CHANGING ORGANIZATIONAL CULTURE THROUGH GAMING

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ABSTRACT

Megan O'Connor: Changing Organizational Culture through Gaming
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This purpose of this project was to examine the impact of an experiential learning activity on staff nurse perceptions of organizational culture following a low cost gaming simulation, *Friday Night at the ER®,* at a large academic medical center in the Southeast United States. The key content concepts include discussion of organizational culture and patient care, description of the *Friday Night at the ER®,* and impact of the game on organizational culture scores and staff perceptions.

There is a need for innovative methods that communicate elements (trust, communication) of organizational culture to staff to promote patient safety. Patient care has been negatively affected by communication lapses and poor choices that occur when health care employees are uninformed, have poor handoff processes, or make decisions out of fear. Health care costs continue to rise in the United States without a subsequent increase in quality outcomes. Innovative methods for educating staff are needed to improve communication and team processes in an effort to provide efficient and effective patient care.

Forty staff nurses participated in *Friday Night at the ER®* and recorded their perceptions of organizational culture using a pre- and post-survey design through the Diagnosing Organizational Culture Instrument (DOCI). In the post-game survey participants were also asked to provide demographic data and respond to questions about the impact of the game

experience. Post-game scores on the DOCI showed more positive perceptions of organizational culture following the learning activity. However, results were not statistically significant. A Likert survey conducted post-game play revealed that participants strongly recommend the game *Friday Night at the ER*® for colleagues, felt that it was a useful learning activity, learned new things about their organization, and felt that it helped them to be better prepared to provide high quality care.

The board game *Friday Night at the ER*® is a low cost method that can be used to capitalize on team training and lead to improved organizational culture scores that can potentially translate into increased patient safety.

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In healthcare a great deal of time is spent on orienting, training, and providing resources for clinical practice. However, education on the tenets and practices of positive and effective organizational cultures is omitted from most training programs. Organizational culture has various definitions but generally encompasses informal values, beliefs, and norms that shape how staff provides patient care (Scott, Mannion, Davies, & Marshall, 2003). Organizational culture is important when assessing an organization's ability to change and implement new practices (Sinkowitz-Cochran et al, 2012). It is necessary for organizations to be able to learn and adapt to rapidly changing environments in order to effectively provide services. In order to affect change it is important to have organizational members identify their frames of reference.

Understanding shared mental models among staff provides a means for the system to learn and adapt to the rapidly changing environment (Senge & Sterman, 1992). Mental models are individual interpretations of the environment that provide a framework for one to assess and explain occurrences in their surroundings (Van den Bossche, Gijselaers, Segers, Woltjer, & Kirschner, 2011). Shared mental models are the "overlapping mental representations of knowledge by members of a team (Van den Bossche et al., 2011, p 285)." The process of developing shared mental models occurs through changes in knowledge and working relationships that happen at the group level (Mohammed & Dunville, 2001). It is proposed that shared mental models can enhance team communication and effectiveness in completing complex tasks (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000).

Staff must understand and share organizational goals that promote a robust culture focused on safe quality patient care. There is a need for innovative methods to educate staff about elements (trust, communication, knowledge sharing) of organizational culture in an effort to promote patient safety. Patient safety has been defined as "an integrated pattern of individual and organizational behavior based upon shared beliefs and values that continuously seek to minimize patient harm that may occur from the care delivery process" (Aspden et al., 2004, p. 174). Reason (1997) describes four areas of focus for patient safety: justice, learning, flexibility, and systematic reporting. Team training, with a focus on communication processes, is often less expensive and more effective than spending money on complex technological solutions to organizational issues (Reason, 1995). Simulation is one method that can be used for team training and communication. Open participation in an organizational learning process, such as simulation, can lead to a more positive culture, innovative solutions, and better working relationships (Carroll & Edmondson, 2002). Gaming is a safe method for exploring mental models and current assumptions that may block organizational goals.

Engagement in an organizational game that allows staff an opportunity to work together to acquire new knowledge and change mental models through a group process was used to assess changes in perception of organizational culture. *Friday Night in the ER*® is an organizational learning game that provides an experiential learning experience for staff to examine mental models. The goal of this game is to bring together people within an organization to examine beliefs regarding systems and workflow, and the impact these topics have on organizational goals of quality care and fiscal responsibility.

Background and Significance

Culture is expressed through the social interactions of group members and reflects acceptable behavior within the system (Schall, 1983). Culture has been described in the literature as resulting from communication; it comes alive in the interactions of its members (Schall, 1983). Weick (1969) suggests that organizations would not exist in the absence of communication. Culture and communication are intertwined so tightly that they do not exist without the other. Organizations have continuous communication activity where all members receive, interpret, and evaluate all input from the system (Schall, 1983). The knowledge, expectations, and shared mental models communicated to, and by, staff within an organization can significantly shape actions and reactions within the system. This culture is then communicated to other members of the system. Cultures are created, changed, and sustained through communication activity, including modeling, instruction, storytelling, confrontation, and observation (Schall, 1983).

Health care organizations are characterized as suffering from multiple communication failures and errors that impact patient care. The Joint Commission cites communication failures (written, oral, and electronic) as a major contributor to reported sentinel events based on root cause analyses (The Joint Commission, 2011). While many sentinel events have multiple contributors, communication failures were present in 60% of the events reported to The Joint Commission from January to September of 2011 (The Joint Commission, 2011). The interplay between healthcare cultural norms, medical complexities, and personal factors creates opportunities for communication mistakes (Dayton & Henriksen, 2007). Patient care has been negatively affected by communication lapses when employees are uninformed, have poor handoff processes, or make decisions out of fear. Communication patterns assume a special

urgency as difficulty in this area can lead to poor patient care and contribute to waste in the system (Dayton & Henriksen, 2007). Low cost interventions may be able to target these areas of health care waste to provide a more efficient and effective system. For example, educational uses of simulation aim to increase trust, teamwork, and knowledge sharing within teams (Kuehster & Hall, 2010).

The rising cost of health care is a frequent topic of discussion worldwide. The United States spends approximately 51% more per capita than the next highest spending country (Norway) with negligible return on health outcomes (Kaiser Family Foundation, 2014). A portion of this spending can be attributed to waste in the health care system. Berwick and Hackbarth (2012) identify six categories of health care waste: failures of care delivery, failures of care coordination, overtreatment, administrative complexity, pricing failures, and fraud and abuse. The categories of failures of care delivery, failures of care coordination, and administrative complexity are estimated to cost between $234-$588 billion dollars in 2011 (Berwick & Hackbarth, 2012). Failures of care delivery occur when organizations fail to adopt best care processes or poorly execute the delivery of care (Berwick & Hackbarth, 2012). This may be seen by a failure to adopt best practices, like TeamSTEPPS communication, coordinated care, or failure to provide adequate discharge instructions. Failures of care coordination occur when patients "fall between the cracks" of the fragmented health care system (Berwick & Hackbarth, 2012). Patients are often cared for by multiple team members in a chaotic and pressured system. Administrative complexity results from misguided government and regulatory rules (Berwick & Hackbarth, 2012). Hospitals focus on strategies to meet regulatory requirements, particularly when funding is attached to the outcome, while coordinated patient care and workflow is often lower on the list of priorities.

Literature Review

This project seeks to impact organizational culture through gaming, a simulated experiential learning activity, with the overall goal of improvement of safe quality patient care and decreased health care waste. The literature review will examine three central themes; organizational culture, experiential learning, and simulation, while threading through related topics of quality care and health care waste.

Organizational Culture

Organizational culture can be elusive and difficult to define. Schein (1990) includes three elements to culture: artifacts, espoused values, and assumptions (Schein, 1990). This encompasses informal values, beliefs, and norms that shape how staff provide patient care and build relationships (Scott, Mannion, Davies, & Marshall, 2003; Scholl, 2003). Consistency in the way that tasks are performed and problems are solved is also a part of culture (Scholl, 2003). Organizational culture is a social construct based on shared experiences (Bellot, 2011). Al-Alawi, Al-Marzooqi, and Mohammed (2007) describe culture as the interplay of structure, reward systems, people, information systems, leadership, and processes. They further divide the category of people to include the elements of motivation, trust, knowledge sharing, and communication. One must understand the interactions of each element to be able to understand and describe the whole of an organization's culture (Gupta & Govindarajan, 2000).

It is important for organizations to promote a culture of learning at all levels, particularly when patient care is at stake (Firth-Cozens, 2001). Barriers to organizational learning include poor communication and feedback processes and a lack of purpose (Firth-Cozens, 2011). Organizational culture is an important consideration when assessing an organization's ability to

change and successfully implement new practices (Sinkowitz-Cochran, Garcia-Williams, Hackbarth, Zell, Baker, McCannon, Beltrami, Jernigan, McDonald, & Goldmann, 2012). Bowie (2010) discusses enhanced team communication, open reporting of errors, and learning from mistakes as components of promoting a culture of safety.

There is a growing body of literature on creating and/or improving patient safety cultures within healthcare organizations. Hellings, Schrooten, Klazinga, and Velugels (2010) surveyed five hospitals in Belgium using the Hospital Survey on Patient Safety Culture in 2005. Managers and frontline staff were given feedback from the survey and asked to develop interventions to improve targets identified in the survey. Interventions included implementing a patient safety committee, education on the role of culture in promoting a safety culture, and projects aimed at increasing communication and error reporting and analysis. A repeat survey conducted in 2007 reported moderate improvement in perceptions of management support of safety activities and communication openness. Limitations in this study include a non-random sample, time gap may have led to change in staff, and lack of detailed descriptions of the interventions increasing the possibility that they were inconsistently implemented throughout the different organizations. It may also be that the tool, a Belgian adaptation of the Hospital Survey of Patient Safety Culture questionnaire, was not sensitive enough for the measure of culture or that more time is needed to promote lasting and significant culture change.

Sinkowitz-Cochran at al. (2012) found that executive level staff were significantly more likely than frontline staff to report agreement on the importance and personal impact of quality improvement activities. In practice, frontline staff attitudes about change activities often differ from executive staff. Activities that help frontline staff have a better understanding of organizational goals and values may lead to improvements in patient care. Baker, Falwell, Gaba,

Hartmann, Meterko, and Rosen (2009) found group cultures, rather than hierarchical cultures, provide the best environment for promoting patient safety. Strategies, like improvement oriented teamwork and openness to innovation, are ways to promote a group oriented culture. Deilkas and Hofass (2010) provide further evidence with the Safety Attitudes Questionnaire that safety cultures can vary within an organization, particularly at the unit level. Results of the survey varied by individuals and by unit, more so than between departments. Results suggest that interventions aimed at the individual and unit level, are more effective in creating safety cultures with clinicians that are closest to the delivery of patient care, although the study was non-randomized and job classes were unequally represented.

Experiential Learning

Experiential learning is a holistic learning model that involves a cyclical process of experiencing an activity, reflecting on that activity, applying it to real life situations, and then evaluating the impact of the activity for future actions (Oxendine, Robinson, & Willson, 2004). There are many examples of experiential learning activities including field courses, study abroad, internships, and computer simulation (Oxendine et al., 2004). To be most effective, adequate time for reflection and discussion are necessary for effectiveness of the learning experience (Oxendine et al., 2004). Steps to integrate a successful experiential learning experience in the classroom include: 1) introduce the experience, 2) engage in a realistic experience, 3) allow discussion of the experience including emotional aspects, 4) allow learners to experiment with new concepts through discussion, 5) and connect experience to real life applications (Oxendine et al., 2004).

Two examples of innovative experiential learning are "hip pocket learning" and participation in health fairs and legislative hearings as part of classroom activities. One large university integrated Kolb's experiential learning model by developing "hip pocket learning" in an associate degree program (Onge, Hodges, McBride, & Parnell, 2013). Hip pocket learning involves having short and structured teaching plans ready for use in the moment, when a particular teaching moment presents itself in a clinical situation (Onge et al., 2013). Students and faculty expressed satisfaction with the hip pocket guides and course evaluations improved following the introduction of the guides (Onge et al., 2013). Senior nursing students at another university were asked to participate in a variety of policy activities including state health fairs and legislative hearings (Byrd et al., 2012). Students scored higher on political astuteness survey questions after completing the learning activities.

These examples demonstrate ways in which experiential learning provides a method for presenting vital information in a way that allows for different learning styles and is adaptable for changing environments. Because it provides a unique and specific experience that can be tailored to groups and organizations, it is likely perceptions of culture could also be changed through experiential learning activities, such as board games that focus on systems thinking concepts.

Simulation and games

Simulation has been used for training within complex and high risk organizations like aviation, healthcare, and the military (Galloway, 2009). Nursing education programs have adopted numerous simulation methods including role playing, standardized patients, and simulated clinical experiences using human patient simulators to enhance learning of clinical

skills (Galloway, 2009). Advantages of simulation include experiential learning, learning without fear of failure, learner centered, and promotion of independence and skill development (Campbell, Gantt, & Congdon, 2009). Role playing provides immersive training without elaborate set up and is relatively low cost, and beneficial for team training and changing attitudes (Galloway, 2009). Games can provide a simplistic model that allows for a focus on subject matter central themes and provides a common experience to launch discussion (Eisenack, 2012). Games are also often visually appealing and viewed positively by players, which can encourage open communication of difficult topics (Eisenack, 2012).

For example, seventy health services and health information management students participated in a simulated experience based on experiential learning techniques in an effort to teach the complex concepts of workflow analysis and lean thinking (Campbell et al., 2009). The researchers developed a video simulation focused on a procedure for surgical repair of congenital heart defects in infants. Students received lectures throughout the semester on various topics related to reducing error in healthcare. They were then instructed to divide into groups, view the video, and then discuss any errors, and possible ways to correct the errors. It is unclear why the students had to divide into groups to complete the activity. Eighty-five percent of students surveyed felt this exercise helped them conceptualize and practice error reduction concepts.

Eisenack (2012) developed and used a game called *KEEP COOL*, which uses the topic of climate control to teach inter- and intra-disciplinary communication, stakeholder discussion, and communication. Scientists, students, and the general public are the intended audience. The game seeks to raise awareness and provide education about climate issues, but also focuses on communication and team building. Players represent countries and must react to climate impacts during game play in an attempt to control rising global temperatures. It is introduced, played,

and then debriefed as a team. Players reported satisfaction with the learning experience, felt that they could connect aspects to their personal and professional lives, and altered internal frameworks. These outcomes support the ability of simulation to change perceptions.

A literature search on games in education and games in healthcare produced eight additional articles that report the use of games to teach or to change beliefs. Basole, Bodner, and Rouse (2013) reported improved decision-making accuracy with forty-four health care students after use of a game called *Health Advisor*. Frederick, Corvetto, Hobbs, and Taekman (2011) used resident physician self-report to demonstrate that a game used to teach anesthesia skills could reduce resident anxiety and improve skills. Stanley and Latimer (2011) examined a game called *The Ward* used to teach nursing students critical thinking, decision making, and teamwork skills. Focus groups of nursing students (n=76) gave positive reports that the game was related to necessary skills, fun, and a useful learning activity. Respondents rated positively that they felt the activity improved their practical nursing knowledge and critical thinking skills. Uhles, Weimer-Elder, and Lee (2008) used a game (name of game was not provided) to teach business information to healthcare leaders. Post-test results of knowledge were higher than on the pre-test and participants also reported that the game was useful as an educational activity. Pasin and Giroux (2011) were able to demonstrate that undergraduate business students reduced mistakes that led to profit loss using a progressive game experience. Cook, McAloon, O'Neill, and Beggs (2011) used a computer simulation game to teach undergraduates life support training. Using a Likert scale questionnaire, 78.6% of participants felt that the simulation was a useful platform for education of life training material. Students that used simulation also had higher skill scores for checking equipment, airway assessment, and defibrillator use than students who did not use the simulation on certain life support skills.

Bays and Hermann (1997) studied student test scores to determine differences in learning content using gaming simulation or traditional lecture. They found no difference in test scores among groups. Sward, Richardson, Kendrick, and Maloney (2008) compared medical student test scores between a group that used a game to study material versus a group that used self-study flash cards. They found no significant differences between groups on test scores or perceptions of comfort with the material. Student perceptions favored the game group over the self-study group. Students in the game group looked forward to the activities, prepared for them, and felt that the interactivity was valuable for learning. Neither study showed any difference between groups on test scores whether using a gaming experience or a different method of teaching. It may be that test scores are not the best measure of the value of simulation, or simulation may target other aspects of learning that are equally important scoring knowledge well on tests. Games may be more useful in teaching complex skills, like teamwork or systems thinking, which are difficult to evaluate, and may help retain knowledge over time.

However, all of the studies reported are limited by non-random samples, small sample sizes, limited generalizability due to specific study populations ie: students in healthcare or business, and no control/comparison group. Some studies also provided pre-teaching or preparation before simulation, which makes it difficult to determine if results are related to the simulation intervention or the pre-teaching/preparation. The literature offers beginning support for low cost interventions for education, like games, to increase participant satisfaction with learning environment and participant report of usefulness of learning activity.

Theory

This project is based on a theory of organizational culture derived by Edgar Schein. It originated in the disciplines of business, management, and psychology, with roots in anthropology (Hatch, 1993). According to Schein (1990) culture is difficult to define because it intersects at many disciplines including anthropology, social psychology, organizational behavior, and sociology.

Theory of Organizational Culture

Schein's (1990) theory of culture has three elements; artifacts, espoused values, and assumptions. Artifacts are the clearly visible aspects of culture including dress codes, organizational structures, emotional intensity, and processes (Schein, 1990). These elements of culture are readily witnessed and recognized by people that are outside of the organization. The second element is espoused values (Schein, 1990). Espoused values are the values that are connected to and reflected in an organization's leaders. This may include philosophies, goals, and strategies that are supported by leader actions. Assumptions are the shared values among members of the culture (Schein, 1990). They may not be readily apparent even to members of the organization. Assumptions and espoused values may not correlate, which can lead to problems of inefficiency and lack of morale. It is important for leaders to understand the organizational culture so that that they can encourage and manage needed change when necessary.

Schein (1990) also argues that organizations can have many subgroups with their own identity and cultural equilibrium coexisting within a broader organizational culture. This may be especially true in large medical centers where subcultures can form due to various divisions

including by unit, service line, or committee. Culture is a learned experience that takes place within groups (Schein, 1990). Learning is formed by various mechanisms including witnessing behavior in critical events and modeling leader behaviors. Behavior that leads to survival and success within the organization is passed on to new members and forms the assumptions of the organization (Hatch, 1993). Schein (1990) also views organizations as open systems that are constantly being challenged to change as external and environmental pressures produce strain and new members bring new beliefs and assumptions. Organizational culture theories seek to help organizations nurture and enhance cultural elements that are deemed effective and efficient while unlearning dysfunctional patterns (Schein, 1990). However, it is important to ensure that an organization is prepared to support newly learned behaviors, concepts, and assumptions or learners will revert to previous cultural assumptions (Schein, 1986).

Limitations of this theory include that it is broad and abstract; it doesn't provide a roadmap for changing organizational culture but rather offers explanations for understanding where change needs to start within culture. This project seeks to promote positive and effective cultural elements by exploring and reflecting on the espoused values and assumptions of the organization at various levels.

Experiential Learning Theory

A theory that supports the intervention is David Kolb's Experiential Learning Theory (ELT). Kolb developed Experiential Learning Theory in the 1970s with research first published in the management literature. Experiential learning is a holistic learning model that involves a cyclical process of experiencing an activity, reflecting on that activity, applying it to real life situations, and then evaluating the impact of the activity for future actions (Oxendine, Robinson,

& Willson, 2004; Kolb et al., 2000). ELT holds experience as the key part of the learning process (Kolb, 1984). This differentiates ELT from cognitive theories of learning that focus on acquisition and manipulation of information and behavioral theories that fail to acknowledge the subjective experience of the learner (Kolb, 1984). Cognitive and behavioral theories focus on the outcomes of learning; the ability to repeat delivered information (Kolb, 1984). ELT views learning as a process rather than a destination (Kolb, 1984). Thoughts and ideas are viewed as flexible and changing based on experiences (Kolb, 1984).

Kolb (1984) points out the importance of remembering that people come into all situations with beliefs, values, and expectations that may or not be valid and the role of the educator is not only to offer new knowledge but to also dispose of or modify old ideas. Ideas that are accepted through a process of integration with existing schemas are more stable and likely to be retained than ideas that require the learner to substitute the knowledge in place of an old schema (Kolb, 1984). If the learning process requires substitution of knowledge the learner is more likely to revert to a previous pattern when faced with conflicting situations.

Knowledge arises from grasping, which includes concrete experience (CE) and abstract conceptualization (AC), and transforming, which includes reflective observation (RO) and active experimentation (AE) (Kolb et al., 2000). This four-stage learning cycle requires that immediate or concrete experiences serve as the basis for observation and reflection. Reflections are then assimilated and transformed into abstract concepts serving as a basis for action that can be tested and used for new experiences (Kolb et al., 2000). This theory provides for a method of learning that appeals to different learning styles by incorporating both action and reflection (Kolb et al., 2000).

Early in educational development people choose a preferred method for learning in either the grasping or transforming domains (Mainemelis, Boyatzis & Kolb, 2002). However, as people continue to learn they move from choosing a specialized method to a more integrated style involving all four learning modes; CE, AC, RO, and AE. Thus creating the learning cycle of experiential learning where learners experience, reflect, apply, and evaluate (Mainemelis et al., 2002). Without adequate time for reflection and discussion the learning activity may be less effective (Oxendine et al., 2004). Experiential learning provides a method for presenting vital information in a way that compensates for different learning styles and is adaptable for changing environments. It provides a unique and specific experience that can be tailored to groups and organizations.

Experiential learning is a process that incorporates the four different learning styles into a four step learning process. ELT can be depicted as a circle with the four steps occurring over and over, as learning is a non-linear process. These steps of the ELT process are illustrated by participating in the board game *Friday Night at the ER*®. This game allows staff to have a concrete experience by experimenting with executive decision making to determine the flow of patients through the simulated hospital. After game play participants are asked to provide their quality and financial scores. They reflect on the experience and are challenged by disclosure of previously unknown information that would have helped them to play the game. The last part of the debriefing involves identification of ways in which this experience can and will affect their future practice. It is anticipated that structuring this learning experience using the tenets of ELT will assist staff to successfully assimilate organizational information into their mental models and produce more effective patient care.

This project focuses on an experiential learning activity that aims to change perceptions of organizational culture. Schein's organizational culture theory stresses the importance of understanding how culture is formed and repeated throughout the organization. Assumptions are deeply held and not often apparent, but serve as the starting point for successful change in culture. Kolb's experiential learning theory is a foundation for the intervention phase of this project. Kolb describes learning as a continuous process that requires experience and reflection to accommodate various learning styles. Information, including the delivery and receipt of that information, is a key element for promoting positive organizational culture.

Purpose

The purpose of this project was to examine perceptions of organizational culture before and after the use of a low cost gaming simulation, *Friday Night at the ER*®. The project aimed to impact organizational culture by focusing on trust, communication, and knowledge sharing through the use of an experiential learning game and debriefing.

Questions

The study questions were answered using scores from the Demographic Data tool (Appendix B), both the pre- and post- administration of the Diagnosing Organizational Culture Instrument, the game scores for finance and quality, and questions from the Impact survey (Appendix C).

1. What is the impact of the experiential learning game *Friday Night at the ER*® on perceptions of organizational culture as measured by the Diagnosing Organizational Culture Instrument?

2. What are the differences in organizational culture perceptions following game play based on job class and years of nursing practice?
3. Do groups with higher scores on finance and quality have higher cultural index scores?
4. What impact does *Friday Night at the ER*® have on patient care as measured by staff report?

Project Description

The project assessed the impact of playing a game that simulates a day in the life of a hospital. A pre- and post-test design using the Diagnosing Organizational Culture Instrument (DOCI) developed by Harrison and Stokes (1992) was administered. Participants also responded to questions about the impact of *Friday Night at the ER*® and provided demographic data.

Game Description

This project uses a game from Breakthrough Learning called *Friday Night at the ER*® (used with permission from Breakthrough Leaning; Appendix A). The purpose of the game is to improve systems thinking so that staff are better able to link actions and decisions with consequences and outcomes. The game mimics a simplistic view of hospital function involving four hospital units: emergency room (ER), critical care, surgery, and stepdown. The game requires two actual hours of game play segmented to simulate 24 hours during which patients move through the hospital system. The game is conducted with small groups of bedside staff to offer an experiential learning environment and robust discussion. One game board is used for a group of four participants; each game board represents a unique hospital. Participants choose a table with a game board and sit at a unit that is not their current workplace. Throughout the

game participants are given instruction cards regarding the hospital system which affects flow throughout the hospital. Throughout the game, participants at each table are responsible for moving their patients through their hospital and making choices for resource allocation. However, just like in real life, they cannot always see the impact of their decisions on outcomes. At the end of game play each group calculates a quality and financial score. Two trained facilitators lead a debriefing following game play, which is specific to the organization where the game is played. The debriefing is facilitated according to provided instructions. The debriefing is an opportunity to discuss myths, rules, opportunities for improvement, and possibilities for improving future practice. The debriefing focuses on team dynamics and the relationship to system function. The debriefing is allowed to unfold based on direction from participants and may include issues like throughput, admission placements, emergency room diversion, and other related topics. Communication and education about the health care system, and education that seeks to explain why we do the things we do may result in a more positive culture that can improve patient safety, staff satisfaction, and reduce waste.

Assessment of Resources

Other than the cost of the game, the project is relatively low budget. The game is available at UNCH and permission to use the game was obtained from Breakthrough Learning. Staff received paid education time by the organization to participate in the activity, so staff time is the biggest investment. Rooms that were conveniently located and had the necessary seating arrangements were used for game play.

Methods

Setting

The practice setting for this project was the University of North Carolina Hospitals (UNCH). UNCH is a part of the UNC Health Care System, which includes hospitals on the main Chapel Hill campus and other affiliated institutions throughout North Carolina (NC) (University of North Carolina (UNC) Health Care System, 2013). UNCH is an 803 bed facility that serves the 100 counties in NC, as well as regions to the Southeast, accounting for 37,000 patient visits a year (UNC Health Care System, 2013). UNCH is a state supported level III trauma center with research and teaching components. The UNC Health Care System has a vision "To be the nation's leading public academic health care system. Leading. Teaching. Caring (UNC Health Care System, 2013)." There are four components to the mission statement, which include a focus on meeting customer health needs through excellent service, provide leading programs with a research component, meet the needs of the people of NC, and maintain financial viability to be able to complete the mission (UNC Health Care Systems, 2013).

Sample

The population for this study was inpatient nursing staff at UNCH. The target population consisted of all levels of registered nurse (RN) staff, including clinical nurse I, II, III, and IV, and nurse manager. Clinical nurse I is the novice level in the professional practice model and clinical nurse IV is the highest level of expertise. The selected game dates were placed into the electronic learning system at UNCH and nurses self-selected to participate, as they do for other learning opportunities. Five games were held between September and October of 2014. Each

game includes a minimum of 12 participants and a maximum of 24 for a potential sample size of 60 RNs to 120 RNs.

Recruitment

The game dates and times were selected based on organizational need and resource availability. Once the dates were chosen a flyer was distributed to nurse managers within the organization with the title, dates, course code, and objectives of the learning activity through an electronic listserve. Distribution of the flyer in this manner was the standard method of advertising the activity. Nurses were recruited for this study based on those who signed up to play the game, therefore a convenience sample. One week prior to a game date the pre-survey was sent to the nurses who were registered for the class and the post-survey was sent to the same group of registered participants one week following game play.

Participants' responses were coded by the individual so that pre and post assessment data could be matched for data analysis while allowing for anonymity. Participants were asked to generate their own identification code by answering the following set of questions: first letter of own first name (A-Z), first letter of mother's first name (A-Z), first letter of the state you were born in (A-Z), birthday (01-31), birth month (1-12), last digit of your phone number (0-9). Participants were asked the same set of coding questions on each survey request including pre-survey and post-survey to allow the data responses to be matched for analysis.

This project was reviewed by the University of North Carolina Institutional Review Board (IRB) to assure the protection of human subjects. The project was approved on August 15, 2015 with IRB number 14-1767. IRB approved an embedded consent form provided in Appendix D. The embedded consent was part of both the pre- and post-surveys. Participants'

were informed that by clicking on the survey link and subsequently submitting their answers that they were consenting to participate in the study. The embedded consent was used to protect participant anonymity. The project was also reviewed and approved by the UNCH Research Council.

Instruments

Diagnosing Organizational Culture Instrument (DOCI). Perceptions of organizational culture were assessed pre- and post-game play using the DOCI (with permission from John Wiley and Sons Inc.; Appendix A) by Harrison and Stokes (1992). The DOCI included 15 questions designed to provide information about how people treat each other within the organization, their values, motivation, and the use of power within the organization (Harrison & Stokes, 1992). Each question began with a prompt followed by four sentence ending statements. Respondents were asked to rank the four sentence ending statements with a "4" next to the statement that most closely describes the way things are in the organization and a "1" next to the statement that is the least descriptive of the organization (Harrison & Stokes, 1992). Respondents were asked to provide answers for the existing culture, which is the way things are currently in the organization. They were then asked to answer the same 15 questions thinking about the way they would like things to be in the organization; this provided the score for the preferred culture.

The 15 items were categorized into four subscales of organizational culture: power, role, achievement, and support (Harrison & Stokes, 1992). For each question on the DOCI, the sentence ending statements are listed as a, b, c, and d. All "a" answers correspond to a power

culture, all "b" answers correspond to a role culture, "c" answers correspond to an achievement culture, and "d" answers correspond to a support culture.

A power culture is based on control of resources, like money, and working conditions (Harrison & Stokes, 1992). Leadership is paternalistic, firm but fair, and has an obligation to their subordinates. Drawbacks are that it can shift to rule-by-fear or an abuse of power. The role culture is about rules, procedures, and structure (Harrison & Stokes, 1992). Duties and rewards are explicitly stated and the organization and its' members adhere to this contract. Role cultures have order and consistency, but may have trouble keeping up with rapid environmental change and offer little autonomy or creativity to members. The achievement culture uses rewards and punishments to encourage behavior (Harrison & Stokes, 1992). Achievement cultures are often found in new, high energy situations like intensive care units and political campaigns. However, this high stress and high commitment environment can be difficult to maintain and members may suffer from disillusionment. The support culture is built on a foundation of mutual trust (Harrison & Stokes, 1992). Support cultures focus on member relationships and interactions. It is the least likely culture orientation found in business because it may lack the drive to survive.

The scores for each culture domain, power (a responses), role (b responses), achievement (c responses), and support (d responses), are aggregated to provide an overall culture index that indicated the degree of openness, trust, and empowerment within the organization (Harrison & Stokes, 1992). The total number of *a* and *b* responses were subtracted from the total number of *c* and *d* responses for both existing and preferred culture answers to provide a culture index score, which can then be compared to other participant scores. Harrison and Stokes (1992) provided information from their research to compare the average scores of 190 mid-level managers. Currently, there is no information on the reliability and validity of the tool.

Pre-assessment of the participant's perceptions of organizational culture using the DOCI was completed one week prior to game play via the DOCI. They were asked to answer both the existing and preferred culture assessments. Additionally, participants were asked to provide general demographic information, using the Demographic Data form (Appendix B) including age range, practice area, number of years as a nurse, number of years with the organization, and job class as part of the pre-survey.

Post-Assessment. Post-assessment included three components. One week after completion of the game and debriefing, the participants received a follow-up email to respond to the DOCI, answering the same questions as the pre-assessment via Qualtrics. Post-assessment, however, only included questions for the existing culture to determine if there was any change in perceptions of current organizational culture following the activity. In the second part of the post-assessment survey participants were asked about their perceptions of the personal impact of the activity. An 8 question Likert scale questionnaire was developed, the Impact Survey, for participants to reflect on the impact of the game play on their own practice. Each of the six questions was answered with a 5-point Likert scale with a space available for free text comments (Appendix C). Participants were also asked to provide their group finance and quality data that is determined after game play. The finance and quality data was then compared to job class, years at the organization, and DOCI scores to determine if there were any relationships that impacted group performance.

Data Analysis

Demographic data was analyzed via Qualtrics using descriptive statistics. Frequency distribution and percentages were calculated and reported for each demographic question listed

in Appendix B. One week post game play a survey, the Impact Survey, was emailed to all participants to examine the impact of the game on nursing practice using participant self-report. Data was collected using a 5 point Likert scale with the values 1-stongly disagree, 2-disagree, 3-neither agree/disagree, 4-agree, and 5-strongly agree. Descriptive measures, including means and standard deviations, for each were used to analyze the Likert items.

Pre- and post-assessment data were analyzed using descriptive statistics, mean and standard deviation, to analyze culture index scores from the DOCI and were examined by nursing job class and years of nursing practice. A two-tailed paired t-test was used to analyze pre- and post-game play data to determine if there was a statistical change in organizational culture perceptions before and after game play.

Each group that plays the game also calculates financial and quality scores. This supplemental data was used to examine correlations between the groups with higher scores and the makeup of the group associated with general demographic data. Pearson's Coefficient was used to examine the positive and/or negative relationships between group financial and quality scores compared to years of nursing experience and organizational culture scores from the DOCI.

Pearson's Coefficient was used to examine correlations between culture scores from the DOCI and years of nursing and job class. Data was examined to determine if the number of years on job or experience from job class has any impact on organizational culture scores.

Results

Five games were held between September and October with a total of 79 participants in the game *Friday Night at the ER*®. Fifty-three participants (67.1%) completed the pre-game

survey and a total of 40 (50.6%) completed both the pre- and post-game surveys. Reported data is from only those that completed both the pre- and post-game surveys.

Demographic Data

Demographic data included age group, gender, hospital service line, patient population, years as a nurse, years at the institution, and level on the clinical ladder. The majority of participants were 30-39 years of age (55.0%), female (90.0%), in the medicine service (77.5%), worked with adult populations (95.0%), and in the inpatient setting (92.5%). Fifty-five percent (55.0%) of participants had 0-5 years of nursing experience with 70.0% having worked at the institution for 0-5 years. All levels of the clinical ladder were represented with CNIs at 22.5%, CNIIs at 42.5%, CNIIIs at 15.0%, CNIVs at 17.5%, and nurse managers at 2.5%. Table 1 provides the demographics for the study group.

Table 1. Demographic Characteristics

Age Group			**Gender**			**Practice Area**		
	Frequency	Percentage		Frequency	Percentage		Frequency	Percentage
20-29	12	30.0%	Female	36	90.0%	Medicine	31	77.5%
30-39	22	55.0%	Male	4	10.0%	Surgery	5	12.5%
40-49	4	10.0%				Psychiatry	2	5.0%
50-59	2	5.0%				Oncology	1	2.5%
60+	0	0.0%				Cardiac	1	2.5%
						Neurology	0	0.0%
Practice Population			**Population**			**Years as Nurse**		
	Frequency	Percentage		Frequency	Percentage		Frequency	Percentage
Adult	38	95.0%	Inpatient	37	92.5%	0-5 years	22	55.0%
Other	1	2.5%	Outpatient	3	7.5%	6-10 years	10	25.0%
Women's Health	0	0.0%	Other	0	0.0%	11-15 years	4	10.0%
Pediatrics	1	2.5%				16-20 years	3	7.5%
						21-25 years	0	0.0%
						26-30 years	0	0.0%
						31+ years	1	2.5%
Years at Organization			**Job Class**					
	Frequency	Percentage		Frequency	Percentage			
0-5 years	28	70.0%	CNI	9	22.5%			
6-10 years	9	22.5%	CNII	17	42.5%			
11-15 years	2	5.0%	CNIII	6	15.0%			
16-20 years	0	0.0%	CNIV	7	17.5%			
21-25 years	0	0.0%	Nurse Manager	1	2.5%			
26-30 years	1	2.5%	Other	0	0.0%			
31+ years	0	0.0%						

Diagnosing Organizational Culture Instrument Data

The mean pre-survey cultural index score was 16.76 (SD 23.26) and the post-survey cultural index score mean was 22.45 (SD 25.68). For comparison, the preferred culture index score mean for the sample was 29.6 (SD 22.71). A two-tailed paired *t* test was conducted to determine if the change in mean cultural index scores was significant. While there was an improvement in the DOCI scores following *Friday Night at the ER*® game play, there was no statistically significant difference between the pre- and post- culture index scores (t=1.17, p = .25, p ≤ .05). Further descriptive statistics show the pre-survey median to be 19 and the modes to be 16, 22, and 40. The post-survey median was 25 and the modes 24, 34, and 56. A histogram of the pre- and post-survey data is included below in Figure 1 and frequency data are found in Table 2.

Figure 1. Pre-and Post-Survey DOCI Culture Index Scores Histogram

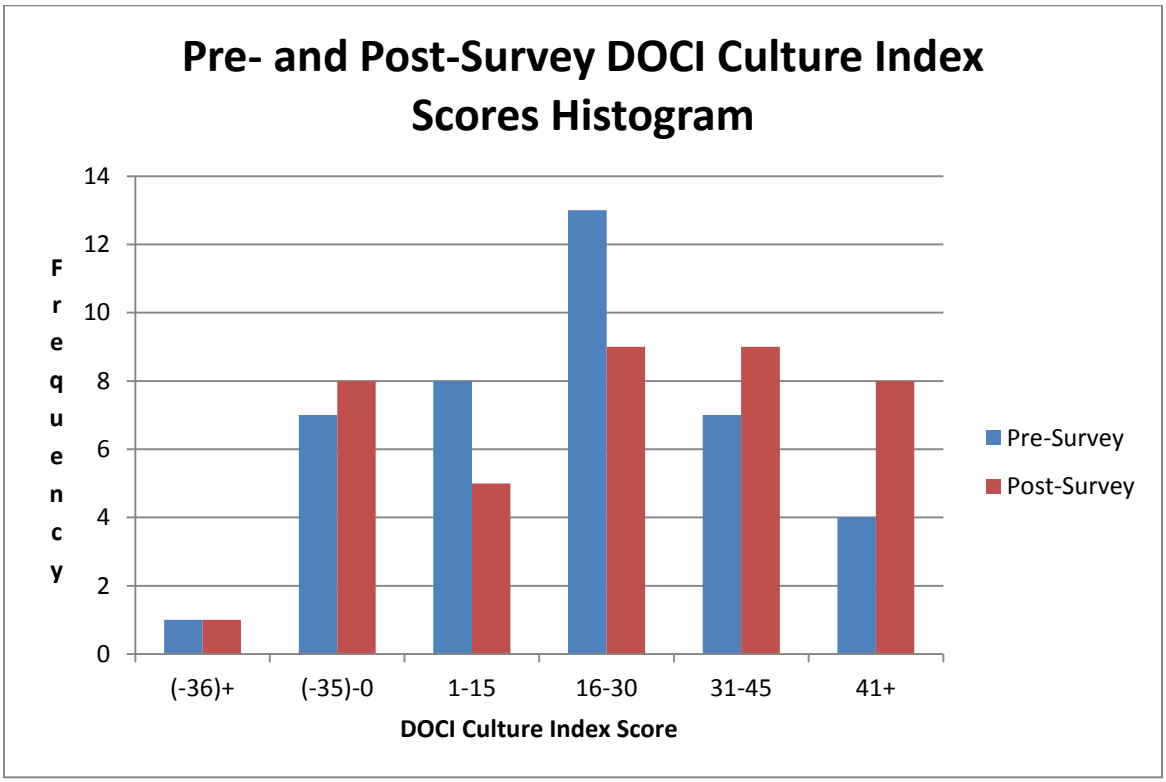

Table 2. DOCI Histogram Frequency Data

Pre-Survey DOCI Histogram Frequency Data		Post-Survey DOCI Histogram Frequency Data	
DOCI Culture Score	Frequency	DOCI Culture Score	Frequency
(-36)+	1	(-32)	1
-35-0	7	-35-0	8
1-15	8	1-15	5
16-30	13	16-30	9
31-45	7	31-45	9
46+	4	46+	8

Relationships Data

Pearson's Correlation Coefficient was used to examine relationships between years of nursing experience and finance and quality scores. Post-survey cultural index scores were also examined in relation to finance and quality scores. Sixteen of the forty participant surveys (40.0%) provided finance and quality data. None of these relationships proved to have significance at $p<.05$ (See Table 3). The scores, while not statistically significant, showed a weak inverse relationship between years of nursing experience and finance score and a positive relationship between years of nursing experience and quality scores. Cultural index scores showed weak inverse relationships with both finance and quality scores (See Table 3).

Table 3. Years of experience and cultural index score compared to finance and quality scores (n=16)

Relationship	r value	r2 value	p value	a value
Years of nursing compared to finance scores	-0.0672	0.0045	0.085267	0.05
Years of nursing compared to quality scores	0.2971	0.0883	0.263794	0.05
Cultural index scores compared to finance scores	-0.4824	0.2327	0.058671	0.05
Cultural index scores compared to quality scores	-0.2745	0.0754	0.304458	0.05

Pearson's Correlation Coefficient was also used to examine the relationship between years of nursing experience and clinical ladder level with post-survey cultural index scores. There was a weak inverse correlation that as years of nursing experience increases, post-survey cultural index scores decrease; this score is statistically significant at $p<.05$. The relationship between clinical ladder level and cultural index scores proved to be a weak inverse correlation that was not statistically significant at $p<.05$ (See Table 4).

Table 4. Years of experience, clinical ladder and cultural index score (n=40)

Relationship	r value	r2 value	p value	a value
Years of nursing compared to cultural index score	-0.3177	0.1009	0.045751	0.05
Clinical ladder level compared to cultural index score	-.192	0.0369	0.235271	0.05

Impact Survey

Eight questions in the post-survey, the Impact Survey, were asked of survey participants to elicit information about personal feelings regarding the impact of the game. The Likert scale used a 5 point rating system with the values 1-strongly disagree, 2-disagree, 3-neither agree/disagree, 4-agree, and 5-strongly agree. Table 5 provides the mean and standard deviations for each question. All questions on the Impact Survey had a mean rating above four. Participants either agreed or strongly agreed that the game was a useful experience, that they learned new things about the organization, and that they would recommend the activity to their colleagues. The lowest scoring items were that the participants made personal changes to their practice and that they felt better equipped to provide high quality patient care.

Table 5. Impact Survey Data

Question	Mean	SD
I feel that playing *Friday Night at the ER*® was a useful experience.	4.83	0.38
I have a better understanding of how different areas of the organization impact one another.	4.68	0.66
I feel that I have a better understanding of my personal role in managing organizational goals related to throughput, interdisciplinary communication, and patient safety since playing *Friday Night at the ER*®.	4.48	0.68
I feel that my actions impact the success of the organization.	4.58	0.59
I have made changes to my personal practice since playing the game *Friday Night at the ER*®.	4.28	0.96
I feel that I am better equipped to provide high quality patient care following the *Friday Night at the ER*® game experience.	4.25	1.0
I learned new things about UNC Health Care that I did not know before playing *Friday Night at the ER*®.	4.73	0.45
I would recommend the *Friday Night at the ER*® activity to my colleagues.	4.8	0.41

Survey Comments

The post-survey offered an opportunity for open-ended comments for participants to share their thoughts. The majority of comments were positive. Comments included:

"It was a great learning tool, lots of interactions."
"Great class. Recommend for everyone in the organization that deals with throughput to attend."
"Great fun and learned a lot about the way patients are transferred between departments."
"Great game. Very informative."
"I think the game is great and should continue to be used as an educational tool for all staff."

Halfway through game play, participants are told that the ER managers have been recruited to the hospital next door. Having participants change game tables in the middle of the game is a deliberate action. This is intended to have players experience an organizational change in the structure of their hospital. New ER managers may come with new ideas or different ways of playing/interpreting the game. It allows for discussion in the debriefing about how this change impacted game play and how staff manage such changes. One participant expressed frustration about being required to change tables in the middle of the game because he/she felt their performance would have been better with his original "hospital" team. Overall, these comments illustrate the value experienced by the staff and supported the use of the game as a tool for all staff to gain a better understanding of the organization and their own role in providing high quality, fiscally responsible patient care.

Discussion

The demographic data provides a great deal of information about the participants in the survey regarding *Friday Night at the ER®*. The sample was not as diverse as desired to be an accurate representation of nursing staff within the organization. Eighty-five percent of the nurses

were 20-39, resulting in nurses older than 39 significantly underrepresented. Ninety percent of the sample was female. While the male gender is underrepresented in the nursing profession as whole, 10% for this sample is still a small number of male respondents. It would be difficult to make any conclusions related to gender differences based on this breakdown of females and males in the sample. The nurses were overwhelmingly from the medicine service, worked with adult patient populations, and on the inpatient side of the hospital. It would be useful to seek out a more diverse sample including responses from more of the hospital services, pediatrics, and outpatient areas of the hospital. The results may be different if more areas were represented within the sample. Eighty percent of the respondents had 0-10 years of experience. This is particularly problematic for study questions that were focused on differences between years of nursing and other indicators. Nurses with the greatest amount of experience (11-31+) are underrepresented and this impacts the study questions. There may have been no statistically significant relationships found merely from the lack of higher experienced nurses in the sample. Seventy percent of the sample had been with the organization for less than five years. This could impact their view of the organization's culture, particularly nurses that have one year or less of experience, as they may not have had the chance to fully understand and experience the subtleties of the culture. There was representation from all job classes (CNI, CNII, CNIII, CNIV, and nurse manager) with the most respondents being a CNII. Level within the organization can impact organizational culture perceptions, with executive staff more in line with the espoused values of an organization. Results may have been impacted by the underrepresentation of CNIVs and nurse managers.

Study Questions

1. What is the impact of the experiential learning game *Friday Night at the ER*® on perceptions of organizational culture as measured by the Diagnosing Organizational Culture Instrument (DOCI)?

The data did not produce a significantly different mean score on the Diagnosing Organizational Culture Instrument for the pre- versus the post-survey. This could mean that playing the game *Friday Night at the ER*® did not change or alter the perceptions of organizational culture for the participants. Organizational culture is a very difficult construct to measure as it contains many different concepts including communication, teamwork, management, structure, etc. Davies, Nutley, & Mannion (2000) state that there are often competing interpretations of organizational culture with no consensus on the definition of organizational culture, citing one review that offered up to 15 different definitions of the construct.

The DOCI tool may have been ineffective at measuring the construct of organizational culture. It was a long survey and reading intensive for participants. Several participants started the survey but did not finish, likely due to the length/time. Those who finished the survey may have tired and become less attentive to prompts as they progressed through the lengthy survey questions which could have skewed the results. The DOCI allowed for mathematically positive and negative scores, which correspond to types of organizations. The different types of organizations are not inherently negative or positive but reflect certain ways of communication and leadership. This project did not take into account what type of organization participants preferred. It may have been useful to address the data in different ways that included an analysis

of preferred culture to the perception of actual culture. The pre-survey asked participants to not only report on the existing culture but also on their preferred culture. The data could be examined to see if participants had post-activity culture index scores that were more aligned with their scores for preferred culture. If after the activity participants moved more in line with what they feel is the preferred culture then that may be an acceptable and valuable change. As culture is a very personal and individually experienced construct it may be more important that employees feel that an organization is aligned with their values, and that those positive feelings will then lead to effective and efficient actions on the part of the employee. The survey also asked for a ranking from 1-4 with 4 as the "most like" current culture. The use of the number 4 for the most like something may have been counterintuitive for some participants. It is quite possible that participants ranked backwards from what they really thought due to confusion of the ranking system and thus produced very negative numbers on the DOCI when perhaps they meant something different. There were a few instances when a pre-survey score was a low positive and the post-survey score was very negative, which could lead to the possible conclusion of confusion with the scale. Some participants commented that they misunderstood the survey and ranked items using the same number more than once. For example, if they felt that all items were equally important they used the number 4 for each ranking instead of choosing 1-4 for each set of items. Those surveys were not used for the data of this project, but if the instructions had been more explicit the N may have been higher.

It is also possible that unit subcultures interfere with clean scoring on an organizational culture survey. While participants were asked to rate their organization as a whole, for some people their only experience within that organization is from a micro perspective at the unit level. Unit level cultures can be very different and may not always accurately reflect a more

global organizational perspective. Subcultures can react to inputs to the system differently, with some subcultures more open to change while others are less malleable (Davies, Nutley, & Mannion; 2000). Thus, unit subcultures could impact the way the participants viewed and processed the information provided by game play in different ways.

The N for this sample is small considering the number of staff nurses eligible to play the game within the organization. The scores do trend to a more positive number and it may be that if the N was larger the trend would continue and become significant. While ultimately these results were not statistically significant, it is promising to note that the scores had a positive trend after game play. This suggests that participants perceived the existing culture as more achievement and support oriented after completing *Friday Night at the ER®*.

The real value of this game and debriefing may be the sharing of information and knowledge. There can be significant challenges and delays in communication in all organizations, particularly in large organizations, and finding new ways to deliver the volume of information is important for promotion of effective change. Providing guided reflection on what the impact of their actions are on the organization and the care of patients allows the participant to bridge the game experience to areas of their real life practice. Allowing conversations to examine a variety of perspectives about patient care and flow is one of the meaningful impacts of the game.

It is also important to note the DOCI score is not saying that a culture is more negative or positive than another. The scores that are provided can be negative or positive which indicates whether a culture is more of a power/role culture or an achievement/support culture. Power/role cultures are more structured, rule-bound, and paternalistic (Harrison & Stokes, 1992).

Achievement/support cultures focus more on member relationships, high-energy, and mutual trust (Harrison & Stokes, 1992). All culture types have positive and negative aspects. For this project, the underlying belief is that health care organizations need to find a balance of behaviors that are more in line with achievement/support cultures in order to be able to respond to and survive the particular pressures and changes inherent in the health care system in the United States. A focus on staff, through knowledge, skills, and support, will hopefully lead to increased patient safety and efficiency within the system. Thus the focus is on the mathematically positive scores from the DOCI as the positive scores represent the achievement/support culture in the survey design.

2. What are the differences in organizational culture perceptions following game play based on job class and years of nursing practice?

There were no statistical differences between DOCI scores based on job class of CNI, CNII, CNIII, CNIV, and Nurse Manger. The sample was predominantly CNII level nurses. With a disproportionate breakdown of job classes it is difficult to make conclusions using this data set regarding whether or not job class impacts organizational culture perceptions. It could be hypothesized that the higher the job class the higher/more positive the DOCI score. As staff achieve higher administrative levels within the organization they are often exposed to a wider view of the organization. They are able to interact with more people, both internal and external to the organization. They have increased responsibilities that necessitate working and communicating with more parts/departments of the organization. This change in understanding of the organizational goals related to position could increase the perception of fit between actual and preferred culture perceptions. Additionally, as nurses advance in leadership roles and

responsibility it is conceivable that their preferred culture aligns more strongly with the actual culture.

There was a statistically significant negative inverse relationship between years of nursing and DOCI score. As years of nursing experienced increased the DOCI score decreased. It is not entirely surprising to see a negative inverse relationship between years of nursing and organizational culture scores. It is possible for people to become jaded or dissatisfied the longer they function within a system. Systems change and health care in particular changes often and quickly. Nurses experience many changes with their practice and in their environment. The longer they are a nurse the more dissatisfied they may feel over time.

3. Do groups with higher scores on finance and quality have higher cultural index scores?

There were no significant relationships between finance and quality scores when compared to DOCI scores. Only 40% of survey respondents provided their team quality and finance scores from game play. Of those 40%, it is possible that participants wrote incorrect scores into the survey. This question was asked on the post-survey sent one week following game play. Participants may not have remembered their scores accurately. Some participants may have misreported because they wanted to be sure that they could not be identified by their answers. This data set comes with issues of inaccuracy due to recall bias or personal/participant bias. Several participants commented that they could not remember their scores from game play. It would have been useful to have a way to record these scores for participants to aid in recall; however, the data provided revealed insignificant and weak relationships. As nursing experience increased finance scores decreased while quality scores increased. In the game low quality and finance scores represent the best use of money and higher quality. Perhaps nurses with

increasing experience are more cognizant of the cost of different throughput choices, which impact game scores. This is due to roles such as charge nurse that are typically accompanied with increasing experience. A hypothesis would have been that as years of nursing experience increase both quality and finance scores would decrease due to personal experiences within the system through committee involvement, leadership roles, or other educational activity experiences. Cultural index scores showed weak inverse relationships with finance and quality scores. A possible explanation is staff with higher cultural index scores felt more comfortable making the decisions believed to be right for the patients using the information available to them without an overarching concern or focus on the financial and quality scores.

4. What impact does *Friday Night at the ER*® have on patient care as measured by staff report on a post-game survey utilizing a Likert scale?

The staff response to the Impact Survey questionnaire was overwhelmingly positive for all questions. The lowest scored question was whether the staff felt more prepared to provide high quality patient care following this experience. The overall response was positive with 82.5% agreeing or strongly agreeing that they felt more prepared to provide high quality care. It is possible that the links between throughput, strategic thinking, and organizational versus personal/unit goals to the provision of high quality patient care was not explicitly stated or understood by staff through completion of the activity. The above topics are discussed in the debriefing but staff may be more focused on the provision of technical skills in relation to patient safety and quality. Looking at patient safety through an organizational lens may require more educational activities to make the connection clearer for staff. Particularly as nurses are often trained and oriented with a focus on technical skills and unit level functions.

Ninety-five percent (95%) of respondents felt they better understood how different areas impacted one another, their role in managing organizational goals, and their actions impacted the success of the organization. It is important for staff to both understand and feel a sense of personal responsibility to the organization and to improving processes related to patient safety, most notably communication. Eighty-seven point five (87.5%) percent of respondents rated favorably they made changes to their practice following the learning activity. This may be the most important question on the survey. The goal of the activity is provide participants with a better understanding of how the organization must work together to provide the most efficient and effective patient care and how each person's actions impact the functioning of the whole system. If no one reflects on his/her practice and makes changes as a result of this reflection, then the activity remains a cerebral rather than a practical exercise, perhaps making no impact on the organization despite the time and resources devoted to the activity. The game and subsequent debriefing is intended to assist staff to reflect on the ways in which each individual can improve the provision of care within the system. For example, staff often mentioned they did not realize the importance of taking report in a timely manner so that patients can be moved through the hospital. This is one way that staff may change their practice and impact the patient experience. It is reassuring that the majority of respondents reported they had made a personal change in their practice.

The post-survey was sent one week following the game. It is certainly possible that one week is not a sufficient amount of time for participants to feel they had the chance to change their practice. There could also be an organizational concern that changes made by staff are not desired or positive. The question does not capture any information about the type of change or the manner in which it is operationalized by staff. Again, culture is a personal construct that is

shaped by each individual interpretation of the material. It is important that staff do not walk away with an unintended or misunderstood message.

Participants unanimously felt that the activity was useful, they learned new things about the organization, and would recommend the activity to colleagues. An expected outcome of the project was that participants' actions would be impacted by the new and useful information obtained during the activity. It is more important that the participants felt that the learning activity was a useful exercise for their practice than to be overly concerned with their organizational culture score.

Limitations

One limitation to this project is the small sample size. There is a limit to the class size for each game as the organization has six game boards. None of the five games held for this project were full. And not all participants registered to play showed up for the class further reducing the number of potential survey participants. The sample size, as well as the lack of diversity in the demographics, limits generalizability. The participants self-selected and present a potential bias.

The survey choice of the DOCI may also have limited both participation and data. The survey requires a ranking of statements which requires an average completion time of 20 minutes. There were several partially completed surveys indicating that some people may have stopped or run out of time to complete the survey. It also involved a ranking system in which the number four indicated the item that a person identified with most closely. It is possible that this is counter-intuitive for some people with the result that some participants may have ranked the statements in the opposite; using the number one to indicate the statement most identified with on the list.

Debriefing by design is learner-led and while there were commonalities in the plan for debriefing, each class debriefing varied and may have affected the experiences of the participants. Thus, classes that were more interactive may have felt they had a more profound experience than classes that were less participatory during the debriefing period.

One concern is the ability to repeat outcomes, as this type of intervention may be affected by the facilitators and influenced by the prevailing/current organizational culture. Another concern is the potential influence of possible mediating factors on perceptions of organizational culture rather than the intervention.

Future Implications

Currently in this organization the game is played only within the nursing department. There may be value in expansion of the gaming activity to other departments within the hospital. The game and subsequent debriefing focus on how different units affect the function of the whole and the importance of communication in the provision of effective and efficient care. These issues affect care throughout the entire hospital. Expanding the game to include other departments and disciplines could enrich the experience for all participants. It could serve to open communication among different members of the health care team and increase understanding through the first-hand relation/explanation of different points of view. Work is accomplished in interdisciplinary teams and training and education should reflect the interdisciplinary makeup of the teams. Davies, Nutley, and Mannion (2000) agree that disciplines often conceptualize problems in different ways and emphasize that health care teams are beginning to find shared values in a focus on patient care, a belief in evidence based practice, and a willingness to openly discuss quality issues. The game *Friday Night at the ER*®

capitalizes on these shared values and can serve as an opening to interdisciplinary and interprofessional communication and increase understanding of health care issues.

Learners often embrace simulation and gaming as experiential learning techniques. The Likert responses from this project validated that the experience was useful to the participants. There are limited opportunities for staff to learn about and discuss organizational issues and goals. Another future goal is to provide a series of educational activities aimed at increasing staff understanding of organizational function and expectations. Davies, Nutley, and Mannion (2000) emphasize the importance of providing a coordinated series of activities with a consistent message of cultural values in order to promote culture transformation; an isolated activity is unlikely to produce lasting change. Staff will perform better if armed with more information and knowledge about how to provide safe and effective care within a system framework. The organization also learns from these activities as staff identify both successes and areas for improvement that may not be well known or noticed by executive management. The perception of organizational culture varies depending on one's role and position; therefore, the opportunity to hear, understand, and discuss the staff perspective serves to strengthen the whole of the organization.

Future studies should focus on overcoming limitations to current research such as small sample sizes, non-random assignment, and often no comparison to baseline or to a control group. Work on developing tools that assess organizational culture aspects and perceptions that are quick and easy for participants to use is also needed.

Dissemination Plan

The dissemination plan is aimed at sharing and expanding this project within the organization, UNC Health Care. The focus for dissemination is that a low cost educational intervention, like *Friday Night at the ER®,* can improve staff understanding of organizational goals, which are important for promoting and improving patient safety. This project addresses lack of knowledge among staff and communication issues within an organization that can affect the provision of safe patient care. The most promising trend is the positive movement of cultural index scores which are indicative of organizations that embrace achievement and support, focus on mutual trust, and member relationships. This project is unique because there is little research into low cost educational activities that address aspects of organizational culture, even though organizational culture is recognized as important to efficient system function. In addition to being low cost, the activity has easy sustainability with a focus on task issues and a low risk for participants and the organization. The game is relevant to current issues in healthcare and supports the organization's mission of providing quality care.

The primary end users are staff within the health care system. Current end users are staff nurses at all levels of the organization and from any department. However, the goal is to encourage end users from all different departments; such as physicians, pharmacists, and financial analysts, etc. The provision of health care happens within an interdisciplinary framework and education efforts can be strengthened by reflecting the interdisciplinary make-up of the teams. Managers and executive level staff are both primary and secondary end users. They are primary if they take part in the educational activity. They become secondary end users (champions) as they send staff to the activity with an expectation and goal that it will enhance staff efficiency and productivity at the bedside.

The Likert survey completed by end users as to their perceptions of the use of the game as a teaching activity to improve patient care is one way that end users have been included in the dissemination efforts. This survey showed that participants found value in the activity, which provides beginning support for its use throughout the organization. Nurse Managers and the internal network of department leaders as stakeholders are able to help disseminate information. The nurse managers have direct influence over nursing staff and have seen personal impact of the game on their staff members and unit. The internal network of department leaders is necessary to assist with the spread of the activity to other departments outside of nursing.

The communication of results will be a two-fold action plan. The first part of the plan is to provide a presentation of this project and subsequent results at a monthly internal department heads meeting. Leaders throughout the organization gather each month to discuss various hospital issues and projects. It is an opportunity to reach the majority of organizational leaders at one time. A presentation would allow leaders to review the project, results, and ask questions. The second part of the communication plan would be to hold two short thirty minute sessions within the organization where leaders could come and view or experience the game. It is challenging to truly see and understand the value of the game without the opportunity to touch and experience it.

Potential obstacles in disseminating this research include leader and staff buy-in, and time/resource constraints. Leader and staff buy-in are important for participation in the activity. This will hopefully be mitigated by sharing the results of this project throughout the organization. Also, word of mouth from those that have experienced the game can help increase buy-in. As the intended outcome for this project is interdisciplinary it would be of great benefit to increase facilitators to include other disciplines.

The dissemination plan will be evaluated by tracking participation and surveying staff and leaders. Tracking participation would include number of staff, which departments were represented, and facilitators/games. An increase in the number of participants, the departments that participate, and facilitators and game offerings would indicate that the organization and staff are embracing the activity. It may also be useful to survey the staff that participate and organization leaders periodically to receive their feedback on the activity and its utility to practice, to ensure that it remains relevant and useful. This would serve to incorporate feedback from both end users and partners.

Dissemination beyond the organization will be through presentation at a national conference and manuscript development and publication.

Conclusion

Although the project questions yielded one statistically significant response, the trends represented by the data indicate the *Friday Night at the ER*® learning activity offers promise as a useful teaching tool within health care to focus on and perhaps change staff perceptions about communication, strategic/systems thinking, personal roles and responsibilities, and teamwork. The most promising trend is the positive movement of cultural index scores which are indicative of organizations that embrace achievement and support, focus on mutual trust, and member relationships. These positive scores increased following an inexpensive educational activity. This demonstrates the benefit of staff exposure to information and activities outside of their usual work area to promote expansion of understanding of their role within the system. Staff also indicated through their responses to the Impact Survey questions that they both enjoyed and learned from the activity. Overall staff agreed that they learned new things about the

organization, felt better prepared to give patient care, and made changes to their practice following the activity.

The board game *Friday Night at the ER*® can be used to capitalize on team training and experiential learning techniques to change attitudes. It is expected that this project will lead to improved organizational culture that translates into increased quality of care and patient safety. The innovation is low cost, easy to sustain for the organization, focuses on task issues, and has low risk for participants and the organization. The innovation is relevant to current issues in healthcare and supports the organization's mission of providing quality care.

Most importantly, this project offers beginning evidence for the use of low cost experiential learning activities to increase communication and knowledge sharing among staff. The importance of technical skill acquisition in health care professionals is not disputed. However, it is becoming increasingly important that staff are also offered the opportunity to learn about organizational aspects of health care that impact the way care is provided to patients within the system. Health care teams are expected to work together to offer cohesive, effective, and efficient patient care. But often health care professionals are trained and educated by discipline rather than interprofessionally. This game provides a beginning platform for health care teams to come together to explore biases and assumptions in order to find more effective team processes, which will ultimately benefit and improve patient care.

Appendix A: Permissions

Friday Night at the ER®

Hello Megan:

Nice to hear from you on how Friday Night at the ER® is being used at UNC Health Care and that you've found it to be a great tool for use with your nursing staff. Breakthrough Learning hereby grants you permission to use Friday Night at the ER® as part of your doctoral research/publication with the understanding that you will send us a copy of your thesis, as we'd be interested to learn from your method and findings. As far as we're aware, there have been no other formal studies done on the game. Best of luck on your Doctorate project!

Regards.

_____

Sue Woolsey

Breakthrough Learning, Inc.

17800 Woodland Ave. | Morgan Hill, CA 95037

Email: swoolsey@blearning.com | Website:http://www.FridayNightattheER.com

Diagnosing Organizational Culture Instrument

Thank you for your recent permission request, which was reviewed and approved by John Wiley and Sons

Order Details

Licensee: Megan O'Connor

License Number: 3512510189435

Publication: Wiley Books

Title: Diagnosing Organizational Culture Instrument

Appendix B: Demographic Data

1. What is your age?

20-29

30-39

40-49

50-59

60+

2. What is your gender?

Female

Male

3. What best describes your practice area?

Medicine

Surgery

Oncology

Cardiac

Neurology

4. What category further describes your practice area?

Adult

Pediatric

Women's Health

5. What is your practice area?

Inpatient

Outpatient

Other

6. How many years have you been a nurse?

0-5 years

6-10 years

11-15 years

16-20 years

21-25 years

26-30 years

31+ years

7. How many years have you worked for UNCH?

0-5 years

6-10 years

11-15 years

16-20 years

21-25 years

26-30 years

31+ years

8. What is your job class?

Clinical Nurse I

Clinical Nurse II

Clinical Nurse III

Clinical Nurse IV

Nurse Manager

Other

Appendix C: Impact Survey

Circle your response:

1 strongly disagree	2 disagree	3 neither agree or disagree	4 agree	5 strongly agree

1. I feel that playing *Friday Night at the ER*® was a useful experience.
   1 2 3 4 5

2. I have a better understanding of how different areas of the organization impact one another.
   1 2 3 4 5

3. I feel that I have a better understanding of my personal role in managing organizational goals related to throughput, interdisciplinary communication, and patient safety since playing *Friday Night at the ER*®.
   1 2 3 4 5

4. I feel that my actions impact the success of the organization.
   1 2 3 4 5

5. I have made changes to my personal practice since playing the game *Friday Night at the ER*®.
   1 2 3 4 5
6. I feel that I am better equipped to provide high quality patient care following the *Friday Night at the ER* game experience®.
   1 2 3 4 5

7. I learned new things about UNC Health Care that I did not know before playing *Friday Night at the ER*®.
   1 2 3 4 5

8. I would recommend the *Friday Night at the ER*® activity to my colleagues.
   1 2 3 4 5

Additional Comments:

Appendix D: Consent Form

My name is Megan O'Connor and I am a Doctorate of Nursing Practice student at the University of North Carolina at Chapel Hill. I am conducting a research study, in partial fulfillment of my degree requirements, on the impact of experiential learning programs like the game, *Friday Night at the ER*®, which you are taking on 10/16. I am serving a dual role, both as game/course facilitator and researcher. The purpose of the research is to determine the benefits of this educational activity to the health care system using 2 surveys.

You can participate in the game *Friday Night at the ER*® even if you do not choose to fill out this survey. You will not be asked if you have participated in the survey at any point during the educational offering.

The survey, which will ask you questions about your views of organizational culture, as well as demographic questions, should take less than 20 minutes of your time and is voluntary. You may stop taking the survey at anytime, and you may skip any question for any reason. I will only be collecting survey data and scores, not any comments made during game play and debrief. You will not receive any direct benefit from being in this research study. The only possible risk to you of participating in this research study might be embarrassment if your answers became public, but that is very unlikely. All possible measures have been taken to protect the confidentiality of your answers. The link to the survey is at the bottom of this email.

I will report only summaries of the aggregated data. This means that your responses will be combined with all of the other responses received and will not be able to be identified as yours. Deductive disclosure which is the discerning of an individual respondent's identity and responses through the use of known characteristics of that individual is also possible but unlikely.

If you have any questions regarding this survey, you may contact me via email at mpenland@email.unc.edu.

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have any questions or concerns regarding your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at (919) 966-3113 or via email at IRB_subjects@unc.edu with study number 14-1767.

Who is Sponsoring this Study?

This research is being supported by the School of Nursing as Megan O'Connor, the principal investigator, is a student at the School. In addition, Ms. O'Connor is also employed as a Patient Services Manager at UNC Hospitals. Her work for the Hospitals is separate this research study. She will not be sharing any identifiable details with UNC Hospitals but only the final results of her study.

A committee at the University of North Carolina at Chapel Hill has reviewed these arrangements. They concluded that it is important that you are informed that the principal investigator is also an employee of the Hospital. If you would like more information, please ask the researcher or her faculty advisor, Gwen Sherwood.

By clicking here https://unc.az1.qualtrics.com/SE/?SID=SV_7OnttHfC16h8hE1 and completing the survey, you agree to be a participant in this study.

Thank you,

Megan O'Connor

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