine "How might educational games be used to help make graduate-level instructional technology learning more

interactive, engaging, and motivating?" (p. 2). For the purposes of this study the researchers did not want to determine the helpfulness of gaming to promote learning but the helpfulness for "promoting student engagement and motivation" (p. 2). The study involved two research activities. In one activity the course instructor was the game designer and the graduate students were the game players. In the second activity the graduate students were the game designers and had to use a variety of designs including: computer-based games, paper-based games, and board games. The study used an assortment of sources for data collection including: classroom observation, verbal comments, written feedback, and student game projects as evaluation tools. The students were also asked to keep a journal about their thoughts and experiences in the course. During the first research activity, the students appeared to be more engaged and displayed collaboration and teamwork. In the second research activity the students exceeded the expectations for the game design guidelines. The study found games to be helpful in the classroom. Students felt that educational games were both engaging and satisfying. The researchers expressed confidence that educational games can have a positive effect in assisting with learning among different learning styles. It is recommended that if educational games were used in the classroom that the games correlates with the objectives and goals of the course. Additional research needs to address the pedagogical value of games (Gareau & Guo, 2009).

Quantitative studies. A study by Duque, Fung, Mallet, Posel, and Fleiszer (2008) used a video game to help medical students prepare for home visits. This study has shown that by using gaming as a teaching strategy, students gained knowledge of an effective home visit as well as increased involvement in the learning process. Students (n = 56) were given pretests and posttests to assess their level of knowledge. The pretests consisted of 10 multiple choice questions relating to content in their assigned readings. The posttests consisted of 20 multiple

choice questions, 10 being the same as the pretest questions and 10 new questions based on the content students should have gained during the gaming session. Students showed a significant improvement in test scores; 42 ± 5% on the pretests to 90 ± 5% on posttests. Students were also given pre and post surveys to assess their opinions regarding gaming in medical education. Prior to playing the game, students felt it was juvenile, but after playing the games they felt it was entertaining and assisted in improving their knowledge and confidence in the content area.

Another study conducted by Sheely, Jack, and Herring (2007) wanted to determine whether review games had an effect on test scores. An Introduction to Equine Industry class (n = 30) was used for the study and the game of Jeopardy was used as the review game in the course. The tests used were not comprehensive and only included a section of the material. Students were given two exams, one prior to the review game and one following. The study revealed that test scores were significantly better for those who took part in the Jeopardy review game. The researchers recommend that review games should not be used as a substitute for regular instruction and used only as a review. The authors also note that depending on how the game was used it can decrease the level of instruction to knowledge rather than to higher levels of learning, such as application and synthesis.

No statistical data. Williams (2007) strongly recommends the use of educational games as a way to improve test scores and motivate students to learn. The author has taught biology at both secondary and undergraduate levels. The author has used a variety of games in the classroom over the years, including word puzzles, board games, and adapted television games, such as Jeopardy. One type of game used was a modified bingo card. The bingo card incorporated an assortment of review options into one game and was provided prior to an exam. The bingo card is optional to the students but it has been found that students who do participate

in the bingo card game review consistently improve their test scores and overall grade for the course. This study is limited because it does not provide any statistical data to reinforce the author's claim. Williams (2007) suggests that the general format of the Bingo card can be adaptable to any course making it both unique and a great way to motivate students to learn.

Educators

Quantitative studies. As a response to a limited amount of evidence supporting the use of educational gaming in medical education, a quantitative study using a survey was conducted (Akl, et al., 2010). The survey was developed to determine whether program directors in medicine support the use of educational games, their use of educational games, and the types and purposes of the games used. The survey consisted of three parts. The first section related to curricula, the second section related to educational games, and the third section related to the demographics of the residency programs. The sample size included 434 participants, a 52% response rate. The study found that 92% of program directors supported the use of educational games as a teaching strategy, and 80% currently use educational games. Seventy-eight percent of the participants use a Jeopardy type game, 3% use board games, and 4% use other games (Akl et al., 2010). Regarding the purpose of their game use, 62% use games for teaching, 47% use games as a review tool, and 3% use games for evaluation purposes. Even though there is support for the use of educational gaming, the lack of evidence demonstrating the effectiveness of educational gaming may suggest that educators do not always "follow an evidence-based approach in selecting their educational strategies" (p. 4). Despite the positive results that the researchers in the study have reported regarding educational games, there continues to be a need for "more and better designed studies to assess the effectiveness of educational games" (p. 4). Another question the researchers felt needs to be examined is how educational teaching

strategies are being selected without appropriate evidence to support its use.

Summary

A variety of educational games has been used as a way to incorporate experiential teaching strategies into the classroom. The formats of the games varied. Some of the games were adapted from television shows (Bayer-Hummel, 2010; Boctor, 2012; Hahn & Bartel, 2014; Montpas, 2004; Sealover & Henderson, 2005), others were developed by the researchers (Cowen & Tesh, 2002; Metcalf & Yankou, 2001; Stanley & Latimer, 2010) and a systematic review performed by Blakely et al. (2009) found an assortment of gaming formats were used. A variety of gaming formats have also been demonstrated in other areas of study. Computer–based games, board games, and a bingo card were also mentioned.

The methodology varied among the studies. The majority of the studies used a quantitative research design for data analyses and the qualitative components were open ended questions on a survey. Many of the studies used a survey or questionnaire for data collection when the researchers wanted to find out about attitudes towards games, benefits of games to learning, and level of enjoyment with games (Bayer-Hummel, 2010; Blakely et al., 2009; Boctor, 2012; Lynch-Sauer et al., 2011; Sealover & Henderson, 2005; Stanley & Latimer, 2010). Some of the studies used pretests and posttest for comparing test scores or knowledge retention (Blakely et al., 2009; Cowen & Tesh, 2002; Duque et al., 2008; Frazer, 2007; Montpas, 2004; Sealover & Henderson, 2005; Sheely et al., 2007). One of these studies also used pre and post surveys to determine opinions of game use (Duque et al., 2008). Gareau and Guo, (2009) used an assortment of qualitative components for data collection, including: classroom observation, verbal comments, feedback, journals, and the gaming project that was developed In addition to using a survey, Stanley and Latimer (2010) used focus groups to provide further expansion of

their results. One study used an informal hand evaluation (Hahn & Bartel, 2014) and another study used discussion for game evaluation (Metcalf & Yankou, 2001). There was one study that obtained the educators' perspectives on the use of educational games (Blakely et al., 2009). This study used a mixed-methods methodology and collected data through interviews and a survey. Williams (2007) had no statistical data available but despite this, highly recommended game use. And there was one study that used a survey to determine medical educators' attitudes towards gaming (Akl et al., 2010).

Overall, students have demonstrated positive attitudes regarding gaming as a teaching strategy (Cowen & Tesh, 2002; Duque et al., 2008; Gareau & Guo, 2009; Lynch-Sauer et al., 2011; Sealover & Henderson, 2005; Stanley & Latimer, 2010, Williams, 2007). The medical educators also displayed positive attitudes and support the use of educational games (Akl et al., 2010). Educators also found the use of games to be an effective and rewarding teaching strategy (Blakely et. al., 2009). All of the studies in nursing education found that games were used to increase the level of enjoyment, increase motivation, and were beneficial to learning. All of the studies in nursing education that used pretests and posttests did show improvement in knowledge or retention of knowledge, although when comparing lecture to gaming, results varied (Blakely et al., 2009; Cowen & Tesh, 2002; Montpas, 2004; Sealover & Henderson, 2005). In both of the studies in other areas of education that used pretests and posttests to assess knowledge retention or improvement, both had significantly better tests scores following the use of an educational game.

All of the researchers provided recommendations for the specific games that they had used in their studies. Disadvantages included time restraints, preparation time, and large class sizes making gaming difficult (Blakely et al., 2009; Metcalf &Yankou, 2001; Stanley & Latimer,

2010). Debriefing or reviewing of the questions and answers was recommended for any type pf gaming activity (Boctor, 2012; Lynch-Sauer et al., 2011). Educators are encouraged to incorporate technology and innovative teaching strategies, such as gaming, into the classroom to meet the needs of the current generation of students (Bayer-Hummel, 2010; Lynch-Sauer et al., 2011). Additional recommendations for continued use of games in the classroom include: the educational game used needs to match course objectives (Gareau & Guo, 2009); gaming should only be used for review, not substitute for regular instruction (Sheely et al., 2007); and there needs to be more research on the effectiveness of games on learning and evidence of support for gaming (Akl et al., 2010).

Gaps in the Literature

Despite the increase of game use over the years, there continues to be limited empirical research supporting the use of games (Royse & Newton, 2007). Because a variety of gaming formats have been described in the literature, it is difficult to indicate that one format is better than another. More research related to specific types of games would be beneficial in determining the most effective games to use and how the games affect learning outcomes (Blakely et al, 2009; Boctor, 2012). Continued research needs to be conducted on the use of experiential learning strategies in nursing education (Montpas, 2004; Sealover & Henderson, 2005). Validation of pre and post evaluations would help to demonstrate how gaming assists with knowledge retention, improvement and test scores (Bayer- Hummel, 2010; Boctor, 2012; Hahn & Bartel, 2004). Ultimately, providing safe and effective care are the goals of nurses. There is little or no research related to how the use of gaming in nursing school could affect patient care. There needs to be a "more creative way to link the use of games with patient outcomes" (Blakely et al., 2009, p. 268). Research is lacking in the areas of pedagogical values

of games (Gareau & Guo, 2009), demonstration of the effectiveness of educational gaming in different subject areas, and at different levels of education (Akl et al., 2010; Sheely et al., 2007), and the effect that gaming has on skill development (Duque et al., 2008).

The literature review yielded a few studies that focused on the perspectives of students and educators on the use of educational games in the classroom. More qualitative research on the attitudes of students and educators would help to explain the positive and negative characteristics of gaming as it relates to student learning (Bayer- Hummel, 2010; Blakely et al., 2010; Blakely et al, 2009).

Conclusion

Although many educators are in favor of incorporating games into the classroom, the need for research continues in this area. Some researchers have reached no significant conclusions, others have not proved game-based learning to be better than other forms of instruction, and some research questions the methods used (Hays, 2005). It is apparent that with the Millennial students leaving and with the emergence of Generation Z students, research has shown that gaming is a part of this generation's everyday life. Educators need to take into account students' skills and experiences when developing teaching strategies to meet the 21st century of learning.

Summary

This chapter has discussed the need for the current generation of college students to be taught using experiential teaching strategies. Gaming has been identified as one way to accomplish this. The results of various research studies have shown educational gaming to have a positive effect on students' learning, although some negative effects have also occurred. Educational gaming can be used in nursing as well as other areas of education. And despite the

positive results related to the use of educational games in the classroom, few educators use them regularly and their purpose of use varies. It has also been found that little research exists on nursing students' and educators' perspectives and attitudes on the use of educational gaming.

CHAPTER 3

METHODOLOGY

Introduction

The purpose of this study was to explore the views of nursing students and educators on the use of educational gaming as an experiential learning strategy. This grounded-theory study looked at the opinions of both nursing students and nursing educators regarding the use of games in the classroom. This study investigated if educational games are being used in the classroom, the purpose for which they are used, whether or not students feel that educational games are beneficial in motivating them to learn course content, and students' and nursing educators' overall experience with and attitude towards educational games. The following chapter introduces the participants used in the research study and the procedure for obtaining them. An explanatory mixed-methods research design including both qualitative and quantitative components was used for data collection. The quantitative component was conducted using an online web-based survey which was analyzed using Qualtrics. The qualitative component followed using semi-structured interviews which were analyzed using the constant comparative method of data analysis and NVivo, a qualitative software package used to assist in the classifying, sorting, and arranging of information. This study referenced the research study conducted by Blakely et al. (2010). Their study identified the need to identify students' perspectives on educational gaming and if gaming was beneficial to learning. This current study is not a replication of their study but does have similarities in the process of the research. This study began with the survey and follows up with the interviews, opposite of their study.

Research Design

An explanatory mixed-methods research design was used. According to Creswell (2005), a mixed-methods research design provides a greater understanding of the research problem then quantitative or qualitative research can do alone. Caruth (2013) states that a mixed- methods design allows one to obtain information that may be missed by using only one research design, elaborates on the knowledge that can be collected, and develops additional questions for future research. Quantitative data produce information that can be analyzed using statistics for a group of people and qualitative data allows individuals to describe their opinions on a particular topic (Mertler & Charles, 2011). In an explanatory mixed-methods approach to research, the quantitative research is collected first, followed by the qualitative research. The qualitative research will help to support, explain or expand on what was found with the quantitative portion (Creswell, 2005). When using a mixed-methods approach the researcher has the capability to address both exploratory and confirmatory questions (Venkatesh, Brown, & Bala, 2013). Venkatesh et al. (2013) identify seven purposes for using a mixed-methods research design. These seven purposes include: complementarity, completeness, developmental, expansion, corroboration/conformation, compensation, and diversity. Complementarity allows for obtaining shared understandings about comparable experiences; completeness ensures that the entire representation of experiences is obtained; developmental involves building questions from one method that happen because of a prior method used or one method presents hypotheses that can be used in a later method; expansion allows for clarification or rationalization on the knowledge received from a previous method; corroboration/confirmation evaluates the reliability of inferences obtained from one method; compensation of the limitation of one method by using the other method; and diversity of obtaining different views on the same experiences (Venkatesh et

al., 2013).

A qualitative research method such as interviews can "provide depth into a research inquiry by allowing researchers to gain deep insights from rich narratives, and surveys, a quantitative data collection approach, can bring breadth to a study by helping researchers gather data about different aspects of a phenomenon from many participants" (Venkatesh et al., 2013, p. 25). The quantitative component of this research study was conducted using an online survey and the qualitative component included semi-structured interviews conducted by the researcher face-to-face with the participants.

Reasons for Choosing Grounded Theory

A mixed-methods research design approach was utilized for this research study. It is important to describe the process of grounded theory and how it was used for the qualitative analysis.

Grounded theory is a qualitative methodology approach that was developed by Barney Glaser and Anaselm Strauss who proposed that theory development could be derived from data analysis (Strauss & Corbin, 1990). Strauss and Corbin (1998) later defined grounded theory as "theory that was derived from the data, systematically gathered and analyzed through the research process" (p. 11). The researcher begins with an area of study and allows the theory to emerge from the data.

The purpose of this study was to explore the views of nursing students and educators on the use of educational gaming as an experiential learning strategy. Straus and Corbin (1998) state that grounded theory methodology can be used to investigate areas where little data are available. Because grounded theories are drawn from data collection, they have the possibilities of offering insight, enhancing understanding, and offering a significant guide to action (Straus & Corbin,

1998). These theories are developed from present and past experiences, relationships, perspectives, and other research (Charmaz, 2006). The goal of this study was not to generate theory but to provide insight into nursing students' and educators' perspectives and the use of educational games as an experiential learning strategy that could lead to theory development with other studies.

Human Subjects/Ethical Issues

Prior to conducting the study, Institutional Review Board (IRB) approval was obtained from both the university (Appendix A) and the private college (Appendix B). Site approval was also approved from both facilities (Appendix C). Full disclosure of the goal and outcomes of the study was explained to the subjects prior to participation in the study. Potential participants received a letter explaining the purpose of the study as well as the risks and benefits of completing this study (Appendix D, E). Informed consent was implied for the survey when subjects completed the survey. There was a question on the survey asking for contact information. If contact information was provided, the subjects were notified and a separate informed consent form was signed prior to the interview (Appendix F, G).

No vulnerable populations were used in this study. Pregnant students and faculty may have been included in the study although they were not the target of this study. No major ethical issues existed related to the participation in this study.

A graduate assistant was used for distribution of the consent letters but did not know the identity of the participants. The graduate assistant signed a statement of confidentiality. (Appendix H). Identification numbers were assigned to each participant in the interview. Participants were asked if they had any questions about the study before any interviewing occurred. All consent forms and other information will be kept in a locked filing cabinet for a

period of three years including data devices used for saving computer files. All computer files used for data collection are saved on a portable drive and are password protected to maintain confidentiality of the study information.

Study Setting

The settings for this study included two nursing programs, one baccalaureate program located at a state university and one associate degree program located at a private college, both in western Pennsylvania. The researcher had contact with the chairpersons of each facility regarding their use. The facilities were selected based on the convenience of location for the researcher and the number of students enrolled and nursing educators employed at both facilities.

Sample

The type of sample used for this study was non-random. The sampling technique used was purposive because the researcher is trying to obtain data from nursing students and educators. The participants for this study included senior level nursing students and nurse educators teaching at two nursing facilities located in western Pennsylvania. The sample size depended upon the number of senior students enrolled and the number of educators teaching at the nursing schools who consented to take part in this study. The age of the student participants varied depending on whether the student was a traditional or non-traditional student and could have included both male and female students. Gender was not specified in the survey. The ages of the nursing educators also varied and could have included both male and female participants. The researcher did not have direct teaching contact with the students. The researcher is faculty in one of the two nursing programs chosen for this study.

Eligibility Criteria

This section will discuss the eligibility criteria for the study participants. Both the inclusion and exclusion criteria will be included.

Inclusion criteria. This study's inclusion criteria included**:**

1. Students must be enrolled in a nursing program
2. Educators must be employed in a nursing program
3. Students must be senior level students
4. Students must be enrolled in a nursing school in Pennsylvania
5. Nurse educators must be employed in Pennsylvania
6. English speaking

Exclusion criteria. This study's exclusion criteria included:

1. Students not enrolled in a nursing program
2. Nurse educators not employed in a nursing program
3. Students not enrolled in senior nursing classes
4. Students enrolled in programs outside of Pennsylvania
5. Nurse educators employed outside of Pennsylvania
6. Non-English speaking

Recruitment

This section will discuss recruitment of the participants for the current study. The study's survey approach, interview approach, and offered compensation for participation in the interview will be discussed.

Survey Approach

The researcher used purposeful sampling for recruitment of potential participants from

nursing programs in Pennsylvania. Pennsylvania was selected due to the researcher's location. The researcher contacted the chairperson from the identified nursing programs to discuss the study's purpose. Data collection was collected during the Spring semester of the academic year. Only senior nursing students were used since these students would have had a longer period of time to experience educational gaming within their nursing program. Nurse educators were selected because they would be individuals who could provide educational gaming as an experiential learning strategy to the students. The researcher made contact with the educators teaching senior level nursing courses to obtain permission for the letters of consent, notifying the students about the research study, and to be distributed in class. The researcher had a graduate assistant distribute the consents to the nursing students at the state university so that the students did not feel obligated to participate in the study since the researcher works at this facility. The graduate assistant also placed the letter of consents in the educator's mailbox. The chairperson at the private college had agreed to distribute the consents to senior level students and educators at that facility. The consents were sent by mail to the chairperson of the private college.

The students and nurse educators were informed in the letter of consent that survey completion would be voluntary and would not impact course grades or employment. Each student and nurse educator received a letter of consent (Appendix D, E) explaining the study's purpose, risks and benefits, and the researcher contact information. Consent was implied when the participant completed the survey which was explained in the cover letter. The senior nursing students and nurse educators at the nursing facilities were emailed a link to complete the web-based online survey. Because the researcher did not have access to the private college's students and educators email list, the researcher emailed the link for the survey to the Chairperson and it was distributed. The data collection process for the survey at the selected facilities took place

over a four week period to maintain consistency of the data collected and to reduce risks from external factors. Initially, the survey was going to be open for two weeks but to increase the sample size the survey remained open for an additional two weeks. A reminder email was sent after the first week to the nurse educators and students at the state university and a reminder email was sent to the Chairperson of the private college to be distributed to senior nursing students and educators.

Interview Approach

A question on the survey asked the subjects about their willingness to be interviewed related to the topic of educational games. If the subjects were willing to participate in an interview, they were asked to provide contact information. The contact information was not connected with survey responses. The individuals who agreed to participate in the interview were asked to sign a separate consent form at the time of the interview (Appendix F, G, H, I).

The goal was to obtain a total of eight to ten participants from both facilities for the interviews or until data saturation was obtained. It would have been beneficial to have educators who both use and do not use educational games as an experiential learning strategy to better understand their perspectives. It would also have been beneficial to have students who have experienced and not experienced the use of educational games in the classroom to better understand their perspective as well.

Compensation for Interview

The participants were offered an incentive for agreeing to participate in an interview to increase participation rates. After the interviews were conducted the participants of the interviews were entered into a drawing, one for students and one for nurse educators. The two

chosen won a gift certificate for a restaurant. The winners were notified by phone or email and gift cards were mailed to the winning participants.

Alternative Procedures

There were no alternative procedures for students or educators. Both students and educators had the choice not to participate in the study as the alternate procedure. Not agreeing to participate will not affect the educator's employment or students' grade.

Research Instrument

Quantitative Phase

The quantitative research instrument used for this study included a survey that was administered via Qualtrics, a web-based survey software tool. The survey questions were piloted with approximately 20 sophomore nursing students at the state university and three adults who had degrees in higher education prior to distribution of the survey. One of the adults who reviewed the questions has a PhD, one has a Master's degree, and one adult has a bachelor's degree. The students and adults were asked to provide feedback on the questions. Changes were made as needed. Prior to the students and educators taking the survey online, the survey was piloted with two graduate assistants. Approximate time to complete the survey was determined and editorial changes were made as needed.

Survey questions. The questions for the survey were adapted from the survey questions used by Blakely et al. (2010). Permission was obtained to adapt these questions (Appendix K). The survey questions were modified for the current study to add additional questions relating to experiential learning strategies. The survey questions used by Blakely et al. (2010) were designed for that study and they did not have reliability and validity data available on the instrument. Blakely et al. (2010) used the Checklist for Reporting Results of Internet E-surveys

developed by Eysenbach (2004) to improve the rigor of the survey results. Items used on the checklist for Blakely et al.'s study included: "the usability and technical functioning of the electronic questionnaire were rigorously tested prior to recruitment, no incentives were offered, and participants were able to review and change their answers if they wished" (p. 29). Eysenbach's Checklist for Reporting Results of Internet E-surveys was also used for administering the survey in this research study. Items listed on the checklist used in this study include the following: the survey was approved by an Institutional Review Board prior to administration, informed consent was obtained prior to administering the survey, the usability of the electronic survey was tested, the participants were emailed a link to the survey, it was a voluntary survey and there were no incentives for completing the survey portion of this research study. The survey design guidelines stated in Mertler and Charles (2011) were also reviewed prior to adapting survey questions. Some of these guidelines included the following: providing directions, including questions that relate to the purpose and research studies, including applicable demographic questions, clear and concise questions, short questions, and using correct grammar and spelling. Appendices L and M displays the survey questions used in this study.

Nurse educator survey. The survey questions used in Blakely et al.'s (2010) study were designed for that study and were used to evaluate health educator's perspectives on educational gaming and included 10 questions. The current study evaluated only educators who taught nursing at the two selected facilities. Demographic questions on the Blakely et al. survey included questions relating to age, sex, and institution. Sex was excluded from the current study since there are fewer males in nursing education. This would help to eliminate the possibility of identifying a participant from the two facilities included in this study. The Nursing Educator survey for the current study included 20 questions, the first two questions of the survey included

demographic questions relating to age and institution. The next five Blakely et al. survey questions included questions related to years teaching in the health studies, professional qualifications, teaching qualifications, main areas of teaching, and the frequency that games are used to support teaching. If respondents replied never or rarely to the frequency that games were used to support their teaching then the next question asked what would encourage them to use games more often. The next four questions on the Blakely et al. survey required free-text responses relating to the following questions: briefly describing two educational games used and their purpose, benefits of games in teaching and learning, main disadvantages of using games in teaching, and any additional comments. Teaching experience, teaching responsibilities, and professional development related to experiential learning strategies were included in the current survey questions. In the current study, multiple choice options are provided for questions 6 through 12. Question 6 asked how often (per year) the educator uses educational games as an experiential learning strategy (never, rarely, occasionally, regularly, or often). Questions 7 through 10 asked the educators their level of agreement (strongly disagree to strongly agree) with the following questions: educational games are an engaging way to teach or review course materials, educational games are a motivating way to teach or review course materials, educational games are beneficial to student learning, and educational games are not beneficial to student learning. These questions were added to the survey to assist with answering the research questions identified in this study. Question 11 asked participants in what way they have used to educational games in the classroom with the options of test review, teach course materials, other or none. Respondents were allowed to select multiple options. This question was added to identify the purposes that games were being used in the classroom. Question 12 sought to determine at what level on Bloom's Taxonomy educators felt that educational game questions

were prepared (knowledge, comprehension, application and analysis). Multiple responses were accepted. This question was added to the survey because some studies have identified that gaming promotes critical thinking. The researcher wanted to identify what other educators' perceptions were on this topic. Bloom's Taxonomy of Educational Objectives is a classification of educational learning objectives that identifies three learning domains (cognitive, affective, and psychomotor). The cognitive domain relates to thinking, affective relates to feelings, and psychomotor relates to motor skills. There are six levels within the cognitive domain; knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1956). The cognitive domain is primarily the focus of classroom education (Kim, Patel, Uchizono, & Beck, 2012). Questions 13 through 18 were similar to the free-text questions in the Blakely et al. study. Participants were asked what would encourage the use of educational games, what were considered to be advantages of gaming, disadvantages of gaming, the response received from students if games were used in the past, description of two games used in the past and the games' purpose, and any additional comments. Question 19 asked their willingness to participate in an interview (yes/no) and question 20 asked for contact information if they agreed to participate in an interview.

Nursing student survey. The Nursing Student survey included 15 questions. Some of the questions that were developed for this survey are similar to the educator survey questions. This was to compare the responses. The first two questions on the survey relate to demographic information; age and attending institution. Questions 3 through 9, and 11 and 12 require a multiple choice response. Question 3 asked the students to identify how often their nursing instructors used educational games (per year), options included never, rarely, occasionally, regularly or often. Questions 4 through 7 and questions 11 and 12 asked the students their level

of agreement (strongly disagree to strongly agree) with the following statements: educational games are an engaging way to learn or review course materials, educational games are a motivating way to learn or review course materials, educational games are beneficial to my learning, educational games are not beneficial to my learning, my nursing educators "never or rarely" use educational games in the classroom but I feel it would be a beneficial way to learn, and my nursing educators "never or rarely" use educational games in the classroom but I feel it would be a motivating way to learn. Question 8 asked students in what ways educational games were used in the classroom with the options of test review, teach course materials, or other. Multiple responses were permitted. This question was used to identify the purposes that games were being used in the classroom. Question 9 asked on what level on Bloom's Taxonomy students felt that educational game questions were prepared (knowledge, comprehension, application and analysis), and multiple responses were accepted. This question was used on the survey to compare the students' results with the educators. Questions 10 and 13 are free- text responses. Question 10 inquired about what types of educational games the students have participated in. Question 13 asked for any additional comments or thoughts regarding the use of educational games in the classroom. Question 14 asked for their willingness to participate in an interview and question 15 asked for contact information. Not all questions required a student response. If the question did not pertain to the student, they were asked to skip the question. Therefore, some of the survey results had a different sample number.

Qualitative Phase

The qualitative portion of this study included semi-structured interviews. According to Mertler and Charles (2011), semi-structured interviews allow the researcher to ask foundational questions and then have the option to follow up a response with alternative questions, depending

on the responses given.

Interview schedule. The questions for the educators' interview schedule were adapted from Blakely et al.'s (2010) study. Permission was obtained to adapt the questions that were used in the study (Appendix K) for the purpose of this research study. Blakely et al.'s interview schedule included 10 questions. The first five questions were related to demographics and included the following: age, amount of time teaching health studies¸ professional qualifications, and main areas of teaching responsibility. The remaining five questions asked the frequency of game use, types of games used, benefits of game use, disadvantages of game use, and any other comments.

Nurse educator interview. For this research study the Nursing Educator interview schedule consisted of 14 questions with additional prompts included (Appendix N). The first four questions are demographic questions related to age, institution, teaching experience, and teaching responsibility. The following 10 questions are related to the educators' use of educational games, or lack of use, their thoughts on the advantages and disadvantages, challenges that may arise from the implementation of games, their experience with students' attitudes toward the use of educational games, and their use of other types of experiential learning strategies such as simulation and role playing, and any additional comments regarding educational gaming as an experiential learning strategy.

Nursing student interview. The Nursing Student interview schedule consists of 11 questions with additional prompts included. The first two questions are demographic questions related to age and institution. The nine remaining questions relate to the students' perspectives on the use of educational games, how the educational games are used, their thoughts on the advantages and disadvantages of experiences with educational games, their thoughts on how

educational games assist in their learning, if educational games motivate them to learn course materials, and any additional comments (Appendix O).

Procedures

Quantitative Phase

The survey research process identified in Mertler and Charles (2011) was used for conducting the quantitative research portion of this study. The first step was identifying the research topic, which is nursing students' and educators perspectives' on educational gaming as an experiential learning strategy. The second step was review of the literature which was identified in Chapter Two of this study. The third step was identification of the participants, nursing students and educators from two nursing facilities in western Pennsylvania. Step four was identifying the type of data collection, for this study it was an online web-based survey. Step five was drafting the cover letter and instrument, a letter of consent was developed for this study and was given prior to the start of the survey (Appendix D, E). The survey questions were adapted from the Blakely et al. (2010) questions and by using the guidelines previously mentioned. Step six was the pilot study of the survey questions. The survey questions were piloted using approximately 20 sophomore nursing students with whom the researcher had direct contact. The researcher did have direct teaching contact with the sophomore nursing students, but participation in this pilot study did not affect the students' grade. Students had the option to participate in the pilot study. The researcher did not know who agreed and disagreed to participate. Confidentiality was maintained. A graduate assistant in the nursing department, with no direct teaching contact with the students, provided a paper copy of the survey questions to the students. The graduate assistant collected the surveys when completed and returned them to the researcher. Feedback was received and changes were made as needed. Survey questions

were also reviewed by three adults with higher education degrees, prior to the survey being administered. One of the adults who reviewed the questions has a PhD, one has a Master's degree, and the other adult has a bachelor's degree. After completion of the pilot study, the researcher asked for feedback regarding the length of time for completion of the survey and opinions regarding the specific questions, and revisions were made to the questions as needed. The seventh step of the process was collection of data. The link to the survey and explanation of the survey were emailed to senior nursing students and educators at the identified facilities. The researcher has access to the senior nursing students and educators at the state university and manually entered the email addresses for the students and educators. The link of the survey was emailed to the chairperson at the private collage and the link was distributed to the senior level students and educators in the nursing department. The online survey was administered through Qualtrics. The participants had two weeks to complete the survey. After the first week a reminder email was sent to participants to complete the survey. The eighth step of the survey process was analysis of the data discussed later in this chapter.

Coding and scoring of the survey. A code book was developed by the researcher for the survey data that was entered into SPSS ®. For research question 1, student survey question 3 and educator question 6 responses were coded with numbers (1-5, 1 = never and 5 = often) and frequencies were calculated for the perceptions of the frequency of educational game use in the classroom. Student survey question 8 and educator question 11 responses were coded with numbers (1-3 for students, 1 = test review, 2 = teach course materials, and 3 = other; and 1-4 for educators, 1 = test review, 2 = teach course materials, 3 = other, and 4 = none) and frequencies were calculated for the perceptions of the use or purposes of educational game use in the classroom. Student survey question 9 and educator question 12 were coded with numbers (1-4, 1

= knowledge, 2 = comprehension, 3 = application, and 4 = analysis) and a chi-square was calculated to see the differences in student and educator responses regarding the perceptions of educational gaming question preparation in relation to Bloom's Taxonomy. For research question 2, student survey question 5 and educator question 8 responses were coded with numbers (1-5, 1 = strongly disagree to 5 = strongly agree) and frequencies on their level of agreement with the statement regarding educational gaming being a motivational way to learn/teach course materials was calculated. For research question 3, student survey question 6 and educator question 9 responses were coded using numbers (1-5, 1 = strongly disagree to 5 = strongly agree) and frequencies on their level of agreement with the statement regarding educational gaming being beneficial to learning was calculated.

Qualitative Phase

The interview process identified by Creswell (2013) was used to assist in the qualitative portion of this study. The first step was deciding on the open ended research questions that would be answered by the persons being interviewed to explain the phenomena. The three research questions developed for this study were identified as: (a) To what extent and for what purpose are educational games being used in the nursing classroom; (b) Do students feel that educational games motivate them to learn, and (c) What is the nursing students' and nursing educators' overall experience with and attitude toward the use of games as an experiential learning strategy? These questions were used to guide the interview. The questions on the interview schedule and free-text questions on the survey assisted with obtaining these answers. The second step was identifying who was going to be interviewed. Senior nursing students and educators from a state university and a private college were purposely selected to answer the interview questions. The third step was to determine the type of interview to be used. Face-to-

face interviews were conducted. The next step was obtaining recording devices. The interviews were recorded using a digital voice recorder and an electronic recorder. This step was followed by the development of an interview schedule or protocol. The interview schedules were guided by the research questions but were modified as needed depending on the development of different themes or ideas. The questions were piloted with approximately 20 sophomore level nursing students with whom the researcher had direct contact. The researcher had direct teaching contact with the sophomore nursing students but participation in this pilot study did not affect the students' grade. Students had the option to participate in the pilot study. The researcher did not know who agreed and who declined to participate. Confidentiality was maintained. A graduate assistant in the nursing department, with no direct teaching contact with the students, provided a paper copy of the interview questions to the students. The students were asked to review the interview questions to verify understanding of the questions. The graduate assistant collected the interview questions after they were reviewed and returned them to the researcher. Interview questions were also reviewed by three adults with higher education degrees, prior to the interviews being conducted. One of the adults who reviewed the questions has a PhD, one has a Master's degree, and the one adult has a bachelor's degrees. Following the pilot of the interview questions, the researcher received feedback and made changes as needed.

Contact information was obtained from the question on the survey that asked the participants' willingness to participate in an interview. The potential participants for the interview were sent an email. The researcher contacted participants until there were five nurse educators and four students who agreed to participant in the interview. Informed consent was obtained for the interview at the time of the interview. Participants were also given a copy of the consent to keep in their possession in case they needed to contact the researcher at any time.

Face-to-face interviews were conducted at the state university located in western Pennsylvania. The interview took place in the researcher's office. In addition to recording the interviews on two different devices, notes were taken during and immediately following the interview. Recorded interviews were transcribed by the researcher and a graduate assistant. Analysis of the data occurred simultaneously with the data collection and when new ideas developed, the ideas were integrated into the remaining interviews. According to Charmaz (2006), the core of grounded theory is using constant comparative methods and the researcher engagement in the process. Jeon (2004) states that the purpose of making comparisons in a grounded theory study is "to assist in conceptualization and categorization in the course of data collection and analysis" (p. 253).

Theoretical sampling and the constant comparative analysis are two methods that are specific to grounded theory (Creswell, 2013; Strauss & Corbin, 1990). Both of these methods were used during the qualitative process of this research study. Theoretical sampling is defined as the process of collecting data for generating theory (Glaser & Strauss, 1967). The researcher simultaneously collects, codes, and analyzes data to determine what data to collect next, and where to locate it in order to further support the emerging theory. This means that the participants who are being interviewed are theoretically chosen to support the developing theory.

Constant comparative analysis is defined as the "process of gathering information from the data collection and comparing it to the emerging categories" (Creswell, 2013, p. 86). A category is identified as a component of information, or concept, that is made up of events, happenings, and instances (Strauss & Corbin, 1990). By using the constant comparative method of analysis the researcher is able to identify the similarities and differences within the data (Strauss & Corbin, 1990). This process of analysis is continued until theoretical saturation has occurred. Saturation

occurs when no more new data is emerging or the data become redundant. Coding was used in the constant comparative analysis.

Methods of Analysis

This section will discuss data analysis for the current study. Methods for data analysis of the demographics and each research question will be presented incorporating both quantitative and qualitative data. All demographics of this study were analyzed using descriptive statistics. The quantitative data were collected from the survey which was administered through Qualitrics. The data obtained through Qualitrics were exported to the Statistical Package for Social Scientists (SPSS), version 21 for analysis. The qualitative data was collected by semi-structured interviews and free-text questions from the survey.

Research Question 1

Descriptive statistics were performed for research question 1. This question determined the perceptions of nursing students and nurse educators on frequency per year that educational games were used in the classroom and what was the purpose for the games used. Frequencies were completed and calculated for both student and educators regarding the frequency of use and purpose. These descriptive statistics were analyzed using SPSS ®. In order to determine if there was a difference between student and educator perceptions on the level of game question preparation, the Chi -square test of independence, $x2$, for measure of association, was used for each of the levels of Bloom's Taxonomy of Educational Objectives. According to McHugh (2013), "the Chi-square ($x2$) can provide information not only on the significance of any observed differences, but also detailed information on exactly which categories account for any difference found" (p. 142). The predetermined alpha level of significance (0.05) was used for analysis. The analysis yielded no statistically significant difference between student and

educator responses in this study. The Chi-square for a portion of question 1 was analyzed using SPSS ®.

Qualitative analysis was also completed for research question 1 using interview questions. Students were asked the frequency that nursing instructors used educational gaming and educators were asked the frequency with which they use educational games in their teaching. The researcher performed textual content analysis of the responses of the participants. Common responses were found and discussed in the results section of this dissertation. Interview transcription data was also entered into NVivo to assist with organizing the data and common themes were noted. In addition to organizing the data into NVivo, a line by line analysis of the transcription of the interviews and free-text responses on the survey was completed.

Research Question 2

Descriptive statistics were performed for research question 2. This question determined if nursing students and educators perceived educational games as motivational to student learning. Frequencies were completed for both students and educators. The descriptive statistics were analyzed using SPSS ®. Qualitative analysis was also completed for this question. Student interview question 10 asked students if they felt that educational games motivated them to learn course materials. Interview transcription was reviewed and entered into NVivo to assist with organizing data. Common responses were found and reported in the results section of this dissertation.

Research Question 3

Descriptive statistics were performed for research question 3. This question explored the overall experience of nursing students' and nurse educators' experience with and attitudes toward the use of educational games as an experiential learning strategy. Question 6 on the

student survey and question 9 on the educator survey determined perspectives on educational games being beneficial to student learning. Frequencies were completed and scored for both students and educators. These descriptive statistics were analyzed using SPSS ®. Qualitative analysis was also completed. The researcher conducted textual analysis of content for free-text responses of the participants. Additional comments on the survey from both students and educators were reviewed (question 13 for students and question 18 for educators). Question 16 on the educator survey determined the responses received from students with the use of educational game use. In addition to the free-text responses on the survey, interview questions were also analyzed for this question. Students were asked to explain how educational games assisted with learning. Educators were asked about some of the challenges that may arise with the implementation of using educational games and what has been their experience with students' attitudes towards educational games. Interview transcription was reviewed as well as memos taken during the interview process. Interview transcription was entered into NVivo to assist with organization of data. Common responses were found and are discussed in the results section of this dissertation.

Summary

In this chapter the study participants, research designs, instruments, the procedure for obtaining, and analyzing the data were discussed. The qualitative data were collected by surveys via Qualtrics and then analyzed using descriptive statistics and a Chi-square test of independence to determine the significance of differences. Qualitative data followed by conducting semi-structured interviews that were analyzed using theoretical sampling and the constant comparative method. The data were organized using the NVivo software. Coding was also used to further

define and analyze the data. Common themes were established and will be discussed in the next chapter.

CHAPTER 4

RESULTS

The data and analyses for the demographics and research questions will be presented along with the description of the sample for students and nurse educators, the research questions, and quantitative and qualitative results.

Sample Description

Survey Participants

The student survey was distributed to senior nursing students (n= 145) from a baccalaureate program at a middle sized state university (n= 105) and an associate program at a small private college (n= 40). According to College data.com (n.d.) a medium sized college has from 5,000 to 15,000 students and a small college has less than 5,000 students. In the Fall semester of 2013 there were a reported 14,728 students at the state university and approximately 2,500 students at the private college used in this study. A total of 66 student surveys were completed, with a response rate of 46%. Not all of the survey questions required a student response. If the question did not apply to the students, they were asked to skip the question. Therefore, not all of the survey questions were answered on each survey. The total sample size for this survey was 66.

Demographics and descriptive statistics are presented in Table 1 for the students. Student participants ranged in age from under 20 years old to over 35 years old. The majority of the participants were aged 20-25 years old (85%). The sample represented one baccalaureate degree nursing program from a state university (75%) and one associate degree nursing program (25%) from a private college, both in western Pennsylvania. One student failed to answer the age variable question and the program variable question; therefore the sample size for age was 65.

The nurse educator survey was distributed to nurse educators (n= 46) from a

baccalaureate program at a state university (n= 33) and an associate degree program from a private college (n= 13). A total number of 30 surveys were completed for a response rate of 65%. Not all of the survey questions required an educator response. If the question did not apply to the educators, they were asked to skip the question. Therefore, not all of the survey questions were answered on the survey. The total sample size was 30.

Demographics and descriptive statistics for nurse educators are presented in Table 2. Participants ranged from under 30 years old to over 50 years old. The majority of participants were over 50 years old (52%). The sample represented nurse educators from one baccalaureate program from a state university (67%) and an associate program at a private college (33%). The majority of the nurse educators (38%) have taught in nursing education for 6-10 years, following this was 16-20 years (21%). The main areas of teaching for the participants were at the undergraduate level (93%). Nurse educators were also asked if they had any professional development on the topic of experiential learning strategies. The majority of the participants (76%) had received professional development related to this topic. Only 29 of the 30 participants answered the survey questions related to the age, program, area of teaching, and professional development questions; therefore the sample size for these questions was 29.

Table 1

Demographic Characteristics of the Student Sample

Variable	Category	N	(%)
Age	Under 20 years old	1	(2)
	20-25 years old	55	(85)
	26-30 years old	5	(8)
	31-35 years old	2	(3)
	Over 35 years old	2	(3)
Nursing program	Baccalaureate	49	(75)
	Associate	16	(25)

Note. Total percentages may not equal 100 due to rounding.

Table 2

Demographic Characteristics of the Nurse Educator Sample

Variable	Category	N	(%)
Age	Under 30 years old	3	(10)
	31-40 years old	4	(14)
	41-50 years old	7	(24)
	Over 50 years old	15	(52)
Nursing Program	Baccalaureate	18	(67)
	Associate	9	(33)
Years of teaching	Under 5 years	4	(14)
	6-10 years	11	(38)
	11-15 years	4	(14)
	16-20 years	6	(21)
	Over 20 years	4	(14)
Main teaching	Undergraduate	27	(27)
	Graduate	1	(3)
	Masters &Doctoral		
	50%Undergraduate	1	(3)
	& 50% Graduate		
Prof. Dev	Yes	22	(76)
	No	7	(24)

Note. Total percentages may not equal 100 due to rounding.

Interview Participants

Nursing students. Sixteen students who had participated in the survey provided contact information to be notified if they were chosen for the interview. The goal was to have participants from both nursing programs. Of the sixteen students who provided contact information, two were from the private college. From the list of students who provided contact information, and to provide a random sample, every fourth student on the list from the university was invited to participate. Initially three of the senior nursing students from the state university and the two students from the private college who provided contact information were emailed asking for their willingness to participate in the interview. The three students from the state university agreed to participate. One of the students from the private college was no longer willing to participate and the other never responded to emails. Four additional students randomly selected from the state university were emailed to see if they were willing to participate. Two students agreed, but only one of the students was able to participate. A total of four senior nursing students participated in the interviews. Participants ranged in age from 20 years old to early 50s. Three students were traditional students and one student was a non-traditional student. Data saturation was obtained therefore no additional student interviews were needed.

Nurse educators. Nineteen participants who completed the survey provided contact information for their willingness to participate in an interview. There were a total of 14 educators from the state university baccalaureate nursing program and five from the private college associate degree program who provided contact information. The goal was to have participants from both nursing programs and have at least four to five participants or until data saturation was obtained. Participants from both programs were randomly selected. Initially,

three educators from the state university and two educators from the private college were emailed to ask their willingness to participate. The three state university educators agreed and no response was received from the two private college educators after two emails. Two additional educators from the private college were emailed to ask of their willingness to participate, and there was no response from one and the other was no longer interested in participating. Two additional state university educators agreed to participate. A total of five nurse educator interviews were conducted. All of the participants were in their 50s. Four of the educators taught at the undergraduate level and one taught at both the undergraduate and graduate level. The interviewees have taught in nursing education ranging from 6 to 25 years. The interviewees represent nurse educators who teach at all three levels- sophomore, junior, and senior levels. They also teach a variety of courses including both clinical and lecture courses at the different levels. Data saturation was obtained therefore no additional student interviews were needed.

Advantages and Disadvantages to Gaming

Advantages and disadvantages can be identified with any type of experiential learning strategy. This section will identify common themes that students and nurse educators in this study have acknowledged as being advantages and disadvantages to using gaming as an experiential learning strategy in the classroom. Some qualitative quotations will be presented to strengthen the themes. However, these examples may only represent one student and nurse educator response and may not represent the entire sample.

Nursing students were asked to identify what they felt to be advantages and disadvantages of the use of educational games in the classroom in an interview question. A question on the survey asked if students had any additional comments regarding the use of educational games in the classroom. If any of the responses related to the advantages or

disadvantages of gaming, they were also included in the analysis of responses. Responses were analyzed and common themes were identified. Table 3 summarizes these findings. Nurse educators were asked to identify in both open-ended survey and interview questions what they perceived to be advantages and disadvantages when using educational games in the classroom. Responses were analyzed and common themes were identified. Table 4 summarizes these findings.

Table 3

Students' Perceptions of Advantages and Disadvantages of Gaming

Advantages of Gaming	**Disadvantages of Gaming**
Review of course content	Instructor setup and use
Provides a different learning strategy	Provides a different learning style
Positive learning environment-fun, motivating	Participation level of students
Competitive environment	

Table 4

Educators' Perceptions of Advantages and Disadvantages of Gaming

Advantages of Gaming	**Disadvantages of Gaming**
Reinforcement/review of course content	Logistical factors- class size, class time, preparation time
Active learning strategy	Lower levels of learning
Increases participation level	Decreased participation levels
Teamwork, collaboration	Educator comfort level or experience with gaming
Positive learning environment-fun, motivating, engaging	Student dissatisfaction-learning style, embarrassment
Competitiveness	Competiveness/lose focus

Students identified the following common responses as advantages to game use in the classroom; provides a review of course content, offers a different learning style, delivers a positive learning environment which is fun and motivating to learning, and it allows for a competitive environment. Students stated gaming helps to "get you ready (for an exam) and you are reviewing so it's more practice," and "helped synthesize the knowledge." Students also felt that gaming helps you to "learn more because the information is associated with a different format of learning," and "it gives you a different perspective on things." Students voiced gaming as providing a "more positive attitude and makes you want to learn," "because of the environment, you are excited and more motivated to participate" and "it makes it (learning) fun." Gaming also "brings out your competitive spirit, it's fun," and "they (games) encourages team

problem solving." Common themes identified as disadvantages included the following responses; how the instructor used the game, gaming provided a different learning style, and the participation level of the students. Students felt that "whether or not it is beneficial depends on how the game is set up and how the instructor handles it, it needs to be age appropriate." Another student response was that "a lot of people take the educational games as a joke and not seriously which really gets in the way of the educational experience." Games also need to "be well organized." Not all students learn the same way and some felt that using a variety of learning strategies would be beneficial. Students felt that "not everyone learns that well with games." Lack of student participation was a disadvantage. Student responses included the following: "some people just sit there," "not everybody is actively involved; there will always be people that dominate more than others," and "usually what happens is only a few people know all the answers and participate."

Nurse educators provided common responses as advantages of using educational gaming; reinforcement and review of course materials, utilizes an active learning strategy, increases student participation in the class, encourages teamwork and collaboration among students, provides a positive learning environment that is fun, motivating and engaging, and allows for competitiveness among the students. Educators felt that gaming "reinforces content," and "helps students to learn and study course content." Gaming "provides a different teaching method of learning," and "actively involves the students." Gaming has also been identified as a way to increase student participation, and increase student engagement while making the learning environment fun, which helped to increase student motivation to learn the course materials. One educator felt that, "gaming is a unique way to make learning fun and more engaging while promoting collaboration and teamwork among the participants." Common themes identified as

disadvantages include the following: logistical factors such as large class sizes, limited class time, and game preparation time. Some educators felt that gaming encourages lower levels of learning (knowledge and comprehension) that does not allow for critical thinking that other learning strategies could. One response stated that "it would be challenging to develop a game to help students to think critically." Depending on the game utilized, not all students are able to participate, which can lead to lack of engagement or dissatisfaction with gaming. Another disadvantage would be when the educator is not comfortable with using gaming as an active learning strategy; this may lead to less utilization of this strategy in the future. Student dissatisfaction with gaming occurs when it is not a preferred learning style and student embarrassment from not answering the questions correctly. These were also identified as disadvantages as stated by an educator, "It may not engage all participants especially those who are shy and afraid to be embarrassed in front of everyone if they choose incorrectly." Another disadvantage identified was the competiveness of the game leading to loss of focus from the learning objective. One educator stated "occasionally the game becomes too much about the competition instead the value of what they are learning."

Research Question 1

Research Question 1: To what extent and for what purposes are educational games being used in the nursing classroom? Descriptive statistics were conducted to identify how often educational games were being used in the classroom. Descriptive statistics of students' responses on their perception of how often games are used are displayed in Table 5. Table 6 displays nurse educators' perceptions of how often they use games in the classroom as an experiential teaching strategy. Student and educator perspectives were also obtained during the interview process to help establish validity of responses. Student interview questions included: How often do your

nursing instructors use educational games in the classroom? If your nursing faculty does not use educational games, do you think you would like them to? Educator questions included: (a) How often do you use educational games in your teaching? If you do not use educational games, what are your reasons for not using educational games? (b)What would encourage you to use educational games in the classroom more often or at all? Interview responses were analyzed and are also discussed in this section.

Table 5

Student Perceptions on Frequency of Game Use in the Classroom

Times per year	**N**	**(%)**
Never	6	(9)
Rarely (1-2)	36	(55)
Occasionally (3-5)	23	(35)
Regularly (6-10)	1	(2)
Often (>10)	0	(0)

Note. Total percentages may not equal 100 due to rounding.

Table 6

Nurse Educators Perceptions on Frequency of Game Use in the Classroom

Times per year	**N**	**(%)**
Never	2	(7)
Rarely (1-2)	20	(69)
Occasionally (3-5)	4	(14)
Regularly (6-10)	2	(7)
Often (>10)	1	(3)

Note. Total percentages may not equal 100 due to rounding.

When evaluating students' perceptions on how often educational games are used in the classroom, 90% of the students felt that games were used rarely (55%) one to two times per year and occasionally (35%) three to five times per year. None of the students felt that games were used more than 10 times per year and only one student felt that games were used regularly (2%) six to ten times per year. Students who were interviewed stated that educational games were used once or twice a semester but it mainly depended on the educator teaching the course and may not have been used at all levels of the program. It appeared that gaming was used in both lecture and clinical courses. Students were also asked if faculty did not use educational games, would they like them to. All students felt that they would like the use of educational games but only once a semester, mainly to review course content, rather than teach new content. One student responded, "you can never get enough review."

In another survey question students were asked their level of agreement with this statement, "My nursing instructors "never or rarely" use educational games in the classroom but I feel it would be a beneficial way to learn." The majority of the students (87%) of the students

who completed this question strongly agree (13%) or agree (74%) with this statement. The remaining students neither agree nor disagree (10%), disagree (3%) and no students (0%) strongly disagree with this statement. Another survey question asked the students what their level of agreement was to this statement, "My nursing instructors "never or rarely" use educational games in the classroom but I feel it would be a motivating way to learn." The majority of students (84%) strongly agree (17%) and agree (67%) with this statement. The remaining students neither agree nor disagree (13%), disagree (3%), and none strongly disagree with the statement.

When evaluating nurse educators' perceptions on educational game use in the classroom, more than half of the educators who responded to the survey (69%) felt that they used games rarely (1-2 times per year). If the educators replied "never" or "rarely" to this question, they were asked in an open ended question, what would encourage you to use educational games? The open ended responses were analyzed by the researcher for common responses. Responses included more availability to already made games, "games are time consuming to make," smaller class sizes, research supporting the benefits to students other than fun or "students like it," and research supporting that gaming is a "sound pedagogical" teaching strategy. A few educators responded to this question stating that gaming evaluates student learning at a knowledge or comprehension level on Bloom's Taxonomy of Educational Objectives rather than at the application or analysis level in which students are expected to answer test questions. Some educators also felt that gaming did not allow students to "think critically."

To determine what level on Bloom's Taxonomy of Educational Objectives games were being prepared, students and educators were asked their opinion on the survey. Students were asked to answer the following question, "At what level of Bloom's Taxonomy of Educational

Objectives do you feel that educational gaming questions have been prepared? Select all that apply." Students were given the following options; knowledge, comprehension, application and analysis. Educators were also asked the following question on the survey. "When using educational games in the classroom, at what level of Bloom's Taxonomy of Learning do you feel the questions are prepared? Select all that apply." Educators were given the following options; knowledge, comprehension, application, and analysis. A Chi-Square test was conducted in order to determine if there was a relationship between the student and educator responses. Table 7 displays the results for student (n = 30) and educator (n = 29) perceptions on gaming questions using Bloom's Taxonomy of Educational Objectives scale; knowledge, comprehension, application, and analysis.

Table 7

Chi-Square Test Results for Bloom's Taxonomy of Educational Objectives

Bloom's Taxonomy	**Value**	**Df**	***P***
Knowledge	1.023	1	.312
Comprehension	2.311	1	.128
Application	.192	1	.661
Analysis	2.198	1	.138

The relationship between student and educator perceptions of gaming questions using Bloom's Taxonomy of Learning was investigated. The analysis yielded no statically significant difference between the responses. Student and educator responses for knowledge, $X2$ (1, n = 59) = 1.02, p = .31. Student and educator responses for comprehension, $X2$ (1, n = 59) = 2.31, p = .13. Student and educator responses for application, $X2$ (1, n = 59) = .19, p = .66. Student and

educator responses for analysis, $X2$ (1, n = 59) = 2.2, p = .14.

Three of the five educators who were interviewed stated that they used educational games from one to three times a semester, one educator stated that it depended on the course being taught, and another educator does not use games at all. The educator who does not use games had used games in the past but states that she was an "only child and never felt comfortable playing games." When asked what would encourage them to use educational games more often or at all, all interviewees felt that pre-made games would encourage more use.

Descriptive statistics were conducted to identify the purposes that educational games were being used in the classroom. The student participants were given three options to choose from including test review, teaching course content, or other. The nurse educator participants were given four options to choose from including test review, teaching course content, other, or none. Multiple responses could be chosen for this question. Table 8 displays students' perceptions on how educational games were used in the classroom and Table 9 displays nurse educators' perceptions on how they use or for what purpose educational games are used.

Table 8

Students' Perceptions on the Purpose of Game Use

Use/purpose of game	**N**	**(%)**
Test review	26	(93)
Teach course materials	6	(6)
Other	3	(3)

Note. Total percentages may not equal 100 due to rounding.

Table 9

Nurse Educators' Perceptions on the Purpose of Game Use

Use/purpose of game	**N**	**(%)**
Test review	18	(62)
Teach course materials	14	(48)
Other	4	(14)
None	2	(7)

Note. Total percentages may not equal 100 due to rounding.

When evaluating student perceptions on how educational games are used in the classroom, the majority of the students (93%) felt that games were used for test review and the remaining students felt that games were used to teach course materials (6%) or used in other ways (3%). In addition to identifying the purposes of how educational games were used in the classroom, one of the survey questions asked students to identify types of educational games in which they have participated. Their responses included the following: Jeopardy, Bingo, Family Feud, Wheel of Fortune, and Tic Tac Toe. Students who were interviewed were also asked to provide examples of educational games that they have experienced in their nursing classes. Their responses included the following: Jeopardy, Tic Tac Toe, Bingo, and Hollywood Squares.

When evaluating the educators' perceptions on their game use or purpose, more than half (62%) agreed that they use gaming for test review, less than half (48%) use gaming to teach course materials, and the remaining educators use gaming in other ways (14%) and not at all (2%). In addition to identifying how educational games were used in the classroom, one survey question asked educators to briefly describe two educational games that were used in the past and to include the purpose of the game. Jeopardy was identified multiple times for review of

course content covering multiple subject areas. Bingo was the second most used of games which have been used for review of medical abbreviations, lab values, medical and research terminology. Other games identified included crossword puzzles, scavenger hunts, 20 questions, Headbands, Tic Tac Toe, Big Brother, Are You Smarter than a 5th Grader, Who Wants to be a Millionaire, Hollywood Squares, and Family Feud. All of games mentioned above were used to review course content in a variety of ways in many subject areas. Educators who participated in the interview have also used Jeopardy and Bingo in the past or presently to review course content. In addition to the previously mentioned games; word searches and Hangman were identified by one educator as being used in the classroom. Four of the five educators mainly use gaming for review of content, one of these educators also uses gaming to teach course content, and one of the educators does not use gaming as an experiential teaching strategy.

Research Question 2

Research Question 2: Do educational games motivate students to learn? For the purpose of this question, descriptive statistics were conducted to identify student and educator perspectives on using gaming as a motivating teaching strategy. Table10 displays student survey results and Table 11 displays educator survey results.

Table 10

Student Perspectives on Gaming as a Motivating Teaching Strategy

Level of Agreement	**N**	**(%)**
Strongly disagree	0	(0)
Disagree	0	(0)
Neither agree nor disagree	2	(7)
Agree	20	(67)
Strongly agree	8	(27)

Note. Total percentages may not equal 100 due to rounding.

Table 11

Educator Perspectives on Gaming as a Motivating Teaching Strategy

Level of Agreement	**N**	**(%)**
Strongly disagree	1	(3)
Disagree	2	(7)
Neither agree nor disagree	4	(14)
Agree	13	(45)
Strongly agree	9	(31)

Note. Total percentages may not equal 100 due to rounding.

When evaluating students' perceptions of gaming as a motivating way to learn or review course materials, 94% of the students strongly agree (27%) and agree (67%) with this statement. Few students (7%) neither agree nor disagree with this statement and there were no students who disagree or strongly disagree with this statement. Student interviewees were also presented with the question, "Do you feel that educational games motivate you to learn course materials?" Of

the four students who were interviewed, two felt that gaming does motivate learning and two did not. One student responded that gaming is motivating, "because it opens up different avenues" to studying and another student felt that it is "absolutely" motivating and fun. One student felt that "motivation comes from wanting to learn the material" not from participating in a game but "breaking up the classroom to do something, like an activity, helps some others to be motivated to learn." Another student felt that gaming occurs too late, the student had "already studied the material so it was not a motivating factor."

When evaluating educator perceptions on educational gaming as a motivating way to teach or review course materials, 76% of educators, strongly agree (31%) or agree (45%) with this statement. A small number of educators (14%) neither agree nor disagree with this statement and 10% disagree (7%) or strongly disagree (3%) with this statement.

Research Question 3

Research Question 3: What is nursing students' and nurse educators' overall experience with and attitudes toward the use of games as an experiential learning strategy? For the purpose of this research question, to determine students' and educators' overall experience with games, textual content analysis of the additional comments regarding educational games from the surveys and interviews were reviewed and common themes were identified. The educator interviewees were also asked the following question, "What are some challenges that arise from the implementation of using educational games?" To determine attitudes towards the use of educational games as an experiential learning strategy, descriptive statistics referring to the following questions were conducted. Students were asked their level of agreement with the following statement, "I feel that educational games are beneficial to my learning." Results are displayed in Table 12. Student interviewees were asked, "How do you feel that educational

games assist you in learning?" Educators were asked their level of agreement with the following statement, "I feel that educational games are beneficial to student learning." Results are displayed in Table 13. The educators were also asked to respond to the following open ended question on the survey, "If you have used educational games in the classroom in the past, what response did you receive from students?" The additional comments on the surveys were also reviewed. Educator interviewees were also asked the following questions, "What has been your experience with students' attitudes toward the use of educational games?"

An evaluation of students' and educators' overall experience with educational gaming reveals that it was viewed positively. Students felt that games were, "helpful", "beneficial," and "fun." Students also felt that the overall gaming experience depended on the purpose, organization, and setup of the game. Educators viewed games as "engaging," "helpful," and "time consuming." One educator has also commented that "many times students are required to do presentations and they use gaming in their presentations." Challenges with games that were identified by educators included the following: technological issues with computers, unexpected student responses or misunderstanding of the objectives of the game, time allotment, level of comfort and familiarization with the games, and the competiveness of the students.

Table 12

Student Perspectives on Gaming as a Beneficial Teaching Strategy

Level of Agreement	**N**	**(%)**
Strongly disagree	0	(0)
Disagree	0	(0)
Neither agree nor disagree	2	(7)
Agree	22	(73)
Strongly agree	6	(20)

Note. Total percentages may not equal 100 due to rounding.

Table 13

Educator Perspectives on Gaming as a Beneficial Teaching Strategy

Level of Agreement	**N**	**(%)**
Strongly disagree	1	(3)
Disagree	1	(3)
Neither agree nor disagree	8	(28)
Agree	12	(41)
Strongly agree	7	(24)

Note. Total percentages may not equal 100 due to rounding.

When evaluating student perspectives on educational gaming as being beneficial to their learning, 93% of students strongly agree (20%) or agree (73%) with this statement. A small percentage of students (7%) neither agrees nor disagree with the statement and no students disagree or strongly disagree with the statement. Students who were interviewed felt that gaming assisted in learning by "providing different ways of thinking about materials," and it was

a “different way to learn.”

When evaluating educator perspectives on educational gaming as being beneficial to their learning, 76% of educators strongly agree (24%) or agree (41%) with this statement. Twenty-eight percent of the educators neither agree nor disagree and 6% disagree (3%) and strongly disagree (3%) with this statement. When educators were asked on the survey to describe what response they have received from students in the past when using educational games, they had very positive comments overall. The following terms were used: fun, enjoyed, favorable, helpful, excited, informative, beneficial, positive, and interested. The less favorable responses included the following: embarrassment (incorrect responses), lack of participation, and not age appropriate. Educators’ response to student attitudes toward educational games included the following; “loved it,” “loved it, it was outside of lecturing,” “enjoyed it,” “older adults seemed to like it, the younger students want NCLEX review questions”, and students appeared “engaged.”

Themes

Data analyses from free-text responses and interview response revealed that nursing students and nurse educators have similar perspectives on the use of educational gaming as an experiential learning strategy. As described throughout this chapter, both students and educators have acknowledged positive and negative perspectives of educational gaming. Three main themes have been identified: gaming as a pedagogical preference, gaming as edutainment, and limitations of gaming due to logistics.

Theme 1: Gaming as a pedagogical preference. Students learn in different ways and how course materials are presented can determine how well the students learn the materials. Students tend to remember course materials when they can relate it to something or if it is presented in their preferred learning style. As mentioned previously, the current generation of students

prefers experiential learning. Student interviewees were asked to identify experiential learning strategies that nurse educators have used in the classroom; their responses included gaming, simulation, and online activities such as videos and practice quizzes. When asked what their preferred method for learning course materials was, all four interviewees prefer lecture with other types of learning strategies incorporated into the lecture. They prefer being lectured on the course materials and then some other activity to assist in remembering or reinforcing the materials. One student stated, "I like being lectured on it (course materials), I like when they give you experiences, but I tend to pick up better on it when they give us interactive stuff." Student interviewees identified that gaming has been successful when used for review of course materials rather than teaching the course materials for the first time. One student felt that "to have the opportunity to do that (participate in educational games) maybe one to two classes throughout the semester is helpful to decrease the stress of having to answer questions for your actual grade." Students want to be prepared to take an exam and have a career as a successful nurse. For this to occur, the students prefer to be taught in their preferred learning style. One student stated, "I am a dual learner, I need to hear it and I need to see it." Educators have a responsibility to offer students a variety of learning strategies to enhance and engage them in their learning. Educational gaming has been identified as one type of experiential learning strategy. For educational gaming to be successful and beneficial to the student, or for the game to be used, the game needs to be a preferred learning style or a pedagogical preference for the student.

Educators want to see their students be successful and many are willing to incorporate different types of learning strategies in their teaching to enhance student learning. Usually, there is not a requirement for educators to incorporate experiential strategies into teaching, but it is

highly recommended and has shown to increase student satisfaction. One educator stated that when educational gaming is used, "the students are more stimulated and it makes it more of a fun way to learn." Also stated was that "anything outside the basic lecture they (students) like because it stimulates their thinking." Nurse educator interviewees were asked to identify types of experiential learning strategies they have used in their teaching. Examples included gaming, simulation, role-playing, use of clickers, debates, and videos. Gaming is not a requirement for the educators interviewed but four of the five have used gaming as a learning strategy. Simulation is a requirement in clinical courses at the state university where the interviewees teach and all the educators have incorporated simulation into their courses with success. The nurse educators have a tendency to use gaming or other types of experiential learning strategies if they have had success with the use in the past. They did not use games on a regular basis; therefore it depended on their pedagogical preference and experience. The educators who participated in this study identified gaming to be successful when used as a supplement to lecture and when used for review of content materials.

Theme 2: Gaming as edutainment. Edutainment has been defined as concurrently using entertainment and education (Addis, 2005; Charsky, 2010). In this study students and educators were asked their experience with, attitudes towards, and their level of agreement with statements on gaming as being beneficial or motivating to student learning. Many used the following terms to describe gaming: "fun," "enjoyable," "exciting," "engaging," "helpful," "beneficial" and strongly agreeing or agreeing with the statement describing their experience with, and attitudes towards. These terms are all terms that describe the purpose of edutainment, learning while having fun. Some educators have identified that when using gaming in the classroom it is important for students to be reminded of the purpose or objective of the game.

Theme 3: Limitations of gaming due to logistics. Gaming preparation time, class time, class size, and educator organization were all identified as limitations to educational gaming. Game preparation time has been stated as a disadvantage to gaming. The amount of time it takes to prepare or develop a game can be considerable and many educators do not have time to prepare a game. Educators have acknowledged that the use of premade games would encourage more use. The amount of class time allotted to teach important course content is limited. Due to the time needed to explain the game, participate in the game, and then discuss the outcome of the game leads to the less frequent use of games. One student felt that "there should be more of them (games) as long as there is extra time." Larger class sizes have also been identified as a limitation. Larger class size may not allow all students to participate so games are difficult to use in large groups. One student stated that "games are useful in small groups but in large groups it's easy to become unmotivated." The way that the educator presents the game is also important. Students have recognized that for games to be beneficial to their learning it depends on the organization of the educator, the setup of the game, appropriateness for students in higher education, and the need to be related to course materials.

As a result of this study, a statement is made regarding the use of educational gaming as an experiential learning strategy from both the student and educator perspective. The statements could lead to theory development in other studies. The student statement derived from the themes indicates the following: if experiential learning strategies (ex: gaming) are the preferred learning style of the student, if the student can be engaged and entertained during the gaming process, and if there are ideal logistical factors such as adequate class time, small groups, and the game is organized then the student will be motivated and learning will occur. This statement can also be explained from the educators' perspective. If experiential learning strategies are a

preferred teaching style of the educator, if the student is engaged in the game, and if there are ideal logistical factors such as premade games, adequate class time, and organization of the game then this will encourage student motivation which will lead to student learning. These statements can lead to theory development in other studies and areas of study. Figure 2 displays the statement of a student perspective of educational gaming as an experiential learning strategy. Figure 3 displays the statement of an educator perspective of educational gaming as an experiential learning strategy.

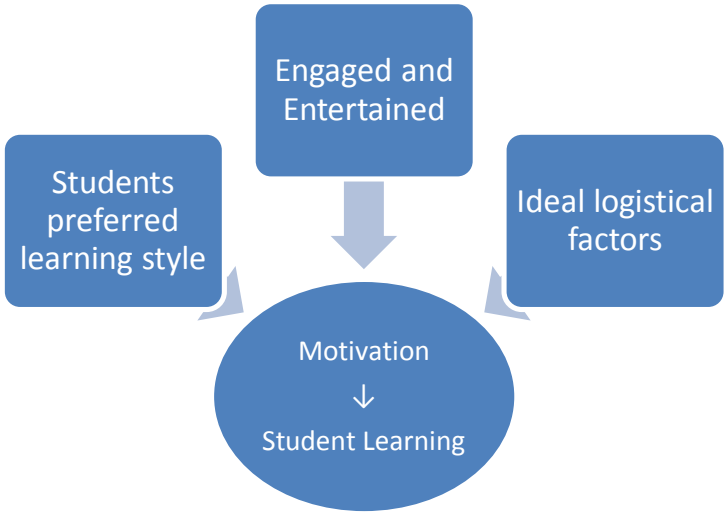

Figure 2 Student perspectives on educational gaming as an experiential learning strategy

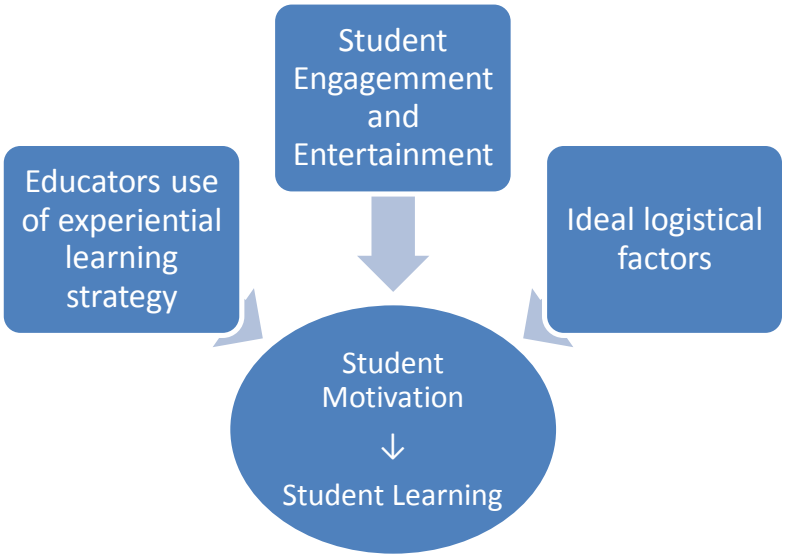

Figure 3 Educator perspectives on educational gaming as an experiential learning strategy

Summary

In summary, a mixed-methods study was conducted, including analyses using survey, free-text and interview questions. Data and analyses for the demographic variables, and research questions were presented. Description of the sample, advantages, and disadvantages of educational gaming are also discussed. Through the process of theoretical sampling and constant comparative analysis, three main themes were identified. The identified themes provide insight into nursing students' and nurse educators' perspectives on educational gaming as an experiential learning strategy. The statement that was derived from the themes can lead to theory development in other studies. The next chapter presents a summary and discussion of the results, limitations of the study, implications for practice, and recommendations for future research.

CHAPTER 5

DICUSSION AND IMPLICATIONS

This chapter will present a summary and discussion of the results, limitations of the study, implications for practice, and the recommendations for future research. This study used a mixed-methods design to determine the value of educational games as a type of innovative teaching strategy. The main focus of this research study was to determine nursing students' and educators' perspectives on using educational games in the classroom as an experiential learning strategy.

Demographic Variables

Survey Results

This study included demographics for nursing students and nursing educators from two nursing programs in western Pennsylvania. A baccalaureate and an associate degree nursing program were used in this study. These two programs were chosen for the convenience of location for the researcher and to increase the sample size. Although this study did not compare the results according to the type of nursing program, further research is needed to determine if the types of nursing program and size of class would determine the use of experiential teaching strategies, such as educational gaming. Blakely et al. (2009) recommends that further studies should include several student cohorts, educators, locations, and randomizing the participants helping to strengthen rigor.

Nursing students. Demographics for students included age of the participant and type of nursing program. Of the students who completed the survey, 85% of the students were aged 20-25 years old. Seventy-five percent of the students were from a baccalaureate nursing program at a state university and 25% were from an associate degree program at a private university.

Nurse educators. Demographics for the educators included age, type of nursing program, years of teaching, main area of teaching, and professional development opportunities for experiential teaching strategies. Of the educators who completed the survey, 52% of the participants were over the age of 50. Sixty-seven percent taught at the baccalaureate nursing program at a state university and 33% taught at the associate degree program at a private university. The majority of the educators taught in nursing education for 6-10 years, 93% teach at the undergraduate level, and 76% of the participants have attended some type of professional development on experiential teaching strategies.

Interview Results

Nursing students. Four students from the baccalaureate program at the state university participated in the interview for this study. One of the student participant's age was in the early 50s and considered a non-traditional student. The other three students were in their early 20s and considered traditional students.

Nurse educators. A total of five educators from the baccalaureate program at the state university participated in the interview for this study. All participants' ages were in the 50s. Four of the participants taught at the undergraduate level and one taught at both the undergraduate and graduate level. Their teaching experience ranged from 6 to 25 years.

Game Use and Purpose

Research question 1 sought to determine the frequency with which educational games are used in nursing education and the purpose of their use. Ninety percent of the student respondents felt that educational games were rarely used (55%) one to two times per year and occasionally used (35%) three to five times per year. Students who participated in the interview stated that educational games were used once or twice a semester but it depended on the educator teaching

the course.

More than half (69%, n = 20) of the nursing educators who completed the survey felt that they used games rarely (one to two times a year) and fourteen percent (n = 4) reported that they used games occasionally (three to five times a year), and seven percent (n = 2) said they never use games. Three of the five educators who were interviewed use educational games from one to three times a semester, one felt it depended on the course being taught, and one did not use games at all. In a larger study of nurse educators (n = 82) conducted by Blakely et al. (2009), 34% (n = 33) of the participants used educational games occasionally (three to five times per year), 23% (n = 22) used games rarely (one to two times per year), and 19.6% (n = 19) never used educational games. The educators in this study used games less frequently than the study conducted by Blakely et al. (2009).

If the educators in this study responded "never" or "rarely" to using games in the classroom, they were asked to identify what would encourage game use. Responses included already made games, smaller class sizes, less preparation time, research supporting the benefits, and games that stimulated higher level of thinking. Disadvantages identified in other studies included similar responses and indicated that if the disadvantages were corrected it would encourage more game use. Some of these disadvantages include: preparation and implementation of gaming are time consuming (Boctor, 2012; Cowen & Tesh, 2002; Sealover & Henderson, 2005; Stanley & Latimer, 2010), limited class time (Cowen & Tesh, 2002; Metcalf & Yankou, 2001), and large class sizes (Metcalf & Yankou, 2001).

Some educators believe that gaming does not allow students to think at higher levels and one educator stated that games do not allow students to "think critically." The current study included survey questions that examined students' and educators' perception on what level of

learning questions were prepared based on Bloom's Taxonomy of Educational Objectives. A Chi-Square test of independence was performed. The results displayed no statistically significant difference between the responses of the students and the educators. Therefore, both students and educators had similar perceptions on the level of difficulty that questions were prepared. The majority of nursing students and educators felt that questions are prepared at knowledge, comprehension, and application level. Very few students and educators felt questions were prepared at the analysis level. This finding does indicate that games may not be assessing students' higher level of thinking. Additional research is needed to further examine at what level of learning that gaming questions are being prepared.

Many times when games are being utilized in the classroom it is for the purpose of reviewing course content and test preparation (Bayer–Hummel, 2010; Boctor, 2012; Hahn & Bartel, 2014; Sealover & Henderson, 2005; Sheely et al., 2007; Stanley & Latimer, 2010). This study found similar results. The majority of students (93%) felt that games were used for test review, and the remaining thought games were used for teaching course materials or other purposes. More than half of the educators (62%) use games for test reviews, a little less than half (48%) use games to teach course materials, and few (14%) use games for other purposes and some do not use games at all (2%). As mentioned in the literature, a variety of games were used. Some examples included: Jeopardy, Bingo, Tic Tac Toe, Hollywood Squares, and Who Wants to Be a Millionaire. Sheely et al. (2007) recommended that games be used only for review purposes and should not replace normal class instruction. Because students require different learning styles, gaming may not be an effective teaching method for all students.

These findings identified student and educator perspectives on the frequency of game use in the classroom, the purpose of the game use, and examples of games used. The study found

similar results when compared to the literature. Additional research is needed to observe whether the size or type of the nursing program determines if experiential teaching strategies are used. It would also be helpful to determine if gaming is more beneficial at different levels in the nursing programs.

Motivational Teaching Strategy

Research question 2 sought to determine if educational games motivated students to learn. Gaming has been identified as motivating in a variety of ways. Gaming motivates problem solving (Jensen, 2005), motivates engagement in learning (Royse & Newton, 2007), and motivates student learning (Gareau & Guo, 2009; Williams, 2007). This study found similar results. Nursing students in the current study found gaming to be a motivating way to learn or review course materials, 94% of the students who completed the survey either strongly agreed or agreed with the statement that gaming was a motivating way to learn. The students who participated in the interview had a split decision on gaming as being motivating. One student felt it provided a different way to study, stating it, "opens up different avenues" to studying and another student felt it is "absolutely" motivating and fun. One student felt that "motivation comes from wanting to learn the material" not from participating in a game but participating in the game can be motivating to others. Another student felt that gaming often occurs too late in the semester and studying has already occurred, therefore; it was not motivating in learning the course materials. The nursing educators who completed the survey also felt positively about gaming being a motivating way to teach or review course materials, 76% of the educators agreed with this statement.

Overall, both students and educators in the current study, as well as in the literature, found gaming to be a motivational way to review or learn course materials. Because students

learn in an assortment of ways and educators teach in a variety of ways, educational gaming has been identified as one way to engage students in the learning process. Regardless of the subject that is being taught, gaming can be a motivating way to learn course materials.

Gaming Experience and Attitudes

Research question 3 explored nursing students' and educators' perspectives on their overall experience with and attitudes toward the use of games as an experiential learning strategy. Students and educators will often use the terms: fun (Clark & Ernst, 2009; Cowen & Tesh, 2002; Hahn & Bartel, 2014; Metcalf & Yankou, 2003; Stanley & Latimer, 2011), engaging (Duque et al., 2008; Sealover & Henderson, 2005), motivating (Blakley et al., 2009; Clark & Ernst, 2009; Stanley & Latimer, 2011), enjoyable (Barclay et al., 2011; Blakely et al., 2010), and helpful (Cowen & Tesh, 2002) to describe their experience with games. Participants in this study also described educational gaming in similar terms. Students felt that games were, "helpful," "beneficial," and "fun." Students' overall gaming experience depended on the purpose, the implementation, and setup of the game. Ninety-three percent of the students who completed the survey in this study perceived gaming as a beneficial teaching strategy. Students who participated in the interview described gaming as a different way to learn course materials.

Educators described games as "engaging," "helpful," and "time consuming." Seventy-six percent of the educators surveyed perceived gaming as a beneficial teaching strategy. In previous experiences student responses were favorable. Responses received from students with the implementation of games included: fun, enjoyable, favorable, helpful, excited, informative, beneficial, positive, and interested. Educators experience with unfavorable student responses included: embarrassment with incorrect responses, lack of participation, and not being age appropriate. Often with the implementation of innovative teaching strategies or with the

incorporation of technology, there will be challenges for both the educator and the students to overcome. Challenges identified in this study included: technological issues, unexpected student responses and misunderstandings of the objectives, limited time allotment and level of comfort with the implementation of the game. The competiveness of the students can also lead to loss of focus and educational purpose of the game.

Generally, nursing students and educators were found to have positive experiences and attitudes towards the use of educational gaming as an experiential teaching strategy. As with any type of innovative teaching strategy, there will be disadvantages and challenges with its implementation. It is important for educators to evaluate the effectiveness of their teaching and adapt to the needs of the students. Skiba (2008) suggests obtaining feedback from students to decide if the game was beneficial to their learning. Offering a variety of teaching strategies will assist with meeting educator goals to teach effectively and student goals to learn and retain the course content. Further research needs to be conducted on the effectiveness of gaming as a teaching strategy. Also, additional qualitative research on student and educator perspectives on gaming as an entirety would help to reinforce the gaming experience (Blakely et al., 2010).

Theoretical Framework: Grounded Theory

This study used a mixed-methods research design to provide a better understanding of the research problem. Quantitative research was obtained by administering a web-based survey. Qualitative research was obtained from free-text responses on the survey and interviews following the administration of the survey. The theoretical framework of grounded theory was used for qualitative analysis.

Grounded theory allows one to look at a process, or something experienced by a group of individuals, and help to explain the reason for this occurrence to happen. Grounded theory can

be used to examine areas where little data are available (Corbin & Strauss, 2008; Strauss & Corbin, 1998). Theory development is generated from the data. The goal of this research study was not to generate theory but to provide insight into nursing students' and educators' perspectives on the use of educational gaming. Data analyses revealed that nursing students and educators had similar perspectives on the use of educational games. Three main themes were generated from the data; gaming as a pedagogical perspectives, gaming as edutainment, and limitations of gaming due to logistics. A statement derived from these themes indicates the following: if experiential learning strategies (ex: gaming) are the preferred learning style of the student, if the student can be engaged and entertained during the gaming process, and if there are ideal logistical factors such as adequate class time, small groups, and the game is organized then the student will be motivated and learning will occur. This statement can also be explained from the educators' perspective. If experiential learning strategies are a preferred teaching style of the educator, if the student is engaged in the game, and if there are ideal logistical factors such as premade games, adequate class time, and organization of the game then this will encourage student motivation which will lead to student learning. These statements can lead to theory development in other studies and areas of study.

Limitations

Several limitations can be identified in this study. This study used a convenience sample of senior nursing students in two nursing programs located in western Pennsylvania. This study included two types of nursing programs (baccalaureate and associate) but did not compare the two types of programs. Two different nursing programs were included to increase the sample size. A small sample size was also a limitation of this study. Future research should include all types of nursing programs (diploma, associate, and baccalaureate) from multiple sites, and all

levels of students enrolled in the nursing program. A comparison between the programs would help to determine if the type and size of the nursing program determine the likelihood that innovative teaching strategies are used. Also, it would be beneficial to determine if the different levels of students benefit from educational game use and at what level educators are more likely to use educational games.

Another limitation was the student inclusion criteria included in this study. This study included only senior nursing students. Senior nursing students were chosen because they have the opportunity to have had more exposure to educational games since they have been in the program the longest. Because educational gaming can be used at all levels of the program, additional research including all levels of students is recommended. This study only included nursing students; further research should include students and educators from different subject areas.

The time that the survey and interviews were conducted was not ideal. The students and educators from the baccalaureate program were notified of the study and survey prior to going on spring break and the associate program students and educators were notified the week following their spring break for the semester. Due to the timing of the study, students and educators may have been less likely to check their email or respond to a request to participate in the study. The interviews were also scheduled during a busy time of the semester. The interviews took place during the end of the semester, mainly during final exam week. Because of the busyness at the end of the semester, studying for exams, preparing for exams, and preparing to go home; students and educators may be less willing to participate in an interview. Future research needs to be conducted during the mid-semester, lending for more time and a less stressful time of the semester.

A graduate assistant administered the letter of consent informing the students at the baccalaureate program of the study and had placed the letters of consent in the educators' mailboxes. The researcher works at this facility, presenting the consent in person could have increased the response rate but the researcher did not want the participants to feel pressured to participate. At the associate degree private college, the Chairperson of the college administered the letters of consent informing the students and educators of the research study. If the researcher was present in this case, maybe more individuals would have participated because they could associate a person with the study.

No comparison of gender or age was conducted because of the efforts to maintain confidentiality. It is possible that age and gender of participants could have influenced their attitudes towards educational gaming.

Implications for Practice

The results of the study provided students and educators with information regarding nursing students' and educators' perspectives on the use of educational gaming as an experiential learning strategy. The results of this study can also be considered in other disciplines. Advantages and disadvantages of educational gaming, purposes of game use, and overall experiences of game use are discussed. Overall, these results provide support for the use of one type of experiential learning strategy. Despite the positive results and experience with educational gaming, some educators may be reluctant to use educational gaming due to logistical factors such as time constraints and large class size; these constraints could cause resistance to other experiential learning strategies such as simulation and role playing (Blakely et al., 2010). Simulation and role play are two types of learning strategies that are recommended in nursing education.

Students' and educators' pedagogical preference could determine how successful the use of educational gaming is in the classroom. Research shows that the current generation of students prefers to be taught by experiential learning strategies (Oblinger, 2004; Raines, 2002). Educational gaming is used rarely (1-2 times per year) in nursing education at the two nursing programs used in this study. This is consistent with the literature (Blakely et al., 2010). The results of this study also indicated that students prefer to be actively involved in their learning. Survey results indicated that students felt that educational gaming would be beneficial and motivating to their learning. Students identified providing a different type of learning strategy as an advantage and disadvantage of game use. Gaming was an advantage because it offered a different way to learn the course content but was a disadvantage if it was not a preferred learning strategy or did not match an individual's learning style. Student interviewees also indicated that they encourage the use of educational games, but only once or twice in a semester to review content materials, not to be used as a main teaching tool. Lecture is their preferred teaching method for new course materials, but they appreciate other forms of teaching to review and reinforce the content. The study also reinforced the statement that gaming may not be a preferred learning style of all students therefore, it is important to use a variety of teaching methods as a way to engage students in their learning.

Educators want their students to become successful professionals and many are willing to use experiential learning strategies as a way to enhance student learning. Due to time constraints, large class sizes, comfort level, and lack of empirical research; there may be some resistance to incorporating educational games in the classroom. If gaming has not been successful in the past, this can lead to resistance to using games again. Gaming was not used regularly by the educators in this study and depended on their pedagogical preference and past

experiences.

Gaming was identified as successful when used as a supplement to lecture for reinforcement and review of course content. Some experiential learning strategies, such as simulation, have become a requirement in courses and have been a successful strategy to increase student learning in a non-threatening environment. Although educational gaming has not become a requirement, it has provided students with active learning in a non-threatening environment (Blakely et al., 2009; Hahn & Bartel, 2014; Metcalf & Yankou, 2003).

Student participation has been identified as both an advantage and disadvantage by educators. Because of large class sizes, some educators stated that working in teams is one way to allow more students to participate in the learning process. They can collaborate as a group and then provide answers to game questions. Other educators felt that because of the large class sizes it was difficult to engage all students in the learning process. Answering questions incorrectly can also lead to embarrassment and negative reactions when participating in games.

It is important for debriefing to occur following the gaming process to discuss rationales for answers. This could help to eliminate any misunderstandings of content and decrease negative reactions associated with the game. An evaluation of the game and its effectiveness as a teaching tool (Bayer-Hummel, 2010; Skiba, 2008) will also allow educators to adjust the game when needed and provide evidence for continued or discontinued use.

Gaming usually involves some type of competitive environment; this can also be viewed positively and negatively by students and educators. Students in this study found the competitive environment to be an advantage of gaming; others have found that competing against other classmates is threatening (Henderson, 2005; Sealover & Henderson, 2005). The educators in this study found the competitive environment to be positive in engaging the students but can also

have a negative reaction because students lose focus of the purpose and learning objectives of the game.

Another disadvantage identified was that gaming involves lower levels of learning, such as knowledge and comprehension levels on Bloom's Taxonomy of Educational Objectives. The results of this study indicated that students and educators felt that games were prepared at lower levels of learning, but it depended on the game purpose. Sheely et al. (2007) indicated that using gaming to teach course content, rather than supplement content, could decrease the learning to the knowledge level rather than higher levels. When incorporating games into the classroom it is important for the game's purpose to correspond with course objectives. Despite some educators not using educational games because they are not convinced gaming promotes higher levels of learning, others have identified the use of gaming as a way to promote critical thinking (Bloom & Trice, 1994; Cowen & Tesh, 2002; Royse & Newton, 2007; Rowell & Spielvogle, 1996).

Educational gaming has been identified as an entertaining way to learn course content, referred to as edutainment. In spite of having disadvantages and understanding that gaming is not the preferred method of learning for every student, gaming can be a fun way to engage students in their learning. Students in this study described gaming as, "fun, "enjoyable," "exciting," and "engaging." When students are engaged in their learning, they are satisfied with the learning process, and demonstrate an improvement in knowledge and skills (Duque et al., 2008; Gareau & Guo, 2009). Educators agreed that gaming is a fun way to engage students in the learning process, but it is important for students to be reminded of the purpose and objective of the game.

Logistical factors have been identified as limitations of game use. Game preparation time has been identified as a limitation to game use. The amount of time it takes to develop a game

can be considerable and educators do not have the time for preparation. Many gaming templates are available online (Jeopardy, Who wants to be a Millionaire, Wheel of Fortune, etc.); some amount of time is still needed to adapt the game to the educator's course but this could be one solution to decreased preparation time. Distribution of gaming resources among educators could also lessen the amount of preparation time (Blakely et al., 2010). Professional development opportunities related to the topic of experiential learning strategies would also be beneficial in promoting and developing innovative teaching tools.

Nursing programs have increasing demands to increase enrollment. This limits the use of experiential learning strategies because of large class sizes. The current generation of students learns best when actively involved in their learning. Decreasing the use of innovative learning strategies could reduce the quality of instruction students are receiving and the knowledge that students are retaining. Adapting teaching to implement different types of innovative learning strategies may be beneficial to student learning and student outcomes. Educators are expected to relay a large amount of information in a short amount of time, providing a variety of learning styles may help to engage the students, and motivating them to learn the course materials.

Regardless of the pedagogical preference of the student or educator, gaming has been identified as a positive way to review or reinforce course content in a non-threatening environment. Different learning styles should be considered with any teaching method. When keeping the course objectives as a focus of the gaming experience, educational gaming can provide a form of entertainment while engaging the students in the learning process. Logistical factors can lead to a decreased use of experiential learning strategies but creative solutions and collaboration among educators can assist in making the process of innovating teaching more of a possibility.

Future Research

This study provided perspectives of both nursing students and educators on the use of educational gaming as an experiential teaching strategy. The purposes, advantages, disadvantages, types of games, and attitudes toward games were also discussed. Common themes were also identified. Further research is needed to explore the use and effectiveness of educational gaming as an experiential learning strategy. Additional qualitative research on student and educator perspectives would help to support the gaming experience.

This study's sample included two different types of nursing programs but did not compare the results according to the type of program. Large class sizes have been identified as a limitation to game use. Additional research is needed to explore if the types of nursing programs (baccalaureate, associate, and diploma) or class size in these programs would determine the use of experiential learning strategies in the classroom.

This study found that both students and educators felt that educational game questions were prepared at knowledge, comprehension, and application levels on Bloom's Taxonomy of Educational Objectives depending on the type of game used. There were no other studies that explored students' and educators' perspectives on how they perceived game questions to be prepared according to their level on Bloom's Taxonomy. Additional research to further examine the level of learning might be useful. Further explanation on how gaming promotes critical thinking is encouraged and a thorough description of games used to promote critical thinking is needed.

Senior nursing students were used for the sample of this study because of the possibility of increased exposure to educational gaming. Educational games may not be used in higher education because some may feel it is childish and not appropriate for higher level learning.

Research to determine if gaming is more beneficial to students at different levels in the nursing program could assist in adoption of experiential learning strategies.

This study did not evaluate the effectiveness of gaming as a teaching strategy but further research is needed on this topic. Previous studies compared lecture and gaming and used pre and posttest scores to evaluate effectiveness as a teaching strategy. Both lecture and gaming seem to improve knowledge (Blakely et al., 2009) but inconsistent results have been found. Akl et al. (2008) also recommended that there needs to be an improvement in the way that results are reported for studies that evaluate the effectiveness of educational games. Improved reporting would allow for validation of the results and duplication of the game.

An assortment of games has been described in the literature and in this study. Games have been used for a variety of purposes. Because of the variety of games and purposes it is difficult to say that one game is better than the other. More research related to specific games and their purposes would be beneficial in determining their effectiveness as a teaching strategy.

Conclusions

Thinking critically, collaborating with others, communicating effectively, and providing safe, quality care to patients are all qualities that nursing students need to possess to become a successful professional. Educational gaming has been identified as one way to assist students in obtaining these qualities. A variety of games have been used to help students to obtain these qualities.

This study has identified both nursing student and educator perspectives on using educational games as an experiential learning strategy. The frequency of use, purpose, benefits, disadvantages, attitudes, and overall experience of games have been discussed. This study provided some additional information into the perceptions of nursing students and educators and

also reinforced some of the information that was already known regarding educational games. Generally, games have been viewed positively and recommended as a way to motivate and engage students in learning. Despite the evidence supporting gaming as an experiential learning strategy from both a student and educator perspective, there is still resistance to use gaming because of logistical factors and lack of empirical evidence. Findings in the study lead to implications for nursing practice that can also be used in other areas of study. Grounded theory was used as a theoretical framework and three themes emerged from the data; gaming as a pedagogical preference, gaming as edutainment, and limitations of gaming due to logistics. These themes provide insight into the use of educational gaming. A statement derived from these themes indicates the following: if experiential learning strategies (ex: gaming) are the preferred learning style of the student, if the student can be engaged and entertained , and if there are ideal logistical factors then the student will be motivated and learning will occur. This statement can also be explained from the educators' perspective. If experiential learning strategies are a preferred teaching style of the educator, if the student is engaged in the game, and if there are ideal logistical factors then this will encourage student motivation leading to student learning. These statements can lead to theory development in other studies and areas of study. Further research to identify the effectiveness of gaming as a teaching strategy would be beneficial to the development of other innovative teaching strategies.

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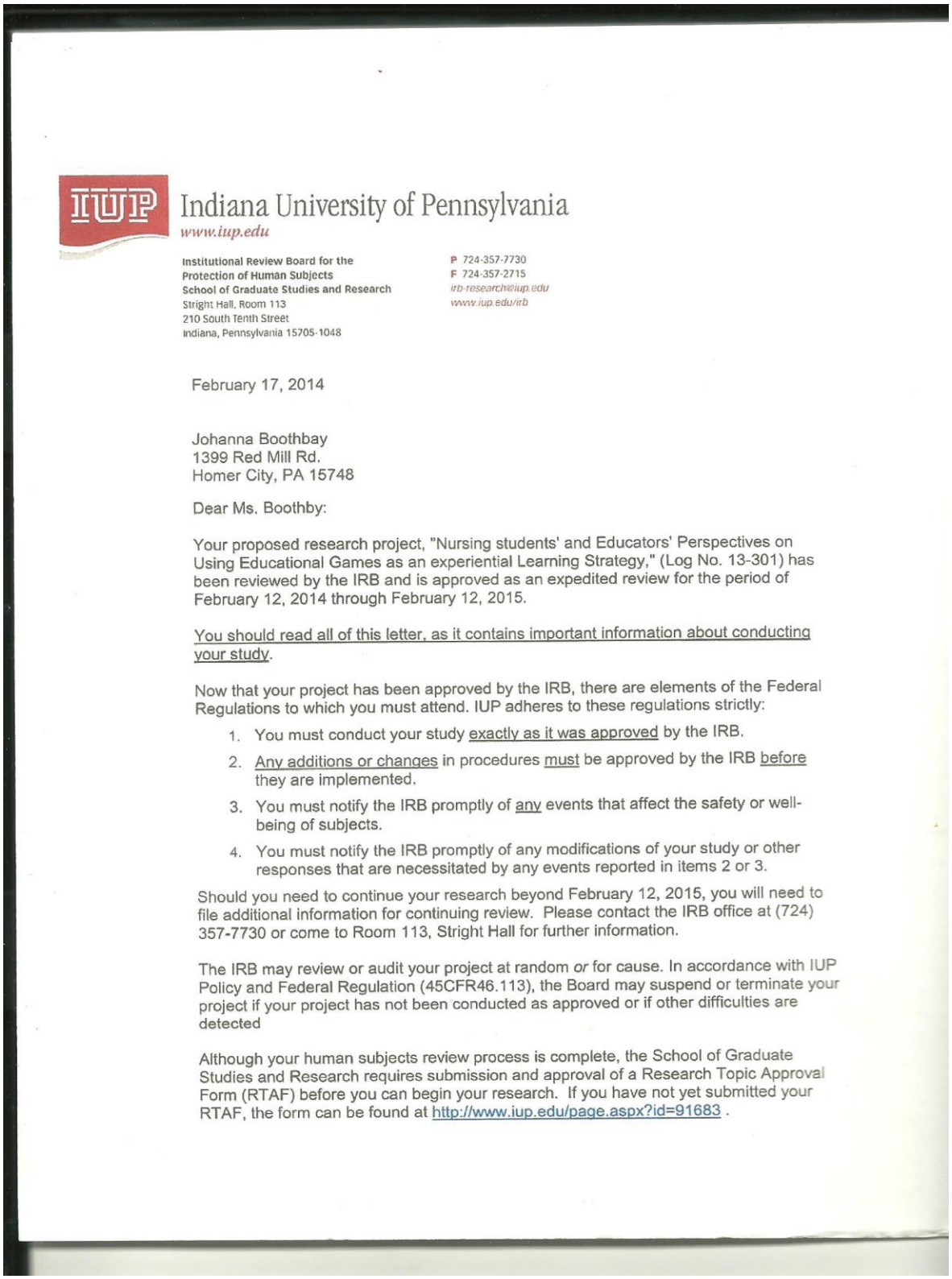
Appendix A
IRB Approval from Indiana University of Pennsylvania



Indiana University of Pennsylvania
www.iup.edu

Institutional Review Board for the
Protection of Human Subjects
School of Graduate Studies and Research
Stright Hall, Room 113
210 South Tenth Street
Indiana, Pennsylvania 15705-1048

P 724-357-7730
F 724-357-2715
irb-research@iup.edu
www.iup.edu/irb

February 17, 2014

Johanna Boothbay
1399 Red Mill Rd.
Homer City, PA 15748

Dear Ms. Boothby:

Your proposed research project, "Nursing students' and Educators' Perspectives on Using Educational Games as an experiential Learning Strategy," (Log No. 13-301) has been reviewed by the IRB and is approved as an expedited review for the period of February 12, 2014 through February 12, 2015.

You should read all of this letter, as it contains important information about conducting your study.

Now that your project has been approved by the IRB, there are elements of the Federal Regulations to which you must attend. IUP adheres to these regulations strictly:

1. You must conduct your study exactly as it was approved by the IRB.
2. Any additions or changes in procedures must be approved by the IRB before they are implemented.
3. You must notify the IRB promptly of any events that affect the safety or well-being of subjects.
4. You must notify the IRB promptly of any modifications of your study or other responses that are necessitated by any events reported in items 2 or 3.

Should you need to continue your research beyond February 12, 2015, you will need to file additional information for continuing review. Please contact the IRB office at (724) 357-7730 or come to Room 113, Stright Hall for further information.

The IRB may review or audit your project at random *or* for cause. In accordance with IUP Policy and Federal Regulation (45CFR46.113), the Board may suspend or terminate your project if your project has not been conducted as approved or if other difficulties are detected

Although your human subjects review process is complete, the School of Graduate Studies and Research requires submission and approval of a Research Topic Approval Form (RTAF) before you can begin your research. If you have not yet submitted your RTAF, the form can be found at http://www.iup.edu/page.aspx?id=91683 .

I wish you success as you pursue this important endeavor.

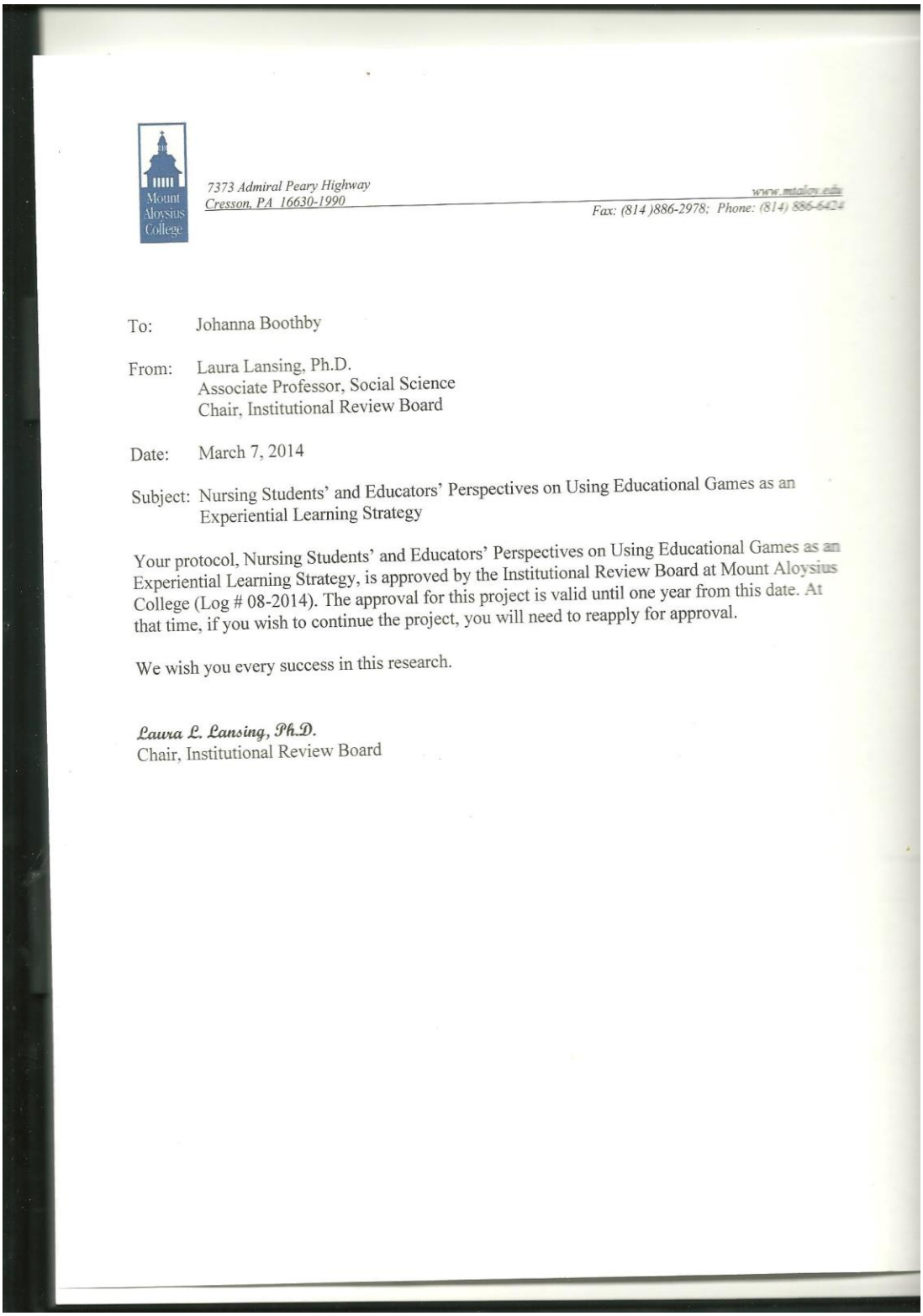
Sincerely,

John A. Mills, Ph.D., ABPP
Chairperson, Institutional Review Board for the Protection of Human Subjects
Professor of Psychology

JAM:js

cc: Dr. Anne Creany, Dissertation Advisor
Ms. Brenda Boal, Secretary

Appendix B
IRB Approval from Associate Degree Program



Mount Aloysius College

7373 Admiral Peary Highway
Cresson, PA 16630-1990

www.mtaloy.edu
Fax: (814)886-2978; Phone: (814) 886-6424

To: Johanna Boothby

From: Laura Lansing, Ph.D.
Associate Professor, Social Science
Chair, Institutional Review Board

Date: March 7, 2014

Subject: Nursing Students' and Educators' Perspectives on Using Educational Games as an Experiential Learning Strategy

Your protocol, Nursing Students' and Educators' Perspectives on Using Educational Games as an Experiential Learning Strategy, is approved by the Institutional Review Board at Mount Aloysius College (Log # 08-2014). The approval for this project is valid until one year from this date. At that time, if you wish to continue the project, you will need to reapply for approval.

We wish you every success in this research.

Laura L. Lansing, Ph.D.
Chair, Institutional Review Board

Appendix C
Site Approval Consent

Informed Consent Form Chairperson

(IUP Letterhead)

I am writing to ask for permission for your faculty and senior nursing students to participate in a research study for my doctoral dissertation. The following information is provided to help you make an informed decision whether or not to participate. If you have any questions, please do not hesitate to ask. Your institution is eligible to participate because you have both nursing educators and students at your institution.

The purpose of this study is to explore the views of nursing students and educators on the use of educational gaming as an experiential learning strategy. This study will look at the opinions of both nursing students and educators regarding the use of educational games in the classroom. This study will investigate if educational games are being used in the classroom, their purpose if used, whether or not educational games are beneficial to students in motivating them to learn content material and students' and educators' attitudes toward and overall experience or lack of experience with games.

Participation in this study will require approximately 10 to 15 minutes of your student's and faculty's time to complete a survey and approximately 30 minutes of additional time if they decide to participate in an interview related to the use of educational games. It is not considered a part of the students' nursing courses. Participation or non-participation will not affect the evaluation of students' performance in their senior nursing courses or faculty's evaluation. First, faculty and students will be emailed and asked to complete a survey via Qualtrics related to their experience or lack of experience with educational games. There will be a question on the survey asking about their willingness to participate in an interview relating to their use or non-use of educational games. If they agree to participate, then they will be asked to provide contact information. This information will remain confidential. The participants in the interview will be entered into a drawing to win a gift certificate to a restaurant following completion of data collection.

The information gained from this study may help educators to understand the significance of experiential learning strategies, such as educational gaming.

Their participation in this study is voluntary. They are free to decide not to participate in this study or to withdraw at any time without adversely affecting the relationship with the investigator or IUP. Their decision will not result in any loss of benefits to which they are otherwise entitled. If they choose to participate, they may withdraw at any time by notifying the Project Director. Upon their request to withdraw, all information pertaining to that person will be destroyed. If they choose to participate, all information will be held in strict confidence and

will have no bearing on their academic standing or services they receive from the University. Their response will be considered only in combination with those from other participants. The information obtained in the study may be published in scholarly journals or presented at faculty meetings but their identity will be kept strictly confidential.

If you are willing to allow your institution to participate in this study, please sign the statement below and return this letter to the Principal Investigator. You may keep the extra unsigned copy with you. If you choose not to participate, please notify the Principal Investigator.

Dr. Anne Creany, Project Director
Indiana University of Pennsylvania
Department of Professional Studies
112 Davis Hall
Indiana, PA 15705
Phone: 724-357-3293
Anne.Creany@iup.edu

Johanna Boothby, Principal Investigator
Student of Indiana University of Pennsylvania
1399 Red Mill Road
Homer City, PA, 15748
814-341-5555
wcbg@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724/357-7730).

Informed Consent Form

VOLUNTARY CONSENT FORM:

I have read and understand the information in the form and I consent to allow my faculty and senior nursing students to be subjects in this study if they choose to participate. I understand that their responses are completely confidential and they have the right to withdraw at any time. I have received an unsigned copy of this informed Consent From to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone Number or email address where you can be reached

I certify that I have explained to the above individual that nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered questions that have been raised, and have witnessed the above signature.

_____ _____

Date Investigator's Signature

Appendix D
Nurse Educator Letter of Consent

Informed Consent Form
Nurse Educator

(IUP Letterhead)

Dear Nurse Educator,

You are invited to participate in a research study for my doctoral dissertation. The following information is provided to help you make an informed decision whether or not to participate. If you have any questions, please do not hesitate to ask. You are eligible to participate because you are a nurse educator at a nursing program in western Pennsylvania.

The purpose of this study is to explore the views of nursing students and educators on the use of educational gaming as an experiential (active learning) learning strategy. This study will look at the opinions of both nursing students and educators regarding the use of educational games in the classroom. This study will investigate if educational games are being used in the classroom, their purpose, if used, whether or not educational games are beneficial to students in motivating them to learn content material, and students' and educators' attitudes toward and overall experience or lack of experience with games.

Participation in this study will require approximately 10 to 15 minutes of your time to complete a survey and 30 minutes of additional time if you participate in an interview related to the use of educational games. First, you will be emailed and asked to complete a survey via Qualtrics related to your experience or lack of experience with educational games. There will be a question on the survey asking about your willingness to participate in an interview relating to your use or non-use of educational games. If you agree to participate, then you will be asked to provide contact information. This information will remain confidential. The participants in the interview will be entered into a drawing to win a gift certificate to a restaurant following completion of data collection.

The information gained from this study may help educators to understand the significance of experiential learning strategies, such as educational gaming.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or IUP. Your decision will not result in any loss of benefits to which you are otherwise entitled. If you choose to participate, you may withdraw at any time by notifying the Project Director. Upon your request to withdraw, all information pertaining to you will be destroyed. If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic standing or services you receive from the University. Your

response will be considered only in combination with those from other participants. The information obtained in the study may be published in scholarly journals or presented at faculty meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please proceed with the survey when you are emailed the link to follow. Your willingness to proceed with the study indicates consent for participation.
Please keep a copy of this notification in your possession and feel free to contact the Project Director or Principal Investigator at any time.

Dr. Anne Creany, Project Director
Indiana University of Pennsylvania
Department of Professional Studies
112 Davis Hall
Indiana, PA 15705
Phone: 724-357-3293
Anne.Creany@iup.edu

Johanna Boothby, Principal Investigator
Student of Indiana University of Pennsylvania
1399 Red Mill Road
Homer City, PA, 15748
814-341-5555
wcbg@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

Appendix E
Student Letter of Consent

Informed Consent Form
Student

(IUP Letterhead)

Dear Student,

You are invited to participate in a research study for my doctoral dissertation. The following information is provided to help you make an informed decision whether or not to participate. If you have any questions, please do not hesitate to ask. You are eligible to participate because you are a senior nursing student at a nursing program in western Pennsylvania.

The purpose of this study is to explore the views of nursing students and educators on the use of educational gaming as an experiential (active learning) learning strategy. This study will look at the opinions of both nursing students and educators regarding the use of educational games in the classroom. This study will investigate if educational games are being used in the classroom, their purpose if used, whether or not educational games are beneficial to students in motivating them to learn content material and students' and educators' attitudes towards overall experience or lack of experience with games.

Participation in this study will require approximately 10 minutes of your time to complete a survey and 30 minutes of additional time if you participate in an interview related to the use of educational games. It is not considered a part of your nursing courses. Participation or non-participation will not affect the evaluation of your performance in your senior nursing courses. First, you will be emailed and asked to complete a survey via Qualtrics related to your experience or lack of experience with educational games. There will be a question on the survey asking about your willingness to participate in an interview relating to your use or non-use of educational games. If you agree to participate, then you will be asked to provide contact information. This information will remain confidential. The participants of the interview will be entered into a drawing to win a gift certificate to a restaurant following completion of data collection.

The information gained from this study may help educators to understand the significance of experiential learning strategies, such as educational gaming.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or IUP. Your decision will not result in any loss of benefits to which you are otherwise entitled. If you choose to participate, you may withdraw at any time by notifying the Project Director. Upon your request to withdraw, all information pertaining to you will be

destroyed. If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic standing or services you receive from the University. Your response will be considered only in combination with those from other participants. The information obtained in the study may be published in scholarly journals or presented at faculty meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please proceed with the survey when you are emailed the link to follow. Your willingness to proceed with the study indicates consent for participation.

Please keep a copy of this notification in your possession and feel free to contact the Project Director or Principal Investigator at any time.

Dr. Anne Creany, Project Director
Indiana University of Pennsylvania
Department of Professional Studies
112 Davis Hall
Indiana, PA 15705
Phone: 724-357-3293
Anne.Creany@iup.edu

Johanna Boothby, Principal Investigator
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wcbg@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724/357-7730).

Appendix F
Nurse Educator Letter of Consent (Interview)

Informed Consent Form

Nurse Educator Interview (IUP)

(IUP Letterhead)

Dear Nurse Educator,

You are invited to participate in this research study as part of my doctoral dissertation. The following information is provided to help you make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask. You are eligible to participate because you are a nursing educator at Indiana University of Pennsylvania.

The purpose of this study is to explore the views of nursing students and educators on the use of educational gaming as an experiential (active learning) learning strategy. The information gained from this study may help educators to understand the significance of experiential learning strategies, such as educational gaming.

You are receiving this consent because you have completed a survey on educational gaming and provided your contact information to participate in an interview. The interview will take approximately 30 minutes. As data are being collected the Principal Investigator may need to contact you for additional information as different themes may emerge. Each participant of the interview will be entered into a drawing to win a gift certificate for a restaurant following completion of data collection.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or IUP. If you choose to participate, you may withdraw at any time by notifying the Project Director. Upon your request to withdraw, all information pertaining to you will be destroyed.

If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic standing or services you receive from the University. Your response will be considered only in combination with those from other participants. The information obtained in the study may be published in scholarly journals or presented at meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please sign the statement below and return it to the researcher.

Dr. Anne Creany, Project Director
Indiana University of Pennsylvania
Department of Professional Studies
112 Davis Hall
Indiana, PA 15705
Phone: 724-357-3293
Anne.Creany@iup.edu

Johanna Boothby, Principal Investigator
Student of Indiana University of Pennsylvania
1399 Red Mill Road
Homer City, PA, 15748
814-341-5555
wcbg@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

Informed Consent Form

VOLUNTARY CONSENT FORM:

I have read and understand the information in the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. By signing this consent I am also giving the Principal Investigator permission to contact me for any additional information following the initial interview. I have received an unsigned copy of this informed Consent From to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone Number or email address where you can be reached

I certify that I have explained to the above individual that nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered questions that have been raised, and have witnessed the above signature.

_____ _____

Date Investigator's Signature

Appendix G
Nurse Educator Letter of Consent (Interview)

Informed Consent Form

Nurse Educator Interview (Mount Aloysius)

(IUP Letterhead)

Dear Nurse Educator,

You are invited to participate in this research study as part of my doctoral dissertation. The following information is provided to help you make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask. You are eligible to participate because you are a nursing educator at Mount Aloysius College.

The purpose of this study is to explore the views of nursing students and educators on the use of educational gaming as an experiential (active learning) learning strategy. The information gained from this study may help educators to understand the significance of experiential learning strategies, such as educational gaming.

You are receiving this consent because you have completed a survey on educational gaming and provided your contact information to participate in an interview. The interview will take approximately 30 minutes. As data are being collected the Principal Investigator may need to contact you for additional information as different themes may emerge. Each participant of the interview will be entered into a drawing to win a gift certificate for a restaurant following completion of data collection.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or IUP. If you choose to participate, you may withdraw at any time by notifying the Project Director. Upon your request to withdraw, all information pertaining to you will be destroyed.

If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic standing or services you receive from the University. Your response will be considered only in combination with those from other participants. The information obtained in the study may be published in scholarly journals or presented at meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please sign the statement below and return it to the researcher.

Dr. Anne Creany, Project Director
Indiana University of Pennsylvania
Department of Professional Studies
112 Davis Hall
Indiana, PA 15705
Phone: 724-357-3293
Anne.Creany@iup.edu

Johanna Boothby, Principal Investigator
Student of Indiana University of Pennsylvania
1399 Red Mill Road
Homer City, PA, 15748
814-341-5555
wcbg@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

Informed Consent Form

VOLUNTARY CONSENT FORM:

I have read and understand the information in the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. By signing this consent I am also giving the Principal Investigator permission to contact me for any additional information following the initial interview. I have received an unsigned copy of this informed Consent From to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone Number or email address where you can be reached

I certify that I have explained to the above individual that nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered questions that have been raised, and have witnessed the above signature.

_____ _____

Date Investigator's Signatur

Appendix H
Student Letter of Consent (Interview)

Informed Consent Form

Student Interview (IUP)

(IUP Letterhead)

Dear Student,

You are invited to participate in this research study as part of my doctoral dissertation. The following information is provided to help you make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask. You are eligible to participate because you are a senior nursing student at Indiana University of Pennsylvania.

The purpose of this study is to explore the views of nursing students and educators on the use of educational gaming as an experiential (active learning) learning strategy. The information gained from this study may help educators to understand the significance of experiential learning strategies, such as educational gaming.

You are receiving this consent because you have completed a survey on educational gaming and provided your contact information to participate in an interview. The interview will take approximately 30 minutes. Each participant of the interview will be entered into a drawing to win a gift certificate for a restaurant following completion of data collection.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or IUP. If you choose to participate, you may withdraw at any time by notifying the Project Director. Upon your request to withdraw, all information pertaining to you will be destroyed.

If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic standing or services you receive from the University. Your response will be considered only in combination with those from other participants. The information obtained in the study may be published in scholarly journals or presented at meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please sign the statement below and return it to the researcher.

Dr. Anne Creany, Project Director
Indiana University of Pennsylvania
Department of Professional Studies
112 Davis Hall
Indiana, PA 15705
Phone: 724-357-3293
Anne.Creany@iup.edu

Johanna Boothby, Principal Investigator
Student of Indiana University of Pennsylvania
1399 Red Mill Road
Homer City, PA, 15748
814-341-5555
wcbg@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

Informed Consent Form

VOLUNTARY CONSENT FORM:

I have read and understand the information in the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent From to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone Number or email address where you can be reached

I certify that I have explained to the above individual that nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered questions that have been raised, and have witnessed the above signature.

_____ _____

Date Investigator's Signature

Appendix I
Student Letter of Consent (Interview)

Informed Consent Form

Student Interview (Mount Aloysius)

(IUP Letterhead)

Dear Student,

You are invited to participate in this research study as part of my doctoral dissertation. The following information is provided to help you make an informed decision whether or not to participate. If you have any questions please do not hesitate to ask. You are eligible to participate because you are a senior nursing student at Mount Aloysius College.

The purpose of this study is to explore the views of nursing students and educators on the use of educational gaming as an experiential (active learning) learning strategy. The information gained from this study may help educators to understand the significance of experiential learning strategies, such as educational gaming.

You are receiving this consent because you have completed a survey on educational gaming and provided your contact information to participate in an interview. The interview will take approximately 30 minutes. Each participant of the interview will be entered into a drawing to win a gift certificate for a restaurant following completion of data collection.

Your participation in this study is voluntary. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or IUP. If you choose to participate, you may withdraw at any time by notifying the Project Director. Upon your request to withdraw, all information pertaining to you will be destroyed.

If you choose to participate, all information will be held in strict confidence and will have no bearing on your academic standing or services you receive from the University. Your response will be considered only in combination with those from other participants. The information obtained in the study may be published in scholarly journals or presented at meetings but your identity will be kept strictly confidential.

If you are willing to participate in this study, please sign the statement below and return it to the researcher.

Dr. Anne Creany, Project Director
Indiana University of Pennsylvania
Department of Professional Studies
112 Davis Hall
Indiana, PA 15705
Phone: 724-357-3293
Anne.Creany@iup.edu

Johanna Boothby, Principal Investigator
Student of Indiana University of Pennsylvania
1399 Red Mill Road
Homer City, PA, 15748
814-341-5555
wcbg@iup.edu

This project has been approved by the Indiana University of Pennsylvania Institutional Review Board for the Protection of Human Subjects (Phone: 724-357-7730).

Informed Consent Form

VOLUNTARY CONSENT FORM:

I have read and understand the information in the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent From to keep in my possession.

Name (PLEASE PRINT)

Signature

Date

Phone Number or email address where you can be reached

I certify that I have explained to the above individual that nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered questions that have been raised, and have witnessed the above signature.

_____ _____

Date Investigator's Signature

Appendix J
Statement of Confidentiality

Indiana University of Pennsylvania
www.iup.edu

Department of Professional Studies in Education
Davis Hall, Room 303
570 South Eleventh Street
Indiana, PA 15705-1050

P 724-357-2400
F 724-357-2961
www.iup.edu/pse

March 10, 2014

Johanna Boothby has informed be about her dissertation study, *Nursing Students' and Nursing Educators' Perspectives on Using Educational Games as an Experiential Learning Strategy*, and I have agreed to distribute her letters of notification (letters of consent) to both senior level nursing students and nursing faculty at Indiana University of Pennsylvania.

By signing this consent I am agreeing that I will not coerce students or faculty to take the survey or participate in the study.

Name (Please print)
Ashley Grue

Signature

Date 3/10/2014

Appendix K
Permission to Use Questions

Dear Johanna

I am very pleased to hear about your study. Please feel free to adapt the work to suit the purposes of your research. As long as there is appropriate acknowledgement of the original source that is what development within research is all about….

We did make a book (in DVD format) of games used in education within the health professions, and I will post you a copy.

I wish you well with your study and will look forward to seeing the results eventually.

Best wishes

Heather

Professor Heather Skirton
Professor of Applied Health Genetics
Plymouth University
United Kingdom
Phone: +44 (0) 1752 586569
Heather.skirton@plymouth.ac.uk

Chair of the European Board of Medical Genetics
Postal Address:
Room 3
3 Portland Villas
Plymouth University
Faculty of Health and Human Sciences
Drake Circus Plymouth, PL4 8A

Appendix L
Nurse Educator Survey Questions

Survey of Nursing Educators' Perspectives on Educational Gaming as an Experiential Learning Strategy

The purpose of this survey is to explore nursing educators' perspectives on the use of educational games as an experiential teaching strategy. This survey should take no more than 15 minutes to complete. Your participation in this survey is greatly appreciated.

Please respond to each of the following questions.

1. What is your age?
   a. under 30 years old
   b. 31-40 years old
   c. 41-50 years old
   d. over 50 years old

2. At what institution do you teach?

3. How many years have you been teaching in nursing education?
   a. under 5 years
   b. 6-10 years
   c. 11-15 years
   d. 16-20 years
   e. over 20 years

4. What is your main area of teaching responsibility?
   a. Undergraduate
   b. Graduate- Masters or Doctoral
   c. 50% Undergraduate and 50% Graduate

5. Have you received any professional development on experiential learning strategies?
   a. Yes
   b. No

6. How often do you use educational games (Example: Jeopardy, Bingo, Wheel of Fortune, etc.) as an experiential learning strategy (per year)?
   a. Never
   b. Rarely (1-2)
   c. Occasionally (3-5)
   d. Regularly (6-10)
   e. Often (>10)

7. I feel that educational games are an engaging way to teach or review course materials.
   SD= Strongly Agree
   D= Disagree
   N= Neither Agree or Disagree
   A= Agree
   SA= Strongly Agree

8. I feel that educational games are a motivating way to teach or review course content.
   SD= Strongly Agree
   D= Disagree
   N= Neither Agree or Disagree
   A= Agree
   SA= Strongly Agree

9. I feel that educational games are beneficial to student learning.
   SD= Strongly Agree
   D= Disagree
   N= Neither Agree or Disagree
   A= Agree
   SA= Strongly Agree

10. I feel that educational games are not beneficial to student learning.
    SD= Strongly Agree
    D= Disagree
    N= Neither Agree or Disagree
    A= Agree
    SA= Strongly Agree

11. In what ways have you used educational games in the classroom? Select all that apply.
    a. test review
    b. teach course materials
    c. other
    d. none

12. When using educational games in the classroom, at what level on Bloom's Taxonomy of Learning do you feel that educational gaming questions are prepared? Select all that apply.
    a. Knowledge
    b. Comprehension
    c. Application
    d. Analysis

13. If you replied "never" or "rarely" to Question #6, what would encourage you to use educational games?

14. What do you consider to be advantages of using educational games in the classroom?

15. What do you consider to be disadvantages of using educational games in the classroom?

16. If you have used educational games in the classroom in the past, what response did you receive from students? If you replied "never" to Question #6, skip this question

17. Please briefly describe two educational games that you have used (including the purpose and type of games). If you replied "never" to Question #6, skip this question

18. Any additional comments?

19. Would you consider participating in an interview regarding educational games?
    a. No
    b. Yes

20. If you replied "yes" for number 13, please provide contact information below:

Name:_____
Email:_____
Phone Number:_____

Thank you for your participation in this survey!

Appendix M
Student Survey Questions

Survey of Nursing Students' Perspectives on Educational Gaming as an Experiential Learning Strategy

The purpose of this survey is to explore nursing students' perspectives on the use of educational games as an experiential learning (active learning) strategy. This survey should take no more than 10 minutes to complete. Your participation in this survey is greatly appreciated.

Please respond to each of the following questions.

1. What is your age?
   a. 20-25 years old
   b. 26-30 years old
   c. 31-35 years old
   d. over 35 years old

2. What institution do you attend?

3. My nursing instructors have used educational games (Examples: Jeopardy, Bingo, Wheel of Fortune, etc.) in the classroom (times per year).
   a. Never
   b. Rarely (1-2)
   c. Occasionally (3-5)
   d. Regularly (6-10)
   e. Often (>10)

If you answered "Never" or "Rarely" to Question #4, skip to Question # 10

If you have responded "sometimes, most of the time, or always" to Question #4, indicate the extent that you agree or disagree with each statement:

4. I feel that educational games are an engaging way to learn or review course materials.
   SD= Strongly Agree
   D= Disagree
   N= Neither Agree or Disagree
   A= Agree
   SA= Strongly Agree

5. I feel that educational games are a motivating way to learn or review course materials.
   SD= Strongly Agree
   D= Disagree
   N= Neither Agree or Disagree
   A= Agree
   SA= Strongly Agree

6. I feel that educational games are beneficial to my learning.
   SD= Strongly Agree
   D= Disagree
   N= Neither Agree or Disagree
   A= Agree
   SA= Strongly Agree

7. I feel that educational games are not beneficial to my learning and are a waste of time.
   SD= Strongly Agree
   D= Disagree
   N= Neither Agree or Disagree
   A= Agree
   SA= Strongly Agree

Please respond to each of the following questions:

8. In what ways have educational games been used in the classroom:
   a. test review
   b. teach course materials
   c. other _____

9. At what level of Bloom's Taxonomy of Learning do you feel that educational gaming questions have been prepared? Select all that apply.
   e. Knowledge
   f. Comprehension
   g. Application
   h. Analysis

10. What types of educational games have you been exposed to in the classroom?

11. My nursing instructors “never or rarely” use educational games in the classroom but I feel it would be a beneficial way to learn.
    SD= Strongly Agree
    D= Disagree
    N= Neither Agree or Disagree
    A= Agree
    SA= Strongly Agree

12. My nursing instructors “never or rarely” use educational games in the classroom but I feel it would be a motivating way to learn.
    SD= Strongly Agree
    D= Disagree
    N= Neither Agree or Disagree
    A= Agree
    SA= Strongly Agree

13. Any other comments or thoughts you would like to make regarding the use of educational games in the classroom?

14. Would you consider participating in an interview regarding educational games?
    a. No
    b. Yes

If you replied “yes” for number 12, please provide contact information below:

Name:_____
Email:_____
Phone Number:_____

Thank you for your participation in this survey!

Appendix N
Nurse Educator Interview Questions

Nursing Educators' Perspectives on Using Educational Games as a Experiential Teaching Strategy
Interview Questions

1. What is your age?

2. In what institution do you teach?

3. How long have you been teaching in nursing education?

4. What is your main area of teaching responsibility? (undergraduate, graduate, both undergraduate and graduate)

5. How often do you use educational games in your teaching?
   If you do not use educational games, what are your reasons for not using educational games?

6. In what ways have you used educational games in the classroom? (SKIP if they do not use Ed. Games)
   For what reasons do you use educational games, to teach content materials, test reviews

7. Describe two educational games that you use in the classroom (SKIP if they do not use ed. Games)

8. What would encourage you to use educational games in the classroom more often or at all?

9. What would you consider to be advantages of using educational games in the classroom?

10. What would you consider to be disadvantages of using educational games in the classroom?

11. What are some of your challenges that arise from the implementation of using educational games?

12. What has been your experience with students' attitudes toward the use of educational games?

13. Have you used any other types of experiential learning strategies for teaching? (Simulation, role playing, etc.) If so, what types?
What has been your experience with student attitudes towards these strategies?

14. Any additional comments you would like to make regarding educational games or experiential learning strategies?

Appendix O
Student Interview Questions

Nursing Students' Perspectives on Using Educational Games as an Experiential Teaching Strategy
Interview Questions

1. What is your age?

2. At what institution do you attend?

3. Give examples of experiential learning (active learning) strategies that nursing faculty have used in the classroom. What is your preferred method for learning new course materials?

4. Have you been exposed to any educational games in any of your classes while attending nursing school? If so, what are some examples?

5. How often do your nursing instructors use educational games (Examples: Jeopardy, Bingo, Wheel of Fortune, etc.) in the classroom? If your nursing faculty does not use educational games, do you think that you would like them to?

6. What are some examples of educational games that you have experienced in your nursing classes?

7. What do you believe are some advantages when your nursing instructors use educational games?

8. What do you believe are disadvantages when your nursing instructors use educational games?

9. How do you feel that educational games assist you in learning?

10. Do you feel that educational games motivate you to learn course materials?

11. Any additional comments you would like to make about educational games?