ABSTRACT

BAIRD, BONNI LYNN. The Mediating Effects of Basic Psychological Needs at Work on the Relationship Between the Dimensions of the Learning Organization and Organizational Commitment in Registered Nurses. (Under the direction of Dr. Timothy Hatcher.)

The purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness, on the relationship between the Dimensions of the Learning Organization and affective and normative organizational commitment in the United States nursing population. The study incorporated Marsick and Watkins (2003) Dimensions of the Learning Organization Questionnaire-Abbreviated, Meyer and Allen’s (2004) Three Component Model of Employee Commitment Questionnaire-Abbreviated, and Ryan and Deci’s (1998) Basic Psychological Needs Scale-Work. Participants were a purposeful sample of 870 registered nurses from seven, state-based professional nursing organizations located in the United States. Data analysis provided validity and reliability findings for all three instruments, two of which, the DLOQ-A and BPNS-W, had not previously been used exclusively with RNs in the United States. Regression analysis and SEM findings demonstrated that autonomy and relatedness partially mediated the relationship between the Dimensions of the Learning Organization and both affective and normative organizational commitment: competence was not a significant mediating variable. This study demonstrated that the dimensions of the learning organization met the need for autonomy and relatedness at work, which increased the affective and normative organizational commitment of nurses. This impacts healthcare organizations and HRD by providing validity and reliability for the DLOQ-A, BPNS-W and TCMQ-A for use with registered nurses in the U.S. and also provides a study design and findings that can be used to shape future research and learning organization implementation.
The Mediating Effects of Basic Psychological Needs at Work on the Relationship Between the Dimensions of the Learning Organization and Organizational Commitment in Registered Nurses

by
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A dissertation submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the degree of Doctor of Education

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DEDICATION

This is dedicated to nurses and other healthcare professionals who do so much to make a difference in the lives of so many.
BIOGRAPHY

Bonni Baird has held positions in training management, human resources, and career development in various industries during her career. She has also consulted in organizational development, instructional design, and leadership development, and has taught adults in different business sectors across the United States. Ms. Baird has an Ed.D. in Adult and Community College Education from North Carolina State University, where she was a member of Phi Kappa Phi national academic honor society. She also has masters’ degrees in Counseling and Human Resource Development from Webster University in St. Louis, Missouri and a bachelor’s degree in Psychology from Westminster College in Fulton, Missouri. She is a National Certified Counselor, has Senior Professional in Human Resources certification (SPHR), and is Myers-Briggs certified.
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Completing a graduate degree is a long and arduous journey. Fortunately I didn’t have to make it alone and owe thanks to many for the support and encouragement I received along the way.

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I’d like to thank my mom, Janice, who taught me perseverance by example and always believed in me. She told me two things that stuck with me throughout this process: “get your education” and “you can do anything if you put your mind to it”.

I owe special thanks to my husband, Bob, for his support when I decided to take my mom’s advice and pursue not only this degree but the last master’s degree as well.

Last but not least, I’d like to thank my Committee, without whose guidance, encouragement, and expertise I would have been lost while completing this dissertation.
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Chapter One

Introduction

This chapter introduces the study with a discussion of the nursing shortage in the U.S., its effect on patient health and safety and the importance of organizational commitment in stabilizing the nursing workforce. This discussion is followed by an overview of how person-environment fit supports the use of the learning organization as a means to increase organizational commitment in the workplace. The chapter then introduces other key elements of the study, including the purpose, problem statement, theoretical and conceptual frameworks, and research hypotheses.

Nursing Shortage

Research has indicated that low RN-to-patient ratios and low nurse turnover rates lead to better patient safety and health outcomes (Aiken, Sochalski, & Lake, 1997; Aiken, Sloane, Cimiotti, Clarke, & Flynn, et al., 2010; Gelinas & Bohlen, 2002; Pronovost, Jenckes, Dorman, Garrett, & Breslow, et al., 1999; Sovie & Jawad, 2001). However, it has been a challenge for hospitals and other healthcare institutions to maintain staffing levels and ratios because the U.S. has been facing a nursing shortage for over a decade (U.S. Government Accounting Office, 2001; U.S. Division of Health and Human Services, 2010). This is true despite the recent economic downturn in the U.S. as the healthcare industry has continued to add jobs while other industries have experienced layoffs (U.S. Bureau of Labor Statistics, 2012). In fact, 295,000 healthcare jobs were added to the U.S. economy in 2012, 44,000 of those in September alone (U.S. BLS, 2012). This nursing shortage is predicted to intensify in years to come as 581,000 RN jobs are expected to be created in the U.S. by 2018 (American
Meanwhile, the current nursing workforce will begin to retire as the large U.S. baby boomer population continues to age thereby placing an increased demand on the healthcare delivery system (American Hospital Association, 2007). The nursing shortage in the United States is further complicated by the present day world of work, which is marked by a global economy and flatter organizational structures that more readily engage in right-sizing via layoffs and restructuring to remain competitive (Baruch, 2004; Herr, Cramer & Niles, 2004; McDonald & Hite, 2005; Millward & Kyriakidou, 2004). Though nursing is a hands-on occupation, which has helped to insulate it from the threat of job loss to global outsourcing, particularly when compared to other industries in the United States such as manufacturing, it has not been immune to the restructuring and layoff trends of the 21st century workplace (Curtin, 2003; McDermott, Spence-Laschinger & Shamian, 1997; Laschinger, Finegan, Shamian & Casier, 2000). For example, inpatient hospitals have rewritten patient care protocols to utilize fewer registered nurses and more nurse aides or assistants to provide direct patient care in an effort to reduce costs (Curtin, 2003). Nursing management hierarchies have been flattened thereby increasing the responsibilities of all nursing personnel in the hospital setting (Curtin, 2003), and technological advances have contributed to the idea of being able to do more with less though requiring the maintenance of a lean, well-trained workforce (Curtin; Laschinger, et al., 2000; Laschinger & Finegan, 2005; McDermott, et al., 1997).

Given these new trends some may question the need for organizational commitment in the present day world of work, where restructuring and employee movement from position to position are the norm. However research suggests that these types of arrangements are not...
easily managed in the healthcare industry because as previously noted, nursing turnover has been associated with patient safety and health outcomes. For example hospitals with higher turnover rates among nurses have reported longer lengths-of-stay, higher mortality rates and higher costs per patient discharge than hospitals with lower nurse turnover rates (Aiken et al., 1997; Gelinas & Bohlen, 2002; Pronovost, et al.,1999). Studies have also shown that hospitals using fewer registered nurses to deliver direct patient care had higher incidents of patient falls and decreased satisfaction with pain control (Sovie & Jawad, 2001).

A major study conducted by the Healthcare Resources and Services Administration (HRSA) in 2001 involving five million patient discharges from 799 hospitals in 11 states demonstrated that a lower registered nurse-to-patient ratio, meaning fewer patients assigned per registered nurse, resulted in a 3% to 12% reduction in complications such as urinary tract infection, pneumonia, shock, upper gastro-intestinal bleeding, cardiac arrest, sepsis and a reduced length-of-inpatient-stay (Needleman, Buerhaus, Mattke, Steward & Zelevisnksy, 2002). Higher registered nurse hours of care when compared to other nursing staff, such as nursing assistants, has also been significantly positively related to patient mortality. A study involving over 200,000 patients revealed that patient mortality increased 7% for every patient over four added to the caseload of one registered nurse (Aiken, et al., 1997).

Aside from health and safety outcomes, nurse turnover also has financial consequences. For example, it has been estimated that turnover costs employers between $22,000 and $64,000 per nurse (Jones & Gates, 2007). The variability in this expense is associated with a variety of items, such as recruiting/advertising, temporary nurse salary, sign-on bonuses for new hires, orientation and training cost, down-time/lost productivity, low
morale and lost organizational knowledge (Jones & Gates, 2007). Thus turnover drives up the cost to deliver healthcare, which ultimately gets passed along to the consumer.

**Importance of Organizational Commitment in Nursing**

Organizational commitment has been identified as one of the most important work related concepts that contributes to a reduction in turnover among nurses (Meyer, et al., 2002; Tett & Meyer, 1993). A comprehensive literature review of 23 empirical studies of organizational commitment in nursing found that emotional or affective organizational commitment was cited more often as a significant predictor of turnover among nurses than job satisfaction (Wagner, 2007). High or strong affective/emotional organizational commitment has also been associated with in-role work performance, reduced tardiness and absenteeism and going above and beyond at work while low affective organizational commitment has been associated with the opposite of these (Allen & Meyer, 1990; Almost & Laschinger, 2002; Laschinger & Finegan, 2005; McDermott, et al., 1997; Nazarey, 2001; Wagner, 2007; Williams & Anderson, 1991). Organizational commitment has also been found to be the primary variable associated with nurses’ ability to manage stress and job dissatisfaction during restructuring (Begley & Czajka, 1993) and has been connected to employee well being (Meyer & Maltin, 2010). Therefore, increasing the organizational commitment of nurses has been identified as the goal to achieving reduced turnover and creating a stable workforce that is better able to care for patients (Wagner, 2007).
Person-Environment Fit

Person-environment fit, which focuses on matching employees to their work environment, provides one means for determining how best to adapt the work setting for the purpose of influencing or increasing organizational commitment. It posits that fit influences employees’ decisions at critical points during their tenure with an employing organization, including joining that organization, deciding to quit and finally, actually leaving the organization (Gregarus & Diefendorff, 2009). Researchers believe that the reason fit has so much influence is because the work environment fulfills employees’ work-related needs.

The relation between fit and attitudes is predicated on the reasoning that when there is fit, the environment affords individuals the opportunity to fulfill their needs . . . Need fulfillment results in favorable attitudes, such as job satisfaction and organizational commitment (Arthur, Bell, Villado & Doverspike, 2006, p. 787).

A meta-analysis of factors related to turnover revealed that person-environment fit, wherein the environment meets the needs of employees, was a better predictor of employee turnover than job performance, suggesting that employees whose values and goals don’t match those of the organization were more likely to seek employment elsewhere (Arthur, et al., 2006). This suggests that need fulfillment mediates the influence of the work setting on job-related outcomes such as performance, satisfaction and commitment to the organization. One theory in particular that emphasizes the importance of need fulfillment by the environment is self-determination theory (SDT) (Deci & Ryan, 2000; Ryan & Deci, 2000).
Basic Psychological Needs at Work

Self-determination theory (SDT) is a needs-based motivation theory that focuses on the importance of internal or intrinsically driven growth and behavior regulation rather than on growth and regulation that is controlled or influenced externally (Deci & Ryan, 2000). SDT posits that people who are internally motivated as opposed to motivated by something external to themselves or outside their own thinking are more likely to demonstrate “enhanced performance, persistence, and creativity” (Deci & Ryan, 2000, p. 69) and to have the inherent drive to seek out new experiences and learn. The more internally driven or intrinsically motivated an individual is compared to being externally driven, the more likely they are to persist, perform and engage in creativity.

Ryan and Deci (2000) identified intrinsic motivation as the single, most important factor that “reflects the positive potential of human nature” (p. 70) and determined that external rewards such as pay, bonuses and other tangibles, as well as external threats such as deadlines, pressured directives and evaluations, undermine intrinsic motivation. They posit three “innate” (Deci & Ryan, 2000, p. 227) or internal psychological needs essential for achieving intrinsic motivation, psychological growth, optimal functioning, and well-being and these are competence, autonomy, and relatedness (CAR).

Competence refers to being successful at challenging tasks and being able to obtain desired outcomes, autonomy concerns the ability to exercise choice and initiating one’s actions, and relatedness refers to establishing “a sense of mutual respect and reliance with others” (Baard, Deci & Ryan, 2004, p. 2046). Empirical examination of basic psychological needs at work has shown that environments that support competence, autonomy and
relatedness positively influenced job satisfaction, trust in the organization and management (Deci, Connell & Ryan, 1989), on-the-job performance (Baard, et al., 2004), raised self-esteem, lowered anxiety at work, and increased job engagement (Deci, Ryan, Gagne´, Leone, & Usunov, et al., 2001). Meeting the need for competence, autonomy and relatedness at work has also predicted affective organizational commitment (Gregarus & Diefendorff, 2009).

Likewise, the organizational psychology literature has shown that organizational commitment may be influenced by meeting psychological needs at work. Allen and Meyer (1990) suggested that three of the four antecedent categories for affective commitment can be found in the work setting, specifically job characteristics, work experiences and structural characteristics. Of these three antecedent categories, work experience has been found to have the strongest correlation with affective organizational commitment (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). Elements within the work experience antecedent category include job challenge, role clarity, goal difficulty, management receptiveness to employee suggestions, peer relatedness/cohesion, organizational dependability, equity, the degree to which employees were “made to feel that they were important to the organization” (Allen & Meyer, 1990, p.9), and employee participation “in decisions regarding their own work” (p.9).

Nursing studies have also shown that when the work environment provides nurses with access to information, resources, support, and the opportunity to learn that they have better work effectiveness (Almost & Laschinger, 2002), lower job strain, particularly when working in a collaborative environment (Laschinger & Wong, 1999) higher job satisfaction and higher organizational commitment (Laschinger & Finegan, 2005; Ridley, Wilson,
Harwood, & Laschinger, 2009). The nursing literature has also offered considerable supportive evidence that elements found within the work environment positively influence the organizational commitment of nurses. These elements include empowerment (Almost & Laschinger, 2002; Bonias, Bartram, Leggat & Stanton, 2010; Laschinger & Finegan, 2005; Laschinger & Wong, 1999; Liou, 2008; McDermott, et al., 1997; Ridley, et al., 2009), the opportunity to contribute to a shared vision (Jeong, Lee, Kim, Lee, & Kim, 2007), autonomy and participative management (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Nelson, 2002), learning and continuing education (Scanlon, van Servellen & Schultz, 1999), the opportunity to learn and work in a learning environment (McDermott, et al.; Naude & McCabe, 2005), collaboration and the opportunity to learn as a team (McNeese-Smith, 2001) and the opportunity to develop oneself professionally (McDermott, et al.).

**Basic Psychological Needs at Work and Nurse Organizational Commitment**

It is possible that the aforementioned workplace elements have a strong influence on organizational commitment because they meet nurses’ basic psychological needs at work. For example, competence in SDT refers to being successful at challenging tasks and able to obtain desired outcomes (Baard, et al., 2004). The nursing literature revealed that learning and continuing education (Scanlon, et al., 1999), the opportunity to learn and work in a learning environment (McDermott, et al., 1997; McNeese-Smith, 2001; Naude & McCabe, 2005) the opportunity to develop oneself professionally (McDermott, et al.) and to be recognized or rewarded for one’s contribution on the job (Liou, 2008) have a positive impact on the organizational commitment of nurses. Therefore opportunities for professional
development on the job and to be rewarded or recognized for contribution at work may lend itself to developing and expressing nurses’ competence on the job.

Autonomy is defined in SDT as the ability to exercise choice, initiate one’s actions, and empowerment (Baard, et al., 2004). Empowerment, described as nurses’ ability to “exert control over the practice setting to focus resources as required for good patient care” (Aiken, et al., 1997, p.17) and to have authority to make decisions related to nursing practices sans hospital bureaucracy (Nelson, 2002) has been identified as beneficial for both patients and nurses. Nurse empowerment has been linked to lower mortality rates and lower lengths of stay for patients (Nelson, 2002). Autonomy, primary nursing and participative management (Nelson, 2002) and job-related empowerment (Liou, 2008; McDermott, et al., 1997) were revealed as indicators of organizational commitment among nurses. Therefore, empowerment and the ability to exercise control over one’s job may meet nurses’ innate need for autonomy at work.

Relatedness in CAR refers to establishing “a sense of mutual respect and reliance with others” (Baard, et al., 2004, p. 2046). The nursing literature notes that organizational commitment has been positively associated with the opportunity to have a shared vision (Jeong, et al., 2007) and collaborative working between physicians and nurses in hospital settings (Kaye, Ashline, Erickson, Zeiler, & Gavigan, et al., 2000; Young, Goeder & Olterman, 1998), the opportunity to learn as a team (Jeong, et al., 2007) and to have workgroup cohesion and collaboration (Tourangeau & Cranley, 2006). Therefore, nurses’ innate need for relatedness may be met by working collaboratively, learning as a team and having the opportunity to share in the organization’s vision.
The Magnet Recognition Program is a good example of how environmental factors and need fulfillment affect nursing turnover and patient outcomes. The Magnet Recognition Program was developed by the American Nurse Credentialing Center (ANCC), an extension of the American Nurses Association to recognize healthcare organizations that provide excellence in nursing care based on a number of quality indicators identified through initial research in 1983 (ANCC, 2008). Subsequent research conducted on Magnet hospitals has revealed that they have lower nurse turnover rates, lower mortality rates, fewer medical complications and shorter lengths-of-stay compared to non-Magnet hospitals (Gelinas & Bohlen, 2002).

The Magnet Recognition Program is based on five core principles: 1) Transformational Leadership; 2) Structural Empowerment; 3) Exemplary Professional Practice 4) New Knowledge, Innovations and Improvements, and 5) Empirical Quality Results (ANCC, 2008). Magnet organizations go through a rigorous credentialing process to obtain Magnet accreditation based on the five, aforementioned principles. They must then continue to measure quality to maintain this status. The five core principles of the Magnet Recognition Program are defined in more detail below.

Transformational leadership refers to the ability to be visionary and to lead people where they need to go (ANCC, 2008). Structural empowerment is defined as bringing the organizational mission, vision, and values to life to achieve the outcomes through strong relationships and partnerships, staff development and empowerment to find the best way to accomplish organizational goals (ANCC, 2008). Exemplary professional practice refers to understanding and application of the role of nursing with constituencies such as patients,
families and the interdisciplinary treatment team as well as applying new knowledge (ANCC, 2008). The new knowledge, innovation and improvements principle is relatively self-explanatory in that it is an application of each in the effort to maintain quality. Finally, Magnet organizations are encouraged to submit quality indicators in the form of data that they already collect that has been organized into patient outcomes, workforce outcomes and organizational outcomes. These report cards are then submitted on an ongoing basis to maintain Magnet status (ANCC, 2008).

The Learning Organization, Psychological Needs at Work and Organizational Commitment

Not all organizations can or want to have Magnet status, either because they are not suited for it due to their size or type or because of they are not interested in the rigorous credentialing and maintenance process. However many would no doubt like to have the outcomes that Magnet facilities can attain such as lower nurse turnover rates and better patient outcomes. The challenge facing healthcare administration and human resource professionals who are tasked with workforce initiatives is how to influence Magnet-like results in non-Magnet settings and to improve these results in facilities that have already achieved Magnet status. The answer to this challenge may lie in the learning organization literature as previously described.

Several areas of congruence can be found between the work environment elements discussed in the aforementioned nursing studies, Magnet Recognition Program principles and the learning organization literature. Therefore, implementing a comprehensive learning organization model may provide an overall means for meeting nurses’ need for competence, autonomy and relatedness while also influencing organizational commitment and patient
health outcomes. For example, the opportunity to learn and work in a learning environment (McDermott, et al., 1997; McNeese-Smith, 2001; Naude & McCabe, 2005) the ability to learn on the job and develop oneself professionally has been identified as a work-related concept that has had a positive influence on the organizational commitment of nurses. The Magnet principles of Structural Empowerment, Exemplary Professional Practice and New Knowledge, Innovation and Improvements include learning and staff development as a means to achieve these goals (ANCC, 2008). Learning within an organization on an individual level, which includes structured and non-structured opportunities for learning as well as the ability to ask questions and engage in dialogue have been identified as a key element of the learning organization (Senge, 1990; Marsick & Watkins, 2003) and may meet the need for competence and relatedness identified in SDT.

Nurses’ ability to “exert control over the practice setting to focus resources as required for good patient care” (Aiken, et al., 1997, p.17) and to have authority to make decisions related to nursing practices sans hospital bureaucracy, autonomy and participative management (Nelson, 2002) as well as job-related empowerment (Liou, 2008; McDermott, et al., 1997) were revealed to be indicators of organizational commitment among nurses. The Magnet principle of Structural Empowerment refers to empowering nurses on the job to achieve patient care goals (ANCC, 2008). Empowering employees toward a shared vision has been identified as another key element of the learning organization that supports the organizational level of learning (Goh, 1998; Senge, 1990; Marsick & Watkins, 2003) and may meet the needs for autonomy and relatedness identified in SDT. In fact, empowerment, which refers to the organization’s ability to create a shared vision, is one of four dimensions
that contribute to the organizational level of learning and comprises the structural component in the Dimensions of the Learning Organization (Yang, Watkins, & Marsick 2004).

The opportunity to have a shared vision (Jeong, et al., 2007) and collaborative working between physicians and nurses in hospital settings (Kaye, et al., 2000; Young, et al., 1998) the opportunity to learn as a team (Jeong, et al., 2007) and to have workgroup cohesion and collaboration (Tourangeau & Cranley, 2006) has been shown to positively impact nurses’ organizational commitment. The Magnet principles of Structural Empowerment, Exemplary Professional Practice and New Knowledge, Innovation and Improvements include shared vision, staff development, team learning as well as strong relationships as a means to achieve goals (ANCC, 2008). The learning organization literature has identified teamwork and the ability to collaborate as key elements to team and group level learning within an organization (Senge, 1990; Marsick & Watkins, 2003), which may meet the need for relatedness identified by SDT.

As previously noted, researchers have posited that learning and continuing education as well as the opportunity to develop oneself professionally reduces nursing turnover and improves patient safety and outcomes (McDermott, et al., 1997; Scanlon, et al., 1999).

Continuous learning not only requires resources, such as time and money, it also requires that these resources be made available to employees. Additionally, the opportunity to participate in a developmental job assignment, work as or with a preceptor as well as the ability to rotate job assignments for developmental purposes must also be approved by a manager. Marsick and Watkins (2003) note that “leaders and managers provide strategic leadership for learning” (p.142) therefore leaders and/or managers within the organization must provide
time, money and the opportunity for continuous learning to occur via classes, job
assignments or other means.

Marsick and Watkins (2003) also suggest that leaders may influence climate and
culture within an organization through their action or inaction and use of learning to create
change. Self-determination theory research has found that when managers’ behavior
supports competence, autonomy and relatedness at work that employees are more likely to
report positive job satisfaction and trust in their organization and management (Deci, et al.,
1989), exhibit psychological adjustment, perform well on the job (Baard, et al., 2004), have
higher self-esteem, lower anxiety at work and be more engaged in their jobs (Deci, et al.,
2001). Likewise, the Magnet principle of Transformational Leadership refers to the ability to
be visionary and to lead people where they need to go (ANCC, 2008), thus suggesting that
leader behavior is key in achieving a work setting that encourages excellence in nursing.
Therefore strategic leadership in a learning organization may help meet the needs for
competence, autonomy and relatedness identified by SDT and could be crucial to achieving
an environment that positively influences the organizational commitment of nurses.
Congruencies between the dimensions of the learning organization, antecedents of
organizational commitment, basic psychological needs and the Magnet Recognition Program
have been illustrated in Table 1.
Table 1

*Areas of Congruence: Learning Organization, Nursing Literature, CAR, Affective Commitment Antecedents*

<table>
<thead>
<tr>
<th>Dimensions of the Learning Organization</th>
<th>Work elements affecting Nurse organizational commitment</th>
<th>Affective Commitment Antecedents</th>
<th>Basic Psychological Needs at Work (CAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Learning</td>
<td>Magnet Principles 2-3</td>
<td>Job challenge</td>
<td>Competence: Being successful at challenging tasks and able to obtain desired outcomes</td>
</tr>
<tr>
<td>Inquiry and Dialogue</td>
<td>Learn/work in a learning environment</td>
<td>Goal difficulty</td>
<td></td>
</tr>
<tr>
<td>Embedded System</td>
<td>Learn on the job</td>
<td>Importance to the organization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Develop oneself professionally</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empower Shared Vision</td>
<td>Magnet Principles 1-4</td>
<td>Participate in job related decisions</td>
<td>Autonomy: Ability to exercise choice and initiating one’s actions/empowerment</td>
</tr>
<tr>
<td>Strategic Leadership</td>
<td>Exert control over practice setting</td>
<td>Management receptiveness to job related input</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Make practice decisions sans bureaucracy</td>
<td>Transformational leadership</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participative management</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Job empowerment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In summary, organizational commitment, retention, and turnover are crucial in nursing. This is particularly the case in hospitals, where the demand for registered nurses exceeds the supply, patient lives are at stake, and organizational commitment has been seen as the goal to achieving reduced turnover and a stable workforce that is better able to care for patients (Wagner, 2007). Therefore it is incumbent upon hospitals to not only retain the nurses they employ but to create environments that inspire them to come to work, allow them to learn, develop professionally, collaborate, and demonstrate citizenship behavior. Implicit in this is determining the role that the learning culture within an organization plays in meeting nurses’ needs for competence, autonomy and relatedness on the job and in turn, influencing their commitment to that organization. Research suggests that elements within the learning organization are positively correlated with and positively predict affective and normative organizational commitment because they meet the need for competence, autonomy.
and relatedness at work. An examination of these variables may prove beneficial to the
healthcare industry and healthcare consumers alike.

Statement of the Problem

Research has indicated that low RN-to-patient ratios and low nurse turnover rates lead
to better patient safety and health outcomes (Aiken et al., 1997; Gelinas & Bohlen, 2002;
Pronovost, et al., 1999; Sovie & Jawad, 2001). Thus, it is important for healthcare
organizations to retain the nurses they currently employ because there is no surplus from
which to recruit when there is turnover due to the U.S. nursing shortage (U.S. DHHS, 2004).
This is true even despite the recent economic downturn in the U.S. as the healthcare industry
continued to add positions while other industries have experienced layoffs (U.S. BLS, 2012).

Organizational commitment has been identified as a means to reduce nurse turnover
and create a stable workforce that is better able to care for patients (Wagner, 2007) however
research has not identified one model or method for doing this. The literature indicates that
elements within the work environment, particularly those found in the learning organization,
may influence organizational commitment by meeting basic psychological needs of
competence, autonomy and relatedness however the relationship between these constructs
and the validity of the learning organization as a viable means to increase the organizational
commitment of nurses in the U.S. has not been empirically examined.

Purpose of the Study

The purpose of this study was to determine the mediating effects of the Basic
Psychological Needs at Work, comprised of competence, autonomy and relatedness on the
relationship between the Dimensions of the Learning Organization and affective and
normative organizational commitment in the United States nursing population.

Significance of the Study

Studies conducted as early as 1994 have revealed that there is a relationship between RN-to-patient ratio, nurse turnover and patient mortality, complications and length of inpatient stay (Curtin, 2003). Therefore, it is incumbent upon healthcare organizations to retain the nurses they currently employ to address staffing levels and nurse-to-patient ratios. It is also important for these organizations to understand the factors that impact nurse retention to be better able to achieve it with numerous employees at different levels over a long period of time.

Organizational commitment and concepts related to the learning organization such as team learning, collaboration, empowerment and continuing education, have been shown to reduce nurse turnover and improve patient mortality and outcomes (Jeong, et al., 2007; Liou, 2008; McDermott, et al., 1997; McNeese-Smith, 2001; Naude & McCabe, 2005; Nelson, 2002; Scanlon, et al., 1999; Tourangeau & Cranley, 2006) Thus the result of a study that examines the relationship between the work environment, particularly those elements found in the learning organization, and their ability to influence organizational commitment by meeting basic psychological needs will be useful to the healthcare industry and healthcare consumers alike by providing a means to retain nurses, create a stable workforce and positively contribute to health outcomes and patient safety (Wagner, 2007).

Findings from this study will also contribute to existing literature, which has examined the learning organization, self-determination theory and organizational commitment as separate constructs but not as predictive of or related to the other and/or not
in the nursing field. To date Jeong, et al., (2007) is the only study that has examined the impact of the learning organization on organizational effectiveness in nursing. That study defined organizational effectiveness as the combination of organizational commitment and job satisfaction but it did not use the same instruments as those that were used in this present study and it was not conducted in the United States. Only one study to date has examined the mediating effect of competence, autonomy and relatedness on affective organizational commitment and that was not conducted in nursing or in the United States (Gregarus & Diefendorff, 2009).

Finally, this study will contribute to human resource development practitioners who work in the healthcare field by providing empirical data to support their efforts toward building a learning organization and increasing organizational commitment. It will also provide a method by which they can determine if their organization is a learning organization and if so, its impact on the organizational commitment of the nurses it employs. Most importantly, evidence of the proposed relationships within this study provides support for developing a program of learning that meets the needs of the organization and its employees.

Theoretical Framework


*Dimensions of the Learning Organization*

The Dimensions of the Learning Organization informed the work environment element of the present study. The work environment has been shown to predict affective
organizational commitment by supporting the need for competence, autonomy and relatedness (Gregarus & Diefendorff, 2009). The present study used the Dimensions of the Learning Organization Questionnaire-Abbreviated (DLOQ-A), an instrument which is based on the Dimensions of the Learning Organization, to gather data to determine if an employer supports and uses learning at an individual, team, and organizational level and the extent to which that support predicts the organizational commitment of nurses by meeting their basic psychological needs at work, comprised of competence, autonomy and relatedness.

Senge (1990), who is often cited with regard to both the learning organization and organization learning, describes the “learning organization” as an organization that adapts to its surroundings and generates new knowledge. The learning organization has also been described as one that facilitates learning at all levels and undergoes continual transformation (Pedler, Burgoyne, & Boydell, 1991) as well as one that can create, acquire and transfer knowledge (Garvin, 1993). Similarly, Watkins and Marsick (1996) define a learning organization as one that continuously learns, continuously improves and continually “transforms itself” (p. 8) while Örtenblad (2002) notes that a learning organization must provide the structure, resources and mindset that embraces transformational and learning process concepts. Similarly, Dodgson (1993) described the learning organization as “firms that purposefully adopt structures and strategies to encourage learning” (p. 387).

Such a wide array of descriptions can be confounding, particularly when combined with organizational learning definitions. Therefore Örtenblad (2002) created a typology of learning organizations, which delineates them into four categories or types. Each type takes a different perspective: 1) old organizational learning perspective, the foundation of which is
the storage of collective knowledge, 2) the *learning at work* perspective, which views learning organizations as those in which employees learn via the process of working, 3) the *learning climate* perspective, which suggests the organization should be the facilitator of employee learning, and 4) the *learning structure* perspective, which views the organization as being flexible and able to adapt (Örtenblad, 2002, p. 226).

The Dimensions of the Learning Organization incorporates all four of these into one theory, synthesizing the people who work within the organization and the structure created and maintained by the organization together into dynamic, interactive forces that work together to influence change and impact the financial, intellectual, and non-intellectual value of an organization (Yang, et al., 2004). Marsick and Watkins (2003) suggested that these two levels of dynamic interaction, people and structure, form the basis for the concept of the learning organization, wherein three different levels of learning exist: 1) individual learning, 2) team or group learning and 3) organizational learning. Furthermore, these three levels of learning include specific elements that form seven separate but interrelated dimensions. The dimensions include: 1) continuous learning, 2) inquiry and dialogue, 3) team learning, 4) empowerment, 5) embedded system, 6) system connection and 7) strategic leadership (Yang, et al., 2004, p.34). The components, learning levels, dimensions and their descriptions are displayed in Table 2.
Table 2

**Dimensions on the Learning Organization Descriptions**

<table>
<thead>
<tr>
<th>People Component</th>
<th>Dimension Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual Level Learning</strong></td>
<td></td>
</tr>
<tr>
<td>• Continuous Learning</td>
<td>Continuous learning opportunities for all employees</td>
</tr>
<tr>
<td>• Inquiry and Dialogue</td>
<td>Questioning, feedback, experimentation</td>
</tr>
<tr>
<td><strong>Group Level Learning</strong></td>
<td></td>
</tr>
<tr>
<td>• Collaboration/Teamwork</td>
<td>Collaboration with others/team effectiveness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structural Component</th>
<th>Dimension Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organizational Level Learning</strong></td>
<td></td>
</tr>
<tr>
<td>• Embedded Systems</td>
<td>Processes, procedures and tools to collect and disseminate learning</td>
</tr>
<tr>
<td>• System Connection</td>
<td>Thought processes and activities that connect organization to internal and external environment</td>
</tr>
<tr>
<td>• Empower Shared Vision</td>
<td>Create a shared vision across the organization</td>
</tr>
<tr>
<td>• Strategic Leadership</td>
<td>Leaders use learning to create change and lead the organization in new and better directions</td>
</tr>
</tbody>
</table>
People Component of the Dimensions of the Learning Organization

Individual learning is purported to occur when an individual’s frame of understanding is challenged in some way, triggering a response (Argyris & Schon, 1978; Dewey, 1938; Lewin, 1946). As a result of these triggering events, individuals then develop and implement an intervention. If the intervention works, cognitive and behavioral adjustments may follow. However, if the intervention is not successful the cycle reinitiates until a solution is found. While this process of trying interventions takes place, the individual filters everything through their own perception of the situation as well as their values and beliefs. The interventions they devise and apply to challenges are concurrently influenced by their skills, capacity and the context in which they are operating (Argyris & Schon, 1978; Lewin, 1946). When the process ends, individuals’ cognitive perceptions of the situation are often restructured, usually resulting in behavioral change. Marsick and Watkins (2003) refer to the entire process as described above as continuous learning, or the opportunity to encounter stimuli that invokes responses that are tested and result in some change on an on-going basis. Argyris and Schon (1996) also suggested that individual learning in organizations not only occurs through continuous learning, but it also transpires via double loop learning, which occurs when individuals learn engage in discussion and feedback with others. Both continuous learning and inquiry and dialogue are part of the individual level of learning within the Dimensions of the Learning Organization (Marsick & Watkins, 2003) and provide the means to support and meet all three SDT needs of competence, autonomy and relatedness. Individuals meet the need for autonomy and competence while engaging in
continuous learning through the process of applying interventions to challenges and the need for relatedness is met while engaging in inquiry and dialogue with others.

For learning to reach an organizational level it cannot reside solely among individuals, rather it must become interdependent and collective (Goh, 1998; Senge, 1990). Marsick and Watkins (2003) describe this interdependent and collective learning as the group or team level of learning within the dimensions of the learning organization, thus providing another means to meet the need for relatedness.

The notion of team level learning and the team collaboration dimension of the Dimensions of the Learning Organization is based on the aforementioned process of continuous learning on at the individual level (Argyris & Schon, 1978; Lewin, 1946) applied to the collective, where it becomes the result of an “interactive, interdependent process” (Marsick & Watkins, 2003, p. 135). Surprises and discrepancies in the environment are not only identified by the team or group, responses and interventions are also devised, implemented and evaluated by the team or group through a collaborative process. According to Marsick and Watkins (2003) the success of the intervention is based largely in part on the ability of the team or group to work together as a unit or collective entity. Groups, teams and the organization as a whole may make assumptions about the entire aforementioned process, which may in turn trigger collective changes in organizational perception and culture. However, team level learning and individual level learning on their own or even combined are not enough to warrant systemic learning, which leads to the discussion of the structural component and the organizational level of learning within the Dimensions of the Learning Organization.
Structural Component of the Dimensions of the Learning Organization

Systemic learning or learning at the organizational level is more than the sum of individual learning or even team learning (Marsick & Watkins, 2003). Systemic or organizational level learning requires connection to the internal as well as the external world championed by leaders adept in utilizing resources, structures, and systems to adapt. By championing these connections, leaders support the fulfillment of competence, autonomy and relatedness at work as well as the learning organization. Researchers have described organizational level learning as a collective effort on the part of individuals using systems and methods for learning that gets passed along and stored in collective memory over time and manifests in the form of organizational change (Fiol & Lyles, 1985; Olivera, 2000). Organizational learning occurs in response to the environment and has been purported to manifest in organizational structures and performance, resulting in organizational change (Fiol & Lyles, 1985; Marsick & Watkins, 2003; Yang, et al., 2004) that can be measured financially and non-financially, through such things as patents, production levels and scrap/waste (Yang, et al., 2004).

Given the importance of organizational structures and performance to the learning organization, it is no surprise then that Marsick and Watkins (2003) include a structural component in the Dimensions of the Learning Organization that encompasses learning at the organizational level. The structural component is comprised of four dimensions: empowerment, embedded system, system connection and strategic leadership (Yang, et al., 2004). Marsick and Watkins (2003) note that they have based the structural component and
organizational level of learning of the Dimensions of the Learning Organization on the work of several researchers, including Senge (1990), Goh (1998), and Meyer (1982).

Senge (1990) posited that creating a shared vision, where employees were empowered to not only give input to the vision but to think strategically about it and to have ownership in it would inspire commitment to and direct work toward said vision. Marsick and Watkins (2003) base the empowerment dimension, which refers to the ability to create a shared vision across the organization, on Senge’s (1990) premise as presented in this paragraph. Empowerment and the ensuing commitment to the vision give way to and rely upon an embedded system culture.

Embedded system, another dimension in the structural component of the DLO, refers to systems and structures created by the organization to collect, store and pass along not only the vision but individual and team level learning (Yang, et al., 2004). The embedded system dimension is based on the work of Meyer (1982) and Popper and Lipschitz (1998).

Meyer (1982) suggested an organization must have “embedded the capacity to adapt or to respond quickly and in novel ways while working to remove barriers to learning” (p.136) for organizational level learning to occur. Popper and Lipschitz’s (1998) also suggest that systems, procedures, technology, and culture play a substantial role in organizational level learning. They have referred to these aforementioned elements as “organizational learning mechanisms (OLM)” (Popper & Lipschitz, 1998, p. 167), which they define as “institutional structural and procedural arrangements that allow organizations to systematically collect, analyze, store, disseminate and use information relevant to the performance of the organization and its members” (p. 170). These descriptions are akin to
system thinking, as coined by Senge (1990), who suggested that learning is captured and shared via structures and systems that cause the organization and its members to connect internally, within its structural boundaries, giving way to interrelatedness. While connecting internally is essential to the learning organization, Marsick and Watkins (2003) also underscore the importance of connecting the organization or relating it to the external world and have included that in their description of the system connection dimension.

Finally, Goh (1998) suggested that leaders and managers must provide resources, remove barriers and encourage experimental behavior among employees for individual and team level learning to translate to organizational level learning and adaptation. Therefore, Marsick and Watkins (2003) have included strategic leadership as the seventh dimension in the Dimensions of the Learning Organization. Within the DLO, strategic leadership refers to leaders’ use of learning to not only create change but to move the organization in new and better directions (Marsick & Watkins, 2003).

In summary, researchers have noted that learning within organizations occurs on several levels, including individual, team and organizational (Argyris & Schon, 1978; Dewey, 1938; Goh, 1998; Lewin, 1946; Meyer, 1982; Marsick & Watkins, 2003). For individual and team level learning to meld into organizational level learning an organization must possess the supporting structure, systems, processes, procedures, technology, culture, values, strategy and even professionalism in the respective workforce (Easterby-Smith, Crossan, Nicolini, 2000; Fiol & Lyles, 1985; Goh, 1998; Meyer, 1982; Popper & Lipshitz, 1998; Senge, 1990; Shirivastava, 1983; Yorks, 2005). Furthermore, the idea of learning collectively must be embraced by individuals, groups or teams and more broadly, the
organization, for it to be successful (Popper & Lipschitz, 1998; Senge, 1990). Finally, leaders and managers must provide strategic leadership for learning by removing barriers, providing resources and encouraging experimentation (Goh, 1998; Marsick & Watkins, 2003). The Dimensions of the Learning Organization incorporates all of these aforementioned elements in the only integrated approach to the learning organization found in the literature to date (Örtenblad, 2002).

**Three Component Model of Organizational Commitment**

Allen and Meyer’s (1990) multi-dimensional model of organizational commitment called the Three Component Framework (TCF) of organizational commitment incorporates three components of organizational commitment: 1) Affective commitment, 2) continuance commitment, and 3) normative commitment. Allen and Meyer (1990) suggested that these three are not different types of commitment, but rather are components of one construct because employees may experience all three at the same time in varying degrees. Affective and normative organizational commitment from Three Component Model of Organizational Commitment informed the organizational commitment element of the present study.

Affective organizational commitment refers to wanting to stay in an organization (Allen & Meyer, 1990). It is considered to be the deepest level of commitment. Four types of antecedents have been identified for affective organizational commitment, including organizational structure, job experiences, work experiences and personal characteristics (Allen & Meyer, 1990). Organizational structure refers to shared decision making as well as organizational policies and procedures (Allen & Meyer, 1990). The job experiences and work experiences antecedents include variables such as “employee/supervisor relations, role
clarity, reward equity, perceived organizational support, opportunity to express oneself and participative decision making” (Allen & Meyer, 1990, p.71). Studies have shown that personal characteristics such as age, gender, years with an organization and education level are not correlated with and had no predictive effect on affective organizational commitment whereas alignment between individual and organizational values and skills has been significantly and positively correlated with affective organizational commitment (Allen & Meyer, 1990).

Normative organizational commitment refers to staying with an organization out of a perceived obligation to it. Early research on organizational commitment suggests that normative organizational commitment stems from sources outside of work, perhaps something learned from the family that encouraged commitment to one’s employer as a value or continued service to a parent’s employer as a matter of pride or obligation (Allen & Meyer, 1990; Meyer, Becker & Vandenberghe, 2004). However more recent research posits that the three components of organizational commitment interact with each other creating commitment profiles and that normative organizational commitment may be experienced differently, depending upon the interaction of affective and/or continuance commitment (Meyer & Parfeyovona, 2010; Meyer, et al., 2012). Normative organizational commitment may be experienced as a moral obligation by employees who have high affective and normative organizational commitment profiles and as indebted obligation by employees who have high normative and continuance commitment profiles (Meyer & Parfeyovona, 2010; Meyer, et al., 2012; Somers, 2009). While normative commitment has not been examined with regard to work environment antecedents the way that affective commitment has, Allen
and Meyer (1990) posit that it may be increased or strengthened by “those experiences within the organization that make employees feel that their employer is providing them with more than they can easily reciprocate” (p.9).

Continuance commitment refers to staying with an organization because there are no employment alternatives (Allen & Meyer, 1990). Side bets, such as anything that increases perceived costs for leaving an organization, and alternative employment options are antecedents of continuance commitment (Allen & Meyer, 1990). Studies have shown that continuance commitment increases as alternatives decrease relative to perceived costs.

While employee retention is recognized as a benefit of organizational commitment not all turnover is unwanted and the behaviors in which employees engage while on the job is just as important if not more important than their commitment to the organization (Allen & Meyer, 1996). Allen and Meyer (1996) hypothesized that each of the components of the TCF produce different work behaviors. A meta-analysis of the construct validity of the three component model of organizational commitment conducted by Allen and Meyer (1996) found that affective commitment was positively associated with the outcomes of in-role and extra-role job performance, organizational citizenship, work attendance and the amount of effort expended on work related activities. Additionally, employees with high affective commitment were more likely to have a broader view of in-role performance, which often included extra-role activities thus positively influencing effort exertion (Allen & Meyer, 1996). More recent research into commitment profiles suggests that employees who have high, combined affective and normative commitment or high affective, normative and continuance commitment are considered highly committed and produce many if not more of
the same consequences as someone with high affective commitment only (Meyer & Parfyovona, 2010; Meyer, et al., 2012).

Normative commitment outcomes were also associated with in-role job performance and work attendance and that employees experiencing normative commitment, like those with high affective commitment, also defined their jobs more broadly and included extra-role activities (Allen & Meyer, 1996). The biggest difference that Allen and Meyer (1996) found between the job-related outcomes of normative and affective commitment was the quality and quantity of the work activities, with affective commitment producing better quality and quantity of work. Additionally they found that normative commitment was more likely to result in feelings of “resentment” (Allen & Meyer, 1996, p.267) toward the employer than affective commitment, particularly in the case of indebted obligation experienced by employees with high normative and continuance commitment but not necessarily for those who experience normative organizational commitment as a moral obligation (Meyer & Parfyovona, 2010; Meyer, et al., 2012). It may be difficult for those with high AC/NC profiles to distinguish between feelings of affective commitment, or wanting to stay, and feeling morally obligated, particularly healthcare workers (Somers, 2009).

Continuance commitment has been positively associated with in-role work performance but only for the purpose of keeping one’s job until an alternative is presented however the quality and quantity of work may suffer (Allen & Meyer, 1996). Continuance commitment is also negatively associated with work attendance and not associated or negatively associated with extra-role performance and effort exertion. Unlike affective and normative commitment, continuance commitment has been positively associated with
personal identification with dissatisfying situations on the job (Allen & Meyer, 1996) and has been positively related to employees’ self-reported behavior of engaging in unethical behaviors at work (Wahn, 1993). A summary of the Three Component Model of Organizational Commitment is illustrated in Table 3.

Table 3

*Three Component Model of Organizational Commitment*

<table>
<thead>
<tr>
<th>Commitment Component</th>
<th>Description</th>
<th>Antecedent</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affective/emotional</td>
<td>Want to stay</td>
<td>Organizational structure</td>
<td>Job role performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Job and work experiences</td>
<td>Citizenship behavior</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Attendance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Punctuality</td>
</tr>
<tr>
<td>Normative/obligatory</td>
<td>Ought to stay</td>
<td>Socialization</td>
<td>Job role performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advance rewards</td>
<td>Citizenship behavior</td>
</tr>
<tr>
<td>Continuance/necessary</td>
<td>Need to stay</td>
<td>Side bets/costs</td>
<td>Job role performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Unethical behavior at work</td>
</tr>
</tbody>
</table>
Basic Psychological Needs at Work

Basic psychological needs at work informed the person-environment fit element of the present study. Basic psychological needs in self-determination theory are defined by Deci and Ryan (2000) as “innate psychological nutriments that are essential for ongoing psychological growth, integrity and well-being” (p. 299). Specifically SDT theory posits that there are three basic needs that must be met to achieve psychological growth, optimal functioning, and well-being for all humans, which are competence, autonomy, and relatedness (CAR) (Deci & Ryan, 2000). Competence refers to being successful at challenging tasks and being able to obtain desired outcomes, autonomy concerns the ability to exercise choice and initiating one’s actions, and relatedness refers to establishing “a sense of mutual respect and reliance with others” (Baard, et al., 2004, p. 2046).

Self-determination theory is a motivation theory that posits that the ability for emotional and psychological growth and behavioral regulation are innate or intrinsic rather than externally controlled or learned (Ryan & Deci, 2000). Deci and Ryan (2000) used the work conducted in the 1950’s by motivation theorist White as the foundation for self-determination theory. White believed that human motivation was innate and psychological rather than physiological (Deci & Ryan, 2000). Deci and Ryan (2000) also base the inclusion of intrinsic motivation in self-determination theory on research conducted in developmental psychology, which has shown that normally developing infants and toddlers are naturally curious and creative with a penchant for mastering new tasks. However, they note that it’s difficult to extend this natural proclivity for spontaneity, inquisitiveness, and adeptness into adulthood because the social contexts in which humans exist play a role in...
supporting or inhibiting it (Ryan & Deci, 2000). Thus, self-determination theory is not concerned with what causes intrinsic motivation but rather elements of the social context that enhance and maintain or impede it by meeting or thwarting basic psychological needs (Ryan & Deci, 2000).

Deci and Ryan (2000) adopted competence as a basic psychological need because of research in the field of psychology on mastery, which suggested that humans have a basic need to master or have an effect on their environment to enhance or at the minimum, maintain intrinsic motivation. However, they note that meeting the need for competence is not enough to enhance and maintain intrinsic motivation, positing that humans also have needs for autonomy and relatedness.

The decision to include autonomy in self-determination theory was based on the work of deCharms (1968), who suggested that autonomy was important in supporting activities that people do naturally, without external coercion. Deci and Ryan (2000) see autonomy as the desire to organize or control one’s own behavior and to have activities in which one engages align with one’s “sense of self” (p.231) as opposed to being externally coerced. Additional support of autonomy as a basic psychological need was derived from research that compared the intrinsically motivating value of extrinsic rewards with the ability to act autonomously. This research revealed that extrinsic rewards actually interfered with and even diminished intrinsic motivation (Gagne & Deci, 2005) thus Deci and Ryan (2000) believe that autonomy is essential to intrinsic motivation. A meta-analysis of 128 studies conducted over a 30-year time span revealed that people derived less intrinsic value from engaging in intrinsically motivated behavior that was later extrinsically rewarded and that
they felt more compelled to continue with the activity due to the reward rather than being inherently motivated to do so (Deci, Koestner & Ryan, 1999). These findings further underscore the importance of autonomy to intrinsic motivation.

Deci and Ryan (2000) used Bowlby’s (1979) attachment theory, which posits that relating and attaching to others is essential for infants and young children to engage in exploratory behavior, as a foundation for including relatedness in self-determination theory. Additionally, studies conducted with school-aged children have revealed that they are more likely to be internally motivated if they feel an attachment to their teachers (Deci & Ryan, 2000). Relatedness is seen as the most distant or least essential of the three, innate psychological needs in self-determination theory because, as Deci and Ryan (2000) note, people are often motivated to engage in work activities alone.

**Conceptual Framework**

Marsick and Watkins’ (2003) Dimensions of the Learning Organization (DLO), Allen and Meyer’s (1990) Three Component Model of Employee Commitment, Deci and Ryan’s (2000) Basic Psychological Needs at Work were combined in a mediated model to form the conceptual framework for the present study. According to Deci and Ryan (2000) the work environment can meet or thwart intrinsic motivation by supporting basic psychological needs at work comprised of competence, autonomy and relatedness. Research has shown that meeting these three basic psychological needs at work may influence or predict organizational commitment (Gregarus & Diefendorff, 2009). The purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness on the relationship between the Dimensions of the
Learning Organization and affective and normative organizational commitment in the United States nursing population. An illustration of the conceptual framework is provided in Figure 1. An explanation of relationships follows the illustration.

The Dimensions of the Learning Organization (Marsick & Watkins, 2003) informed the work environment element of the conceptual framework and was used as the independent variable because it includes many of the factors identified in the literature as having an
impact on the organizational commitment. For example, the opportunity to learn and work in a learning environment and to develop oneself professionally have been identified as having a positive influence on the organizational commitment of nurses (McDermott, et al., 1997; McNeese-Smith, 2001; Naude & McCabe, 2005). Learning within an organization on an individual level, which includes structured and non-structured opportunities for learning as well as the ability to ask questions and engage in dialogue have been identified as a key element of the learning organization (Senge, 1990; Marsick & Watkins, 2003) and may meet the need for competence, autonomy and relatedness (Deci & Ryan, 2000) which in turn may influence affective and normative organizational commitment.

Nurses’ ability to “exert control over the practice setting to focus resources as required for good patient care” (Aiken, et al., 1997, p.17) and to have authority to make decisions related to nursing practices sans hospital bureaucracy, autonomy and participative management (Nelson, 2002) as well as job-related empowerment (Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong 1999; Liou, 2008; McDermott, et al., 1997; Manojlovich, 2007; Nelson, 2002) have been identified as predictors of organizational commitment in nurses. Empowering employees toward a shared vision has been identified as another key element of the learning organization that supports the organizational level of learning (Goh, 1998; Senge, 1990; Marsick & Watkins, 2003) and may primarily meet the need for autonomy and possibly competence, which in turn, would have a positive influence on affective and normative commitment.

The opportunity to have a shared vision (Jeong, et al., 2007) and collaborative working between physicians and nurses in hospital settings (Kaye, et al., 2000; Young, et al.,
1998) the opportunity to learn as a team (Jeong, et al., 2007) and to have workgroup cohesion and collaboration (Tourangeau & Cranley, 2006) have been shown to positively impact nurses’ organizational commitment. The learning organization literature has identified teamwork and the ability to collaborate as key elements to team and group level learning within an organization (Senge, 1990; Marsick & Watkins, 2003), which may primarily meet the need for relatedness and possibly autonomy and competence, which in turn would positively influence affective and normative commitment.

Systems, processes and procedures must be in place for learning to occur within an organization (Popper & Lipshitz, 1998; Marsick & Watkins, 2003), therefore the embedded system dimension is included in the model and may influence both affective and normative organizational commitment.

Researchers have posited that learning and continuing education as well as the opportunity to develop oneself professionally reduces nursing turnover and improves patient safety and outcomes (McDermott, et al., 1997; Scanlon, et al., 1999). Continuous learning not only requires resources, such as time and money, it also requires that these resources be made available. Additionally, the opportunity to participate in a developmental job assignment, work as or with a preceptor as well as the ability to rotate job assignments for developmental purposes must also be approved by a manager. Marsick and Watkins (2003) note that “leaders and managers provide strategic leadership for learning” (p.142) therefore leaders and/or managers within the organization must provide time, money and the opportunity for continuous learning to occur via classes, job assignments or other means. Additionally, leaders may not be directly responsible for the climate and culture within an
organization but they do have influence and can affect it through their action or inaction and use or learning to create change (Marsick & Watkins, 2003). Self-determination theory research suggests that when managers’ behavior supports competence, autonomy and relatedness at work that employees are more likely to report positive job satisfaction and trust in their organization and management (Deci, et al., 1989), exhibit psychological adjustment and perform well on the job (Baard, et al., 2004) and have higher self-esteem, lower anxiety at work and be more engaged in their jobs (Deci, et al., 2001). Therefore strategic leadership in a learning organization may help meet the needs for competence, autonomy and relatedness (Deci & Ryan, 2000) and influence affective and normative commitment.

Continuance commitment antecedents have been related to those things found outside the organization, such as the availability of other job opportunities (Allen & Meyer, 1996) and was hypothesized not to be influenced by elements of the learning organization or meeting basic psychological needs at work therefore continuance commitment was not included in the conceptual framework.

**Research Hypotheses**

The paper addressed the following research hypotheses to determine the mediating effect of the three basic psychological needs at work on the relationship between the Dimensions of the Learning Organization and the affective and normative organizational commitment of nurses. The hypothesized model is illustrated in figure 2.

\[ H_1: \text{The linear combination of the seven dimensions of the learning organization will predict affective organizational commitment. } \]
\[ H_1: y = a + b_1x_1 + b_2x_2 + \ldots + b_7x_7 \]
H₀: The linear combination of the seven dimensions of the learning organization will not predict affective organizational commitment. $H₀: y \neq a + b₁x₁ + b₂x₂ + \ldots + b₇x₇$

H₂: The linear combination of the seven dimensions of the learning organization will predict normative organizational commitment

$H₂: y = a + b₁x₁ + b₂x₂ + b₇x₇$

H₀: The linear combination of the seven dimensions of the learning organization will not predict to normative organizational commitment. $H₀: y \neq a + b₁x₁ + b₂x₂ + \ldots + b₇x₇$

H₃: The linear combination of the seven dimensions of the learning organization will predict basic psychological needs, which is comprised of competence, autonomy and relatedness. $H₃: y = a + b₁x₁ + b₂x₂ + \ldots + b₇x₇$

H₀: The linear combination of the seven dimensions of the learning organization will not predict basic psychological needs, which is comprised of competence, autonomy and relatedness. $H₀: y \neq a + b₁x₁ + b₂x₂ + \ldots + b₇x₇$

H₄: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment. $H₄: (X*M) +X + M = 0, z\text{-value} = a*b/\text{SQRT} (b² * sₐ² + a² * sₖ² + sₐ² * sₖ²), p < .05$
H₀: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment.

\[ H₀: (X*M) + X + M ≠ 0 \]

H₅: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment. \[ H₅: (X*M) + X + M = 0, \quad z\text{-value} = \frac{a*b}{\text{SQRT}(b^2*s_a^2 + a^2*s_b^2 + s_a^2*s_b^2)}, \quad p < .05 \]

H₀: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment.

\[ H₀: (X*M) + X + M ≠ 0 \]
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Figure 2

Hypothesized model

Limitations and Assumptions

The present study was limited to registered nurses working in the United States therefore the ability to generalize findings to other nursing and healthcare occupations, healthcare settings, industries and countries is limited. A self-administered survey was used to gather data for this study. Using self-administered surveys limits the ability of the
researcher to gather in-depth information and also assumes that the participants have responded honestly to the questions (Sproull, 2002).

This study focused specifically on the impact of the learning organization on the organizational commitment of registered nurses as mediated by the fulfillment of basic psychological needs at work. It did not measure the effect of job satisfaction, occupational commitment, work centrality or other work related constructs on the organizational commitment of registered nurses. Furthermore, it did not address organizational learning or knowledge management, both of which are differentiated from the learning organization in the literature.

The sample for this present study was derived from a canvas of the membership rosters of seven state-based professional nursing associations located in the southeast, west, mid-west and northeast regions of the United States. The state-based, professional nursing organizations were selected via purposeful sampling because they were the only nursing organizations that would agree to send the survey to their membership on behalf of the researcher at no cost. Non-random sampling techniques, such as the purposeful one used in this study, may increase the probability of a “biased sample; one that is not representative of the population” (Sproull, 2002, p. 118) therefore Sproull suggests using random sampling methods if possible. Random sampling was not possible in this study because the nursing organizations would not release the contact information of their membership rosters to the researcher or allow the researcher to contact members directly. Sproull (2002) recommends examining the characteristics of the sample, such as demographics, for comparison to the population when using non-random sampling techniques. To address this, demographics
The definitions of the terms are provided in the following section. More in-depth information regarding these terms is provided in the second chapter.

The Learning Organization

The definition of the learning organization is based on Marsick and Watkins’ (2003) Dimensions of the Learning Organization, which views people and structure as dynamic interactive forces that work together to affect change and impact the financial, intellectual, and non-intellectual value of an organization. The model includes seven separate but interrelated dimensions. The seven dimensions are: 1) continuous learning, 2) inquiry and dialogue, 3) team learning, 4) empowerment, 5) embedded system, 6) system connection and 7) strategic leadership (Yang, et al., 2004, p.34).
Organizational Commitment

The definition of organizational commitment is based on Meyer and Herscovitch’s (2001) general workplace commitment model, which describes commitment as “a force that binds an individual to a course of action of relevance to a target and can be accompanied by different mind sets that play a role in shaping behavior” (p. 300). This definition is further supported by Allen and Meyer (1990) in their three component model of organizational commitment, which suggests that organizational commitment can be understood as a combination of three components: 1) affective commitment, 2) continuance commitment, and 3) normative commitment and suggest that these are not different types of commitment, but rather, are components of it because employees may experience all three at the same time in varying degrees. These three components represent the “different mind sets” (p.300) that Meyer and Herscovitch (2001) refer to and the previously discussed outcomes of each of these components represent “the course of action of relevance to a target” (p.300).

Basic Psychological Needs at Work

The definition of basic psychological needs at work is based on three innate needs identified by Deci and Ryan (2000) as essential for achieving intrinsic motivation, psychological growth, optimal functioning, and well-being; competence, autonomy, and relatedness (CAR). Competence refers to being successful at challenging tasks and being able to obtain desired outcomes, autonomy is defined as the ability to exercise choice and initiating one’s actions, and relatedness refers to establishing “a sense of mutual respect and reliance with others” (Baard, et al., 2004, p. 2046).
Chapter Two

Review of the Literature

The purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness on the relationship between the Dimensions of the Learning Organization and affective and normative organizational commitment in the United States nursing population. This chapter presents a literature review of the learning organization, basic psychological needs at work, organizational commitment and the nursing context. The chapter begins with a discussion of the independent variable, the learning organization followed by a discussion of the mediating variable, basic psychological needs, then the dependent variable, organizational commitment, and a description of the context for the study, which is nursing. The review concludes with a discussion of the learning organization and organizational commitment in the nursing context.

Independent Variable: Learning Organization

A database search of the Web of Science, Academic Search Premier, NCSU dissertation database, Google Scholar, Business Source Premier, EBSCO Healthsource Nursing, ERIC, Pubmed and Psych Info using the subject/keyword term “learning organization” generated empirical studies of the learning organization as well as articles that described the learning organization and depicted models of the learning organization in action. The common threads found in these articles were organizational and individual learning, flexibility and adaptation. Given these search results the researcher determined that it was important to differentiate between the learning organization and organizational
learning therefore a database search of the subject/keyword term “organizational learning” was conducted in Google Scholar alone. This produced a listing of over two million books and articles that included the term in the title or referenced it as the topic. A database search of the Web of Science and Academic Search Premier using the “organizational learning” search term produced over 1200 articles, though some of these appeared to be more relevant to the topic than others. Organizational learning is defined differently than the learning organization in the literature therefore the two terms will be discussed separately then compared/contrasted in summary of this section.

Learning

Adult learning did not begin to be examined as a field of study until the early 20th century (Brookfield, 1986; Knowles, 1980; Merriam & Caffarella, 1999). Since that time, it has become so vast and complex that it is difficult to put boundaries around it as it encompasses everything from formal, credit courses on college campuses to informal yoga, cooking and tennis lessons, to learning in the employment setting or organizational context (Knowles, 1980; Merriam, & Brockett, 1997). In fact human resource development professionals have become a prodigious supplier of adult learning in the organizational context, largely driven by corporate competition to improve efficiencies and meet the bottom line. It has been estimated that U.S companies spend well over 10% of payroll annually on training in the workplace. The American Society for Training and Development’s 2011 state of the industry research, which included over 600 companies, that $171.5 billion dollars was spent on training and development in the workplace, with over half of that amount, 60%
going toward internal training while the remainder was spent on external services (Bingham, 2012).

Learning in the organizational context is complex and includes individual learning as well as how individual learning influences other individuals and the collective in the form of groups, teams, the organization and its systems and structures (Yang, et al., 2004). Learning in the organizational context also addresses the influence of the collective on individual learning (Yang, et al., 2004). While a number of different learning theories inform individual learning, both organizational learning and learning organization theories address learning in the organizational context. A more in-depth review of organizational is provided here and will be followed by a discussion of the learning organization.

**Organizational Learning**

Organizational learning discussions in the literature began as long as 30 years ago, when it was first posited by Argyris and Schon (1978). Subsequent researchers include Senge (1990), Fiol and Lyles (1985), Popper and Lipschitz (1998), Levitt and March (1988) and Kogut and Zander (1993). Their key contributions as well as several lesser known, empirical studies of the organizational learning construct, is provided in Table 4. A summary of the table data follows.
Table 4

Organizational Learning Literature Summary

<table>
<thead>
<tr>
<th>Author/Date</th>
<th>Findings/Key Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argyris &amp; Schon, 1978, 1996</td>
<td>Conceptual paper introduced OL as a concept, follow-up to 20 year double loop learning. Organizations learn through individuals’ trial and error and feedback.</td>
</tr>
<tr>
<td>Shrivastava, 1983</td>
<td>Conceptual paper. Organizations learn in different ways Typology of learning systems: adaptation, assumption sharing, developing action learning relationships, institutionalized experiences</td>
</tr>
<tr>
<td>Fiol &amp; Lyles, 1985</td>
<td>Conceptual literature review. Organizational learning takes place at multiple levels.</td>
</tr>
<tr>
<td>Levitt &amp; March, 1988</td>
<td>Conceptual literature review. Organizations learn in different ways: through trial and error, competency, making sense of experiences and org memory/history</td>
</tr>
<tr>
<td>Senge, 1990</td>
<td>Conceptual book. Five core disciplines necessary for organizational learning: team learning, systems thinking, personal mastery mental models, shared vision</td>
</tr>
<tr>
<td>Kogut &amp; Zander, 1993</td>
<td>Conceptual paper. Organizations are social/made up of people who share information to transfer knowledge.</td>
</tr>
<tr>
<td>Popper &amp; Lipschitz, 1998</td>
<td>Conceptual paper. Organization must provide supportive systems, structures and shared value of learning for organizational learning to occur. SOLV model.</td>
</tr>
<tr>
<td>Easterby-Smith, Niccolini, 2000</td>
<td>Literature review. Organizational learning is an established field of study, should be researched with regard to areas such as power/politics, post structuralism, linguistics and diversity</td>
</tr>
<tr>
<td>Somech &amp; Drach-Zahavy, 2004</td>
<td>Empirical study. Organizational performance is enhanced by organizational learning culture and knowledge management in addition to HRM practices. Used Levitt &amp; March’s (1988) instrument. Cronbach’s alpha .90, GFI .98, RMSEA .047, CFI .97</td>
</tr>
</tbody>
</table>
Yorks (2005) summarized definitions of the term “organization” as “federations of groups and of larger units that are more or less tightly coupled and more or less autonomous” (p.124). The term learning has been defined by many scholars in numerous settings over many years, as noted by the discussion on learning theories provided in the previous section of this paper. Yorks (2005) sums up these theories best by saying that in its most basic form, learning refers to “a process of change in some combination of behavior, its accompanying frames of reference and/or the capacity for acting differently” (p. 120). Thus organizational learning can be thought of as the process of change in behavior and frames of reference within a group or federations of groups.

The challenge to this definition lies in the personification of the organization by using the term “organizational learning”, which suggests that the organization can learn like a human. This has been a point of disagreement among scholars who suggest that an organization cannot learn because it’s not a person (Yorks, 2005). These same researchers suggest that individuals must be involved in the organizational learning process because organizations do not cognate but rather are comprised by individuals who do (Eaterby-Smith, Crossland, Niccolini, 2000; Fiol & Lyles, 1985; Yorks, 2005). Thus organizational learning becomes a collective effort on the part of individuals using systems and methods for learning, which gets passed along and stored in collective memory over time and manifests in the form of organizational change (Fiol & Lyles, 1985; Olivera, 2000; Senge 1990; Watkins & Marsick, 1996).

The organizational adaptation or change that results from the process of individual learning occurs in response to both or either the internal or external environment. This
change may happen naturally, through the course of everyday work, or it may be forced on an organization through some sort of crisis. Nevertheless, change in the case of organizational learning does not occur without reasoning, but rather, it occurs with the understanding of why, which other scholars suggest gives the appearance of cognition (Fiol & Lyles, 1985).

Organizational learning has also been purported to manifest in organizational structures and performance (Fiol & Lyles, 1985). This means that when change occurs as the result of collective individual learning it is most notable in the structure of the organization and/or its performance, the latter of which is typically measured financially although some measures may be non-financial, such as patents, production levels and scrap/waste (Yang, et al., 2004).

Researchers have suggested that individual learning within an organization can only morph into organizational learning if supporting structure, systems, processes, procedures, technology, culture, values, strategy and even professionalism in the respective workforce exists within that organization (Easterby-Smith, et al., 2000; Fiol & Lyles, 1985; Popper & Lipshitz, 1998; Shrivasta, 1983; Yorks, 2005). Additionally, for organizational learning to be successful the idea of learning collectively must be embraced by individuals, groups or teams, and more broadly, the organization (Popper & Lipschitz, 1998; Marsick & Watkins, 2003).

The aforementioned supporting systems, procedures, technology, culture and work groups have been referred to as “organizational learning mechanisms (OLM)” (Popper & Lipschitz, 1998, p. 167), which are defined as “institutional structural and procedural arrangements that allow organizations to systematically collect, analyze, store, disseminate
and use information relevant to the performance of the organization and its members” (p. 170). While the OLM concept is embedded within the organizational learning literature it bears striking resemblance to definitions given for the learning organization. In fact, Dodgson (1993) described the learning organization as “firms that purposefully adopt structures and strategies to encourage learning” (p. 387) and Marsick and Watkins (2003) suggested that for a learning organization to be successful it must possess structures and systems to collect, store and disseminate learning. Competence, autonomy and relatedness are being met when organizational learning takes place through these structures, processes and people found within the learning organization, which supports organizational learning.

In addition to the conceptual principles related to organizational learning addressed above, two empirical studies were retrieved that investigated organizational learning using two different models and two different instruments. Lin and Kuo (2007) determined that organizational learning was a significant predictor of organizational performance and accounted for 10.6% of the variance in the overall model. Somech and Drach-Zevy (2004) examined the mediating effect of organizational learning and knowledge management on organizational performance. Exploratory factor analysis revealed four factors for organizational learning: inquiry climate, learning practices, information sharing patterns, and achievement mindset and found that organizational learning was a significant predictor of organizational performance (Somech & Drach-Zevy, 2004).

In summary, organizational learning refers to the process of learning at the organizational level, which is dependent on a collective effort by individuals in the organization as well as systems, structures and processes created by the organization to
capture and disseminate learning. Empirical research suggests that organizational learning is a valid and reliable construct.

**Learning Organization**

The learning organization was not found in the literature as frequently as organizational learning however far more empirical research has been conducted on the learning organization construct. This is due largely in part to the advent of the Dimensions of the Learning Organization Questionnaire (DLOQ) and an abbreviated version of the same, the DLOQ-A, designed to measure the learning organization construct (Yang, 2003; Yang, et al., 2004). Prior to the development of these two instruments, no other measures of the learning organization and only one measure of organizational learning used to examine organizational learning mechanisms, OLM (Popper & Lipschitz, 1998) existed. The DLOQ has been the only learning organization measure referenced in the researched literature with the exception of Jeong, et al. (2007) who used a self-developed learning organization measure based on the Five Disciplines outlined by Senge (1990). Learning organization thought leaders include Argyris and Schon (1978) and Senge (1990), who have been associated with organizational learning and the learning organization constructs, Popper and Lipschitz (1998) whose work also spans both constructs, Garvin (1993), Goh (1998), Ortenblad (2002) and Marsick and Watkins (2003). Their research, as well as several empirical studies that have investigated the learning organization has been summarized in Table 5. A discussion follows the table.
Table 5

Learning Organization Literature Summary

<table>
<thead>
<tr>
<th>Author/Date</th>
<th>Findings/Key Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senge, 1990</td>
<td>Conceptual book. Five core disciplines necessary for organizational learning: team learning, systems thinking, personal mastery mental models, shared vision</td>
</tr>
<tr>
<td>Watkins &amp; Marsick, 1996, 2003</td>
<td>Conceptual papers: Seven dimensions or elements required to make an organization a learning organization, two levels—people and structure, which impact financial and intellectual performance.</td>
</tr>
<tr>
<td>Garvin, 1993</td>
<td>Literature review, To build a learning organization; foster an environment conducive to learning, have open boundaries for exchange of information between employees, structure and systems to support learning.</td>
</tr>
<tr>
<td>Popper &amp; Lipschitz, 1998</td>
<td>Conceptual. Shared Organizational Learning Values (SOLV) model, Distinction between learning in organizations (LIO), learning by organizations (LBO) definition of organizational learning mechanisms (OLM)</td>
</tr>
<tr>
<td>Ortenblad, 2002</td>
<td>Typology of learning organizations by different perspectives: old org learning, learning at work, learning climate and learning structures</td>
</tr>
<tr>
<td>Ellinger, Ellinger, Yang &amp; Howton, 2002</td>
<td>Empirical study. Validity and reliability of the DLOQ-A (21 item instrument). Cronbach’s alpha &gt;.70 on all scales except continuous learning. CFA findings RMSEA .07, GFI .87, CFI .94.</td>
</tr>
<tr>
<td>Hernandez, 2003</td>
<td>Empirical study. Developed Spanish version of the DLOQ. Cronbach’s alpha .79 to .83 on all scales. DLO supports transfer of tacit knowledge, which has a direct impact on performance.</td>
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</table>
Table 5 (continued)

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<thead>
<tr>
<th>Author/Date</th>
<th>Findings/Key Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yang, 2003</td>
<td>Empirical study. Reliability and validity of the DLOQ</td>
</tr>
<tr>
<td>Yang et al., 2004</td>
<td>Empirical study. Developed abbreviated version of the DLOQ-A.</td>
</tr>
<tr>
<td>Jeong, et al., 2007</td>
<td>Empirical study. Learning organization questionnaire based on Senge’s (1990) five disciplines. LO significantly, positively related to organizational effectiveness (defined as organizational commitment and job satisfaction) in nursing in South Korea. Accounted for 25% of the variance in the model. Cronbach’s alpha .75 to .89 for all scales.</td>
</tr>
<tr>
<td>Wang, 2007</td>
<td>Empirical study. Mandarin version of the DLOQ. Cronbach’s alpha &gt; .75 all scales. CFA overall model RMSEA .09. GFI .90, CFI .97. Learning organization significant predictor of organizational commitment and job satisfaction in Chinese enterprise companies.</td>
</tr>
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Table 5 (continued)

<table>
<thead>
<tr>
<th>Author/Date</th>
<th>Findings/Key Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Song, Joo, &amp; Chermack, 2009a</td>
<td>Empirical study. Korean version of the DLOQ-A. Validity and reliability Cronbach’s alpha .74 to .84 all scales. CFA overall model RMSEA .054, GFI .95 CFI .99. DLO significantly predicts job satisfaction.</td>
</tr>
<tr>
<td>Song, Kim &amp; Kolb, 2009b</td>
<td>Empirical study. Korean version of the DLOQ-A. Validity and reliability Cronbach’s alpha &gt;.87 all scales. CFA for overall model RMSEA 08, GFI .92, CFI .97. DLO mediates the relationship between interpersonal trust and organizational commitment.</td>
</tr>
</tbody>
</table>

As previously noted Yorks (2005) described the organization as a federation of groups or teams and summed the definitions of learning into that which is a process of behavioral change. Thus the learning organization can be thought of as the organization that learns or goes through the process of learning. By applying Popper and Lipschitz’s (1998) organizational learning mechanisms concept to this definition, the learning organization can be thought of as the organization that incorporates structure, systems, procedures and people to facilitate the learning that occurs at the individual level to expand and occur at both the group and organizational levels.

Senge (1990), who is often cited with regard to both the learning organization and organization learning, describes the “learning organization” as an organization that adapts to its surroundings and generates new knowledge. The learning organization has also been described as one that facilitates learning at all levels and undergoes continual transformation (Pedler, Burgoyne, & Boydell, 1991) as well as one that can create, acquire and transfer
knowledge (Garvin, 1993). Similarly, Watkins and Marsick (1996) define a learning organization as one that continuously learns, continuously improves and continually “transforms itself” (p. 8) while Örtenblad (2002) notes that a learning organization must provide the structure, resources and mindset that embraces transformational and learning process concepts. Similarly, Dodgson (1993) described learning organizations as “firms that purposefully adopt structures and strategies to encourage learning” (p. 387).

Empirical studies have added support to the conceptual learning organization literature. Yang et al., (2004) created an instrument to measure the learning organization based on the work of Lewin (1946), Argyris and Schon (1978), Senge (1990), Meyer (1982) and Goh (1998). An extended process using several groups and rounds of review was used to determine the validity and reliability of what became known as the Dimensions of the Learning Organization Questionnaire and an abbreviated version of the same, which is discussed in depth in the methods section of this paper for the present study so will not be repeated here.

Both the DLOQ and DLOQ-A were used in all of the empirical studies noted in Table 5 of this paper with the exception of Jeong et al., (2007), which used a instrument based on Senge’s (1990) five disciplines of the learning organization. Studies using the DLOQ found that the learning organization engages physical therapists (Bridges, Bierma & Valentine, 2007), and nurses (Estrada, 2007) in evidenced based practice. The learning organization has also been found to predict the financial performance of manufacturing firms (Ellinger, Ellinger, Yang & Howton, 2002), job satisfaction in several industries in China (Wang, 2007), Columbia (Hernandez, 2003) and South Korea (Song, Joo & Chermack, 2009a) and
Running Head: LEARNING ORGANIZATION ORGANIZATIONAL COMMITMENT  58
to predict organizational commitment in several industries in South Korea (Song, Kim &
Kolb, 2009b). Studies conducted in the United States found reliability co-efficients for all
scales of the DLOQ to be >.79 (Bridges, et al., 2007; Ellinger, et al., 2002; Estrada, 2007).
Only one U.S. study reported validity for the DLOQ using confirmatory factor analysis that
revealed RMSEA of .073, CFI = .935 and GFI = .87 (Ellinger, et al., 2002, p. 14). The
DLOQ has been translated to Mandarin Chinese (Wang, 2007), Spanish (Hernandez, 2003),
Malaysian (Fatima, 2003) and Korean (Song et al., 2009a; Song et al., 2009b). These studies
showed that the Korean version of the DLOQ-A had reliability co-efficients >.72 and
validity was established using confirmatory factor analysis, which produced RMSEA = .08,
GFI = .92, CFI =.97(Song et al., 2009a) and >.74 and RMSEA =.054, CFI =.99 and GFI= .95
(p <.001) (Song et al., 2009b). The Mandarin version of the DLOQ had Cronbach’s alpha >
.75 all scales and confirmatory factor analysis for the overall model was RMSEA .09. GFI
.90, CFI .97 (Wang, 2007). The Spanish version of the DLOQ had Cronbach’s alpha that
ranged from .79 to .83 on all scales (Hernandez, 2003).

In a departure from the aforementioned research, Jeong, et al. (2007) designed an
instrument based on Senge’s (1990) five disciplines of organizational learning called the
Learning Organization Questionnaire (LOQ) and used it to measure the impact of the
learning organization on the organizational effectiveness of nurses in South Korea. This
study used factor analysis to establish construct validity of the LOQ and Cronbach’s alpha to
establish reliability. All items on all factors of the LOQ loaded >.50 and the reliability
coefficients for all scales were >.75.
In summary, the learning organization and organizational learning have been discussed conceptually and examined empirically in a number of studies in the United States as well as other counties. Researchers have noted that learning within organizations occurs on several levels, including 1) individual, 2) team and 3) organizational (Argyris & Schon, 1978, Dewey, 1938; Goh, 1998; Lewin, 1946; Meyer, 1982; Senge, 1990; Marsick & Watkins, 2003). For individual and team level learning to meld into organizational level learning an organization must possess the supporting structure, systems, processes, procedures, technology, culture, values, strategy and even professionalism in the respective workforce (Easterby-Smith, et al., 2000; Fiol & Lyles, 1985; Goh, 1998; Meyer, 1982; Popper & Lipshitz, 1998; Senge, 1990; Shirivastava, 1983; Yorks, 2005). Furthermore, the idea of learning collectively must be embraced by individuals, groups or teams and more broadly, the organization, for it to be successful (Popper & Lipschitz, 1998; Senge, 1990). Finally, leaders and managers must provide strategic leadership for learning by removing barriers, providing resources and encouraging experimentation (Goh, 1998; Marsick & Watkins, 2003).

The Dimensions of the Learning Organization incorporates all of these aforementioned elements in the only integrated approach to the learning organization found in the literature to date (Örtenblad, 2002). Even after being translated into other languages the DLOQ, which represents the Dimensions of the Learning Organization, has been shown to be a reliable and valid measurement of the learning organization. It is notable that the Dimensions of the Learning Organization and its related questionnaires (DLOQ and DLOQ-
A) has been the most frequently referenced theory and measure in the learning organization literature.

Organizational Learning and Learning Organization Comparison/Contrast

A review of the organizational learning and learning organization literature presented in the previous sections suggests that organizational learning involves the process of learning at the organizational level while the learning organization refers to the firm that embraces the structures and systems to support the process of learning at the organizational level, the result of which may manifest in organizational structure and performance (Song, et al., 2009b; Yorks, 2005). Thus, the learning organization is the noun; the subject that learns and undergoes change, while organizational learning is the verb; the process of learning that influences change within the organization. One cannot exist without the other.

Definitions of the learning organization refer to elements found within the organization or the organization itself rather than the process by which learning occurs. For example, the learning organization has been described as “firms that purposefully adopt structures and strategies to encourage learning” (Dodgson, 1993, p. 387). Senge (1990) defined the learning organization as one that adapts to its surroundings and generates new knowledge and said that contained five elements or disciplines, including team learning, systems thinking, personal mastery mental models, shared vision. Similarly, Marsick and Watkins (2003) defined the learning organization as one that continuously learns, improves and continually “transforms itself” (p. 8) and posited that it is made of up seven dimensions, including: 1) continuous learning, 2) inquiry and dialogue, 3) team learning, 4) empowerment, 5) embedded system, 6) system connection and 7) strategic leadership. The
learning organization has also been described as one that facilitates learning at all levels and undergoes continual transformation (Pedler, et al., 1991) as well as one that can create, acquire and transfer knowledge (Garvin, 1993) and one that must provide the structure, resources and mindset that embraces transformational and learning process concepts (Örtenblad, 2002).

In contrast, organizational learning has been described as a collective effort on the part of individuals using systems and methods for learning, which gets passed along and stored in collective memory over time and manifests in the form of organizational change (Fiol & Lyles, 1985; Olivera, 2000). The organizational adaptation or change that results from organizational learning occurs in response to the environment and has been purported to manifest in organizational structures and performance (Fiol & Lyles, 1985), which means that when change results from organizational learning it is most notable in the structure of the organization and/or its performance. This suggests purposefulness on the part of the individuals in the organization with regard to change and adaptation however, it must occur collectively, beyond the individual level.

Organizational learning literature suggests that for organizational learning to occur an organization must possess the supporting structure, systems, processes, procedures, technology, culture, values, strategy and even professionalism in the respective workforce (Easterby-Smith, et al., 2000; Fiol & Lyles, 1985; Popper & Lipshitz, 1998; Shrivasta, 1983; Yorks, 2005). This is a reference to the learning organization, suggesting that organizational learning and the learning organization are intertwined. Furthermore, the idea of learning collectively must be embraced by individuals, groups or teams and more broadly, the
organization, for it to be successful (Popper & Lipschitz, 1998). Thus organizational learning refers to a process of learning and sharing knowledge and experiences among the collective within an organization.

In summary, organizational learning is focused on the process of learning at the organizational level while the learning organization refers to the firm that embraces the structures and systems to support the process of learning at the organizational level, the result of which may manifest in changes in organizational structure and performance.

Mediating Variable Basic Psychological Needs at Work

A review of the literature revealed that self-determination theory and satisfaction of basic psychological needs at work, comprised of competence, autonomy and relatedness, have not been explicitly linked to the learning organization or to organizational learning. However basic needs satisfaction has been linked to organizational commitment in the literature (Gagne & Deci, 2005; Gagne, Chemolli, Forest & Koestner, 2008; Meyer et al., 2004; Meyer & Maltin, 2010; Meyer & Parfyonova, 2010; Meyer et al., 2012), which has shown that individuals who have high affective and normative organizational commitment are more likely to have the basic needs of competence, autonomy and relatedness met by the work environment (Meyer et al., 2004; Meyer & Maltin; Meyer & Parfyonova, Meyer et al., 2012).

The nursing literature has also noted that nurses experience stronger affective organizational commitment when they experience autonomy (Aiken, et al., 1997; Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong, 1999; Liou, 2008; McDermott, et al., 1997; Nelson, 2002), and the opportunity to relate to others via
collaboration (McNeese-Smith, 2001) at work. Thus the nursing literature has linked needs satisfaction of autonomy and relatedness to organizational commitment. Additionally, competence, autonomy and relatedness was correlated with and mediated the relationship between affective organizational commitment and person-environment fit, person-group fit and skills fit (Gregarus & Diefendorff, 2009).

Competence, autonomy and relatedness comprise the basic psychological needs that self-determination theory suggests are necessary for individuals to experience internal or intrinsically driven growth and behavior regulation (Deci & Ryan, 2000). These three specific needs were selected by Deci and Ryan (2000) based primarily on research in the field of psychology, which suggested that humans have a basic need to master or have an effect on their environment, or experience competence, to engage in activities without coercion, or experience autonomy, and to relate to others, or experience relatedness, to enhance or at the minimum, maintain intrinsic motivation.

Self-determination theory is a motivation theory that posits that goal-oriented motivation occurs along a continuum of external regulation or motivation, or behavior that is motivated by something external to the individual, such as obtaining a financial reward or avoiding punishment; introjected regulation, or motivation to meet the expectations of another or a group or to avoid shame; and intrinsic regulation, or complete autonomous motivation that comes from within an individual to achieve values or self-expression (Ryan & Deci, 2000). Self-determination theory has been examined as a motivational theory within the psychology literature and as a work motivation theory in the organizational literature.
Work motivation has been the focus of much attention in organizational psychology for many years, which is primarily due to the belief that a motivated workforce is beneficial for organizations and that the motivational elements provided by employers are good for employees. Rainey (2000) suggests that motivation has become an “umbrella concept” (p.19) that refers to numerous variables rather than one particular, definable element. He notes that over 140 different definitions for motivation have been cited in the literature over the past 30 years (Rainey, 2000).

The term “motivation” is derived from the Latin word, “motus” (Rainey, 2000, p.20), which means, “to move” (Rainey, p.20). When applied to work, motivation means the degree that an individual is moved to apply effort in the work setting (Rainey, 2000). Work motivation has also been described as energizing forces that originate within and outside an individual to stimulate behavior directed at work related activities (Latham & Pinder, 2005; Meyer et al., 2004). Thus work motivation results from the interaction between the individual and the work environment (Latham & Pinder, 2005).

So many work motivation theories currently exist in the literature that it is easier to understand them in terms of categories rather than discuss individual theories. Major work motivation categories include goal-setting, job design/job characteristics, personal trait, affect/emotion, need satisfaction, values alignment and person-environment fit (Latham & Pinder, 2005). Research suggests that work motivation results from the interaction between the employee and the work environment because the work environment allows individuals to express personal traits, align values and skills, and fulfill their needs (Locke & Latham, 2004). Ryan and Deci (2000) determined that needs supportive work environments enhance
growth, functioning and well-being and environments that thwart needs or offer external rewards such as pay, bonuses and other tangibles, as well as external threats such as deadlines, pressured directives and evaluations, undermine intrinsic motivation. Several studies have examined person-environment fit, self-determination theory and aspects of needs-supportive and non-supportive environments to determine the work related outcomes of each. A summary can be found in Table 6. A discussion follows the table.

Table 6

Needs Satisfaction-Based Motivational Theory Literature Summary

<table>
<thead>
<tr>
<th>Author/Date</th>
<th>Findings/Key Contribution</th>
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<tbody>
<tr>
<td>Deci, Connell &amp; Ryan, 1989</td>
<td>Empirical study: Experiment that involved coaching intervention for managers to adjust the workplace to provide for self-determination by meeting needs for competence, autonomy and relatedness. Findings showed that environments that support competence, autonomy and relatedness positively influenced job satisfaction, trust in the organization and management.</td>
</tr>
<tr>
<td>McCauley, Duncan &amp; Tammen, 1989</td>
<td>Empirical study: Examined the factor structure of the Intrinsic Motivation Inventory (IMI) and reported coefficient alpha of .80 for the perceived-competence scale. The perceived competence scale of the IMI was later used in WMF-E and the BPNS-W.</td>
</tr>
<tr>
<td>Kasser, Davey &amp; Ryan, 1992</td>
<td>Empirical study: Examined work participation and job performance of employees in psychiatric rehabilitation facility using the work motivation form-employee (WMF-E). Employees who experience more autonomy, relatedness, and competence have greater work participation and performance. The WMF-E was created by adding new items to address relatedness, autonomy, and dependability to the perceived-competence sub-scale of the Intrinsic Motivation Inventory (IMI) and later, which was later used at the BPNS-W.</td>
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<td>Author/Date</td>
<td>Findings/Key Contribution</td>
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<tr>
<td>Ilardi, Leone, Kasser, &amp; Ryan, 1993</td>
<td>Empirical study: Examination of intrinsic motivation of employees in a shoe factory using WMF-E. Scales were averaged together. Reliability for the WMF-E was reported from previous studies and validity/factor structure was reported from previous studies using the (IMI), not the WMF-E. Employees who experience competence, autonomy and relatedness on the job experiences greater general job satisfaction, satisfaction with the job task, higher self-esteem and well-being.</td>
</tr>
<tr>
<td>Deci &amp; Ryan, 2000</td>
<td>Conceptual paper: Discussion of self-determination theory in relation to other need-based motivation theories. Different motivational states drive selection of different goals, which drive behaviors. Environments that support the need for competence, autonomy and relatedness have been associated with intrinsic motivation and integration of extrinsic motivators whereas unsupportive environments are associated with lower motivation, job performance and personal well-being.</td>
</tr>
<tr>
<td>Ryan &amp; Deci, 2000</td>
<td>Conceptual paper: General discussion of motivation theory and description/summary of self-determination, how it was developed in relation to other motivation theories. Description of the link between self-regulation and motivational states, including intrinsic/autonomous, introjected, extrinsic and importance of intrinsic motivation in human nature to seek out new challenges and exercise one’s potential. Environments that satisfy need for CAR facilitates intrinsic motivation and regulation and fosters initiative and well-being.</td>
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<td>Author/Date</td>
<td>Findings/Key Contribution</td>
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<tr>
<td>Deci, Ryan, Gagne, Leone &amp; Usunov, et al., 2001</td>
<td>Empirical study: Compared basic psychological needs of employees in an Eastern bloc country and the United States using the BPNS-W. Cronbach’s alpha for the competence, relatedness, and autonomy subscales were .81, .57, and .62 for the Bulgarian sample and .73, .84, and .79 for the American sample. Validity was assessed using confirmatory factor analyses. Findings were Chi-square ($df = 131$) 402.38 ($p &lt; .001$), the NNFI = .87, the CFI = .89, and the RMSEA = .07 for the Bulgarian sample and Chi-square ($df = 131$) 259.34 ($p &lt; .001$), the NNFI = .87, the CFI = .89, and the RMSEA = .09 for the American sample. Work-environment that supports CAR significant in both countries.</td>
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<tr>
<td>Gagne, 2003</td>
<td>Empirical study: Examined the role of needs satisfaction in volunteer/pro-social activities using the BPNS-W to measure satisfaction of competence, autonomy and relatedness. Verbiage on the BPNS-W was adjusted to reflect volunteer activity. Cronbach’s alpha was .60 competence scale, .76 autonomy scale, .81 relatedness scale and .88 for all three scales averaged together. Validity/factor structure was not reported for the BPNS-W. Needs satisfaction predicted both psychological engagement in volunteer work and volunteered hours.</td>
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<tr>
<td>Baard, Deci &amp; Ryan, 2004</td>
<td>Empirical study: Examined the role of environments that support competence, autonomy and relatedness on on-the-job performance using the Intrinsic Needs Satisfaction scale (INS), items from which have been interchangeable with the IMI, WMF-E and BPNS-W. All three scales were averaged together to create a needs-satisfaction measure. Cronbach’s alpha was .87 for the entire needs-satisfaction measure. Competence, autonomy and relatedness positively and significantly predicted job performance and psychological adjustment on the job and opportunities for needs satisfaction is related to perception of manager as supportive of worker autonomy.</td>
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<th>Author/Date</th>
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<tr>
<td>Meyer, Becker &amp; Vandenberghe, 2004</td>
<td>Conceptual paper: Proposal of theoretical framework in which commitment leads to autonomous or intrinsic motivation, which in turn leads to setting more difficult goals, which leads back to motivation, the target of which is a course of action, and commitment, the target of which is a person, entity (organization) or event.</td>
</tr>
<tr>
<td>Gagne &amp; Deci, 2005</td>
<td>Conceptual paper: Focused on the use of extrinsic/tangible rewards that will not undermine intrinsic/autonomous motivation using SDT. While intrinsic/autonomous motivation is desirable, some employees are not autonomously oriented so managers should try to change the environment to promote autonomous extrinsic motivation. Autonomous extrinsic motivation may lead to the best performance when dealing with uninteresting tasks requiring disciplined task engagement. This can be done through vertical and horizontal job enlargement, providing a meaningful rationale for uninteresting work, acknowledging feelings about boring tasks, structuring work to allow employee interdependence.</td>
</tr>
<tr>
<td>Arthur, Bell, Villado, &amp; Doverspike, 2006</td>
<td>Meta-analysis of the use of person-environment fit in employment decision making. A total of 197 articles were reviewed for analysis resulting in 153 correlations that represented the relationship between fit and job performance, turnover, and attitudinal criteria. Medium effects were found for the relationship between fit and organizational commitment ($R = .31$) and turnover intentions ($R = .25$).</td>
</tr>
<tr>
<td>Gagne, Chemolli, Forest &amp; Koestner, 2008</td>
<td>Empirical study: Longitudinal study conducted in Canadian call center and Italian auto parts manufacturer that examined the effects of SDT motivational states on organizational commitment. Motivational state was measured using Motivation at Work Scale. Affective commitment (Allen &amp; Meyer, 1990) and integrated commitment (O’Reilly &amp; Chatman, 1986) was more strongly correlated with autonomous/intrinsic motivation, normative commitment was more strongly correlated with introjected regulation, and continuance commitment was strongly correlated with external motivation/ regulation.</td>
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<tr>
<td>Gregarus &amp; Diefendorff, 2009</td>
<td>Empirical study: Examined the mediating effect of needs satisfaction on the relationship between person-environment fit and affective organizational commitment and job performance using the BPNS-W to measure satisfaction of competence, autonomy and relatedness. Validity/factor structure was not reported for the BPNS-W but fit of the data to the overall hypothesized model, which included all constructs, was provided. Reliability for the BPNS-W was .67 competence scale, .66 autonomy scale, .85 relatedness scale. Person-organization fit, person-group fit and demands-abilities fit predicted related to competence, autonomy and relatedness and satisfaction of competence, autonomy and relatedness positively and significantly predicted affective organizational commitment as a block together and separately.</td>
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<tr>
<td>Andreassen, Hetland, Pallesen, 2010</td>
<td>Empirical study: Examined the relationship of correlates of workaholism, needs satisfaction and personality using the BPNS-W to measure satisfaction of competence, autonomy and relatedness in a group of Norwegian workers. Cronbach’s alpha for competence scale = .67, autonomy = .68 and relatedness = .81. CFA was not performed on the BPNS-W. Workaholism components of work involvement, drive, enjoyment of work were positively and significantly correlated with satisfaction of competence, autonomy and relatedness at work.</td>
</tr>
<tr>
<td>Meyer &amp; Maltin, 2010</td>
<td>Conceptual paper: Proposed theoretical framework based on integration of three component model of organizational commitment and needs satisfaction and the effect of this combination on employee well-being; specifically satisfaction of competence, autonomy and relatedness is positively correlated with AC and NC when NC experienced as moral imperative, negatively correlated with CC and NC when NC experienced as indebted obligation. High AC, NC or AC/NC combination will experience well-being and stress reduction to the extent that their needs for competence, autonomy and relatedness are met</td>
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<th>Author/Date</th>
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<tr>
<td>Meyer &amp; Parfyonova, 2010</td>
<td>Conceptual paper: Future research proposals for alignment of three component organizational commitment profiles on motivation states within SDT; specifically high AC/NC will be aligned with autonomous/intrinsic motivation and high CC/NC will be aligned with controlled/extrinsic motivation. The paper also proposed several other hypotheses regarding the three component model of organizational commitment and concepts such as positive beliefs, psychological contracts, leadership behaviors, and cultural differences.</td>
</tr>
<tr>
<td>Meyer, Stanley &amp; Parfyonova, 2012</td>
<td>Empirical study: Examination of interactive effects of three components of organizational commitment found that employees with high AC/NC experienced greater needs satisfaction (of competence, autonomy and relatedness). Satisfying the need for competence, autonomy and relatedness may also contribute to high AC, NC and AC/NC.</td>
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</table>

Work motivation has been a topic of interest for over 100 years however needs based motivation theory came to the forefront of organizational literature in the 1940’s with the advent of Maslow’s Hierarchy of Needs, which grew out of the field of personal psychology (Latham & Pinder, 2005). However, it has been noted that needs don’t explain why a particular course of action is taken therefore researchers have expanded the search beyond needs alone as motivational and have included both individual traits, the person, and the environment, including characteristics of the job as well as other aspects of the work context (Latham & Pinder, 2005). The person-situation interactionist model (Tett & Burnett, 2003) is an example of early work that examined the interaction of the individual with job conditions to explain job performance. While the person-situation interaction model
considers individual traits and personality as they interact with the job context, person-environment fit theory focuses on the fit of the work environment to the needs and values of the individual (Latham & Pinder, 2005).

Self-determination theory does not explicitly state that it is a person-environment fit theory however, it’s premise is that meeting a needs supportive environment influences different motivational states and that the specific needs that need to be met are competence, autonomy and relatedness. Gregarus and Diefendorff (2009) found that needs satisfaction of autonomy, relatedness, and competence and mediated the relationship between person-organization fit, person-group fit and needs-abilities fit and affective organizational commitment and overall job performance.

Deci and Ryan (2000) began exploring the idea of intrinsic motivation in the early 1980’s, which eventually grew into self-determination theory that incorporated the need for CAR. Most of the early work research on intrinsic motivation was focused on personal motivation rather than work motivation and was conducted in the laboratory setting at a university, often with students serving as subjects (Deci & Ryan, 2000). The first field-based study of self-determination was done by, Deci, et al., (1989), which was an experimental design that provided an intervention directed at improving the ability of the work environment via management behaviors and workplace policies to meet employee’s need for competence, autonomy and relatedness. The intervention focused on allowing employees to have more control and choice in their work and also on changing managerial behaviors to be less controlling and more accepting of employee perspectives (Deci, et al., 1989). This was the first empirical research on self-determination theory conducted in the
workplace, outside of the laboratory setting. Findings from this study revealed that when the environment supported CAR, employees were more likely to report positive job satisfaction and trust in their organization and management (Deci, et al., 1989).

Another study that examined need satisfaction at work found that an environment that supports autonomy and provides the opportunity to exhibit competence and to relate to others was positively correlated to employee’s psychological adjustment and work performance (Baard, et al., 2004). A similar study conducted in Bulgaria found that workers were more likely to have higher self-esteem, lower anxiety at work and be more engaged in their jobs when the work environment facilitated the satisfaction of competence, autonomy and relatedness (Deci, et al., 2001). A more recent study capitalizing on the interactive effects of the three component model of organizational commitment found that employees with high AC/NC profiles experienced greater needs satisfaction of competence, autonomy and relatedness (Meyer et al., 2012).

More recent research has attempted to link the motivational states of self-determination theory, which run on a continuum from intrinsic/autonomous, to introjected/integrated, which can be described as hybrid of intrinsic/extrinsic, to completely extrinsic or externally controlled, with affective, normative and continuance organizational commitment (Gagne et al., 2008; Meyer & Maltin, 2010; Meyer & Parfyonova, 2010). Linking SDT with the three component model of organizational commitment has been recently proposed therefore little empirical research has been conducted thus far however a longitudinal study conducted in Canadian call center and Italian auto parts manufacturer revealed that affective commitment was more strongly correlated with autonomous/intrinsic/
motivation, while normative commitment was more strongly correlated with introjected regulation, and continuance commitment was strongly correlated with external motivation/regulation (Gagne et al., 2008).

In summary, the aforementioned research support needs satisfaction of competence, autonomy and relatedness as a valid and reliable construct that bears further investigation into the mediating effect of a needs supportive environment of and congruence with affective, normative and continuance commitment.

Dependent Variable Organizational Commitment

A review of the literature revealed that organizational commitment-specific articles have not addressed connections between organizational commitment and the learning organization or organizational learning. Learning has been addressed as both an antecedent and outcome of organizational commitment and work performance has been addressed as an outcome on an individual rather than organizational level. Locke and Latham (1990) have asserted that individual performance leads to organizational commitment via work motivation and rewards but that individual knowledge, skills and ability, must be created, captured and unleashed by the organization via structure and processes for this to be effective.

Organizational commitment has been connected SDT and needs satisfaction in the literature (Gagne & Deci, 2005; Gagne et al., 2008; Meyer et al., 2004; Meyer & Maltin, 2010; Meyer & Parfyonova, 2010; Meyer et al., 2012), which was addressed in more detail in the mediating variable, basic needs satisfaction section of this paper. Several of the same articles from that section of this paper are also listed in this section, the dependent variable-
organizational commitment, in the literature summary table, table 7. In summary, research has shown that individuals who have high affective and normative organizational commitment are more likely to have basic needs of competence, autonomy and relatedness met by the work environment (Meyer et al., 2004; Meyer & Maltin, 2010; Meyer & Parfyonova, 2010; Meyer et al., 2012) and that affective, normative and continuance commitment align respectively with intrinsic, integrated, introjected and extrinsic motivational states found in SDT (Gagne & Deci, 2005; Gagne et al., 2008; Meyer & Parfyonova, 2010).

Meyer and Herscovitch (2001) define the term commitment as “a binding force” (p. 301) and note that this force can be thought of as a “mind-set” (p.303). Mowday, et al., (1979), early pioneers in organizational commitment research, defined organizational commitment as “the relative strength of an individual’s identification with and involvement in a particular organization” (p.226). Likewise, O’Reilly and Chatman (1986) defined organizational commitment as the “psychological attachment felt by the person for the organization” (p.493) and similarly, Allen & Meyer (1990) defined it as “a psychological state that binds the individual to the organization” (p.14). In a subsequent study Allen and Meyer (1996) added that organizational commitment is an attachment such that will make it less likely for a person to leave the organization. An organization, as previously noted, has been defined as “federations of groups and of larger units that are more or less tightly coupled and more or less autonomous” (Yorks, 2005, p.124). Therefore, organizational commitment can be thought of as a mind-set or frame of mind that binds an individual to an organization, otherwise known as a federation of groups or larger units.
Organizational commitment has been the subject of much interest because of the notion that organizations must maintain employees to survive (Pinder, 1998). However, workforce maintenance is not enough to ensure that an organization will thrive. Employees must not only perform their jobs, they must also learn, adapt and go above and beyond their day-to-day activities. Therefore, organizational commitment has been investigated with regard to a number of antecedents and consequences, including citizenship behavior, job role performance, attendance, willingness to sacrifice on behalf of the organization, and the role that the organizational structure and workforce ability have or contribute to influencing these (Meyer, et al., 2004).

Organizational commitment has also been investigated as both a uni-dimensional and a multi-dimensional construct (Meyer & Herscovitch, 2001). Researchers who view organizational commitment as uni-dimensional primarily describe it as an emotional attachment to the organization (Cook & Wall, 1980; Mowaday, et al., 1979). Conversely, those researchers who see organizational commitment as multi-dimensional have posited that it involves different mind-sets that result in various consequences. Meyer and Herscovitch (2001) note that despite the duplicity in the literature with regard to the dimensionality of organizational commitment, the general consensus among researchers is that organizational commitment is a multi-dimensional construct that has as its “core essence” (p.301) the following three elements, “the affective or emotional bond to the organization…, perceived costs or continuance commitment…, and perceived obligation or normative commitment” (p. 308). They note that it is important to identify the core essence of organizational commitment not only because of the plethora of models that exist but also because this
makes it possible to distinguish organizational commitment from other work related attitudes and constructs.

Rousseau (1998) has posited a different viewpoint of organizational commitment in the new economy, suggesting that commitment is really identification with an object, whether this is a work group, work setting, the organization overall, a professional group or the job itself. She noted that because contemporary corporations need to stay relatively flat and lean they tend to have employees that fall into one of two categories, core and contingent (Rousseau, 1998). Given this Rousseau (1998) posits that organizational commitment or levels of identification are differentiated by these organizational roles.

Rousseau (1998) referred to the organizational commitment that corresponds with these roles as situational or temporary and deep structure. She suggested that “deep structure identification” (Rousseau, 1998, p.221) occurs when the “employment relationship alters the mental model individuals have of themselves to incorporate the organization itself” (p. 221). Deep structure identification can be thought of as organizational commitment similar to that defined by Mowaday, et al. (1979), Meyer and Allen (1990, 1996) and O’Reilly and Chatman (1986) in that it is identification that transcends the work setting, work group and/or assignment because it merges the individual and the whole organization; including its values, culture and way of being. Rousseau (1998) maintained that both levels of organizational identification or commitment are necessary for organizational performance in the 21st century workplace.

Allen and Meyer (1990) concluded that organizational commitment could not be measured on a single scale and proposed that it is multi-dimensional and comprised of three
components, affective, normative and continuance commitment. The three component model of organizational commitment has generated the most research over the past decade and is the only multi-dimensional organizational commitment that has been examined empirically (Meyer & Herscovitch, 2001), the other models being uni-dimensional, like Mowday et al. (1979) that tested a measure of affective organizational commitment. A summary of empirical research focused on organizational commitment is presented in Table 7.

Table 7

Organizational Commitment Empirical Research Summary

<table>
<thead>
<tr>
<th>Author/Date</th>
<th>Findings/Key Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle &amp; Perry, 1981</td>
<td>Empirical study. Used the OCQ to develop multi-dimensional model of organizational commitment that included value commitment and commitment to stay.</td>
</tr>
<tr>
<td>O’Reilly &amp; Chatman, 1986</td>
<td>Empirical study. Developed multi-dimensional measure of organizational commitment that included compliance, internalization and identification. Subsequent studies have not established reliability or validity.</td>
</tr>
<tr>
<td>Author/Date</td>
<td>Findings/Key Contribution</td>
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<tr>
<td>Penley &amp; Gould, 1988</td>
<td>Empirical study. Developed multi-dimensional model of organizational commitment that included moral, calculative and alienative commitment. Factor analysis using principle components with varimax rotation for five different samples reported that factors clearly loaded on three dimensions. Cronbach’s alpha was &gt;.80 for all scales.</td>
</tr>
<tr>
<td>Meyer &amp; Herscovitch, 2001</td>
<td>Conceptual paper. Focused on theoretical model of organizational commitment in the workplace that included the three component model of organizational commitment, the antecedents for each component and the outcomes of each component along with implications for practice and research.</td>
</tr>
<tr>
<td>Meyer, Stanley, Herscovitch &amp; Topolnytsky, 2002</td>
<td>Meta-analyses of 155 independent samples. Examined the relationship between the three components of organizational commitment, their antecedents and outcomes. Three components are related but distinguishable from each other. Separate antecedents for normative commitment not identified. Affective and normative commitment associated with citizenship behavior, attendance, in-role and extra-role performance. Continuance commitment was negatively associated with all of these except in-role performance. Affective commitment antecedents include organizational justice, transformational leadership, work experiences, role ambiguity and role conflict. Continuance commitment antecedents include alternative employment, investments, transferability of education and skills.</td>
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Table 7 (continued)

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<th>Author/Date</th>
<th>Findings/Key Contribution</th>
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<tr>
<td>Meyer, Becker &amp; Vandenberghe, 2004</td>
<td>Conceptual paper: Proposal of theoretical framework in which commitment leads to autonomous or intrinsic motivation, which in turn leads to setting more difficult goals, which leads back to motivation, the target of which is a course of action, and commitment, the target of which is a person, entity (organization) or event.</td>
</tr>
<tr>
<td>Gellatly, Meyer &amp; Luchak, 2006</td>
<td>Empirical study. Examined interactive effect of three components of organizational commitment. High AC/NC profiles more likely to commit to an organization and engaged in discretionary behavior compared to high CC. Organizations cautioned against using tactics that strengthen CC (financial incentives) and feelings of obligation in the absence of high AC.</td>
</tr>
<tr>
<td>Somers, 2009</td>
<td>Empirical study. Staff nurses with high AC/NC profiles less likely to leave the organization and less likely to experience job stress than high CC/NC profiles. High AC/NC profiles more likely to experience carry-over stress than high CC/NC profiles. High AC and NC mitigates CC.</td>
</tr>
<tr>
<td>Meyer &amp; Maltin, 2010</td>
<td>Conceptual paper. Three component model of organizational commitment has implications for employee well-being. AC and NC positively related to autonomous regulation when basic psychological needs are met, CC negatively related. High AC helps to mitigate stress and is associated with absence of illness. Continuance commitment has negative association with employee well-being. Normative commitment experienced as moral imperative better for employees than normative commitment experienced as indebted obligation.</td>
</tr>
<tr>
<td>Meyer &amp; Parfyonova, 2010</td>
<td>Conceptual paper. Interactive effects of affective, normative and continuance commitment. Normative commitment experienced as moral obligation when affective commitment is also strong and experienced as indebted obligation when CC is strong and AC is not strong. NC has more positive outcomes when combined with AC than when combined with CC.</td>
</tr>
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Table 7 (continued)

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Discussions regarding organizational commitment in the literature span nearly 50 years, from 1960 to the present day. Very little empirical research existed on the topic during the 1960’s and 1970’s and that which did exist often failed to report validity or reliability in publications (Mowday, et al., 1979). This which prompted a more depth review of organizational commitment, which resulted in the development of one of the first measures of affective organizational commitment called the Organizational Commitment Questionnaire (OCQ) (Mowday et al., 1979).

The OCQ is a 15-item survey that assessed affective or emotional organizational commitment as a uni-dimensional construct. Mowday, et al. (1979) examined convergent, discriminant and predictive validity as well as internal and test-retest reliability of the OCQ in their study. Cronbach’s alpha reliability coefficients ranged from .82 to .93 across samples (Mowday, et al., 1979, p. 232). Affective commitment was significantly and positively correlated with job satisfaction, job involvement and career satisfaction and predictive validity comparing previously published turnover studies revealed that those with high affective organizational commitment were less likely to turnover (Mowday et al., 1979).
The OCQ has been used in subsequent studies to examine organizational commitment as a construct as well as its antecedents and consequences over the past 30 years. For example, Jeong, et al. (2007) used the OCQ in a study that examined the impact of the learning organization on the organizational effectiveness of nurses. They did not report validity for the study but referenced prior research, noting “the instruments validity and reliability have been previously established by previous researchers” (Jeong et al., 2007 p.56) but did use Cronbach’s alpha to establish reliability in their study and reported a coefficient of .90 for the overall instrument.

Martin and Hafer (1995) used the OCQ to investigate the impact of job involvement and organizational commitment on the turnover of full-time and part-time employees. They used Cronbach’s alpha to establish reliability of an adjusted (13 item compared to the original 15 item) OCQ and reported a coefficient of .87. Validity was established using confirmatory factor analysis with oblique rotation. All items loaded clearly on the organizational commitment factor. The aforementioned studies provide further support for the validity and reliability of the affective organizational commitment construct using the OCQ.

While the OCQ is not the only uni-dimensional measure of affective organizational commitment it is one that has been researched and validated over several decades. Allen and Meyer (1990) chose it as a foundation for the affective commitment scale in the three component model of organizational commitment, noting that the “OCQ has been used extensively in research and has acceptable psychometric properties” (p. 2). Findings revealed a correlation coefficient of R=.86 between the affective commitment scale (ACS)
and the OCQ, indicating high correlation between the scales and confirming concurrent validity of the ACS. The OCQ was also found to be highly correlated with the ACS in seven other studies with correlation coefficients that ranged from .71 to .89 (Allen & Meyer, 1996).

The Three Component Model of Organizational Commitment is a multi-dimensional, organizational commitment model that incorporates three separate but interactive components, affective commitment, normative commitment and continuance commitment (Meyer & Herscovitch, 2001). Allen and Meyer (1990) developed the Three Component Model of Organizational Commitment Questionnaire to measure affective, normative and continuance commitment. They used exploratory factor analysis to establish that there were three, separate factors in the model and to further establish validity for each (Allen & Meyer, 1990). Cronbach’s alpha was used to examine reliability, with co-efficients of .75, .79 and .87 for the NCS, CCS and ACS respectively (Allen & Meyer, 1990). Details regarding the development and validation of the TCMQ are provided in the methods section, chapter three, of the present paper.

The TCMQ was used in 40 subsequent studies involving over 16,000 employees across multiple industries within five years of the time that the initial validity and reliability findings were published (Allen & Meyer, 1996). Thirty five of these 40 studies revealed Cronbach’s alphas that ranged from .70 to .89 on all scales, five of the 40 studies confirmed discriminate validity between the ACS, NCS and CCS and eight of the 40 studies reported that all items on the TCM loaded on three separate factors (Allen & Meyer, 1996). More recent research on the three component model of organizational commitment suggests that affective, normative and continuance commitment interact with each other creating
commitment profiles and that normative organizational commitment may be experienced as a moral obligation by employees who have combined high affective and normative organizational commitment and as indebted obligation by employees who have high normative and continuance commitment (Meyer & Parfyovona, 2010; Meyer et al., 2012; Somers, 2009). High combined affective and normative commitment profiles and high combined affective, normative and continuance commitment profiles are considered highly committed overall (Meyer & Parfyovona, 2010; Meyer et al., 2012). Research also suggests that high affective and normative commitment contributes to employee well-being and mitigates stress (Meyer & Maltin, 2010). Additionally, highly committed profiles, those with high AC/high NC combinations, high AC or high scores on all three scales combined are more likely to experience basic needs satisfaction at work (Meyer et al., 2012).

A different, less well studied multi-dimensional organizational commitment model that proposed “moral, calculative and alienative commitment” (Penley & Gould, 1988, p.45) reported that factors clearly loaded on three dimensions and revealed Cronbach’s alpha >.80 for all scales. Thus they reliability and validity was established for this instrument however, it has not been as widely researched as the three component model of organizational commitment (Allen & Meyer, 1990).

O’Reilly and Chatman (1986) developed a multi-dimensional organizational commitment model based on “compliance, identification and internalization” (p. 493) as well as an instrument to measure these components but were not able to establish reliability and validity for it. They derived questions for their instrument from a plethora of literature and through exploratory factor analysis using principle components with varimax rotation, found
that factors loaded on three separate dimensions. However, subsequent studies conducted by other researchers found challenges validating their work and consequently no one was ever able to replicate their findings (Meyer & Herscovitch, 2001). They also did not report reliability coefficients for the instrument they used in the study therefore the empirical relevance of O’Reilly and Chatman’s (1986) study has remained questionable (Meyer & Herscovitch, 2001) until recently, when it was used to determine alignment between it and the motivational states of self-determination theory (Gagne et al., 2008). Exploratory factor analysis using principle components with varimax rotation, found that factors loaded on two separate constructs in this particular study and that compliance and internalization aligned with extrinsic motivation while identification aligned with intrinsic motivation (Gagne et al., 2008). O’Reilly and Chatman (1986) have suggested that more attention needs to be paid to why organizational commitment develops and the process by which it develops in an organization, noting that employees don’t necessarily have emotional commitment to an organization when they start a job, but rather, that it develops over time through a series of interactions between the organization and the individual (O’Reilly & Chatman, 1986).

Angle and Perry (1981) used a uni-dimensional measure, the OCQ (Mowday et al., 1979) to delineate between value commitment and commitment to stay with an organization to determine if organizational commitment had more than one dimension. Through factor analysis using principle component extraction they reported that items from the OCQ loaded on two factors, which they named “commitment to stay” and “value commitment” (Angle & Perry, 1981, p.4). However, factor loadings on the second dimension ranged from .30 to .40, which is not strong evidence in support of a two factor model (Hair, et al., 2008). Thus while
Angle and Perry (1981) may have further validated the reliability of the OCQ, with Cronbach’s alpha coefficients > .86, they did not establish clear validity of a two factor model.

In summary, the findings of the aforementioned studies support organizational commitment as a valid and reliable construct. The three component model of organizational commitment (Allen & Meyer, 1990) that includes affective or emotional commitment, obligatory or normative commitment and perceived costs or continuance commitment has been the most widely used and reported of all of the multi-dimensional models and measures and incorporated portions of the most widely used and reported uni-dimensional measure of affective organizational commitment, the OCQ (Mowday, et al., 1979) into its affective commitment scale.

The Registered Nursing Context

Demographics from the National Sample Survey of Registered Nurses (NSSRN) conducted by Health Resources and Service Administration, Bureau of Health Professions, National Center for Health Workforce Analysis were used for the purpose of comparing this study’s sample to registered nurses in the United States. The NSSRN is the nation’s most extensive and comprehensive source of statistics on those with current licenses to practice in the Unites States whether or not they are employed in nursing (U.S. DHHS, 2010). The most recent NSSRN was conducted in 2008 and published March 17, 2010.

As of March 2008, there were a total of 3,063,163 licensed registered nurses (RNs) in the United States, representing a net growth of 5.3 % or 153,806 RNs since March 2004 (U.S. DHHS, 2010). Not all those who are licensed RNs work in the nursing field, however,
the 2008 NSSRN reported that 84.8% of all RNs were employed in nursing positions, which is the highest rate since the survey’s inception in 1977. The number of nurses working in full-time positions has also increased from 58.4% to 63.2% in 2008 (U.S. DHHS, 2010). This is the first time the United States has seen an increase in the number of registered nurses working full-time in the past 25 years (U.S. DHHS, 2010).

*Educational Preparation of RNs*

In the last decade there has been a trend toward obtaining advanced education as evidenced by a 46.9% increase in the number of RNs with master’s and doctoral degrees (U.S. DHHS, 2010). In 2008, approximately half of all RNs had a bachelor’s degree or higher in nursing and the other half had a diploma or associate’s degree in nursing. Specifically, 13.9% of licensed RNs have a nursing diploma, 36.1% percent hold an associate’s degree in nursing, 36.8% have earned a bachelor’s degree in nursing, and 13.2% have a master’s or doctoral degree in nursing (U.S. DHHS, 2010).

*Turnover rates*

Annualized turnover rates for RNs was not reported in the preliminary findings for the 2008 NSSRN at the time this writing (U.S. DHHS, 2010). Price Waterhouse Cooper (2007) reported a turnover rate in 2007 of approximately 52% for new RNs within two years of starting their job, 8.4% for hospitals based-nurses and 13.9% turnover for nurses overall. A more recent report shows that turnover for hospital based nurses averages 14% in 2011 (AACN, 2012).

Despite the economic downturn in the United States, the healthcare industry has seen an increase in job openings (U.S. BLS, 2012). Hospitals, long-term care facilities, and other
ambulatory care settings added 428,000 new jobs between 2007 and 2009, at a time when 467,000 jobs in other industries were eliminated across the country (U.S. BLS, 2012). This trend has continued as the Bureau of Labor Statistics reported that 245,000 healthcare jobs were added between 2008 and 2010, raising employment in healthcare from a total of 13.88 million jobs across the U.S. in 2010 to 14.19 million jobs in 2011 (U.S. BLS, 2012). As recently as March, 2012, 26,000 healthcare jobs were added (U.S. BLS, 2012). Registered nursing is projected to be a top occupation in terms of job growth/job openings by 2020 (U.S. BLS, 2012) though there will continue to be a shortage of registered nurses in the United States through 2030 (Juraschek, Zhang, Ranganathan & Lin, 2011).

**Position Titles**

The NSSRN reported that the most common job title for nurses working in the U.S. is “staff nurse” (U.S. DHHS, 2010, p. 16). Approximately 66.3% of licensed RNs held the staff nurse title in 2008, which represents a slight increase from 64.1% in 2004 (U.S. DHHS, 2010). Nurses working in management and administrative positions dropped 2.1% from 14.6% in 2004 to 12.5% in 2008 (U.S. DHHS, 2010).

Advanced practice nurses are required to earn an advanced degree and advanced clinical training beyond the basics mandated for licensed RNs (U.S. DHHS, 2010). In 2008, approximately 250,527 licensed RNs reported being an advanced practice nurse, which represents a 4.2% increase from 2004 (U.S. DHHS, 2010). Nurse practitioners account for 63.2% (158,348) of advanced practice nurses, a 12.1% increase since 2004 (U.S. DHHS, 2010). Nurse midwives have seen a 35.1% increase since 2004, to a total of 18,492 licensed RNs in the field while nurse anesthetists have grown from 32,523 to 34,821 between 2004
and 2008, representing a 7.1% increase in the past four years (U.S. DHHS, 2010). The only advanced practice nursing specialty that has experienced a decline in membership over the past four years has been clinical nurse specialists. In 2004 there were 75,521 clinical nurse specialists and in 2008 there were 59,242, which is a 22.4% decrease (U.S. DHHS, 2010). Approximately 4.4% of nurses work as educators, either instructors or patient educators and another 5.6% of nurses hold a variety of titles from consultant to researcher to other (U.S. DHHS, 2010).

*Part-time or full-time status*

Of the total licensed RN population in March 2008, an estimated 63.2% of RNs reported working full-time, 21.5% reported working part-time, and 15.2% were not employed in nursing. These numbers represent a 13% increase in nurses working full-time and a decrease in nurses working part-time and in non-nursing fields (U.S. DHHS, 2010).

*Age*

The average age for RNs has climbed steadily in recent years resulting in a greater proportion of nurses in older age brackets who are approaching retirement age. The average age of RNs in the U.S. rose from 46.8 years in 2004 to 47 years in 2008 (U.S. DHHS, 2010). In 1998 the largest age group of nurses was 30-34 years. Over the last decade this group of nurses has continued to age while younger nurses have not joined the workforce in great enough numbers to overtake this majority. This has elevated concerns that a mass retirement of these nurses in the next 20 years could leave the United States with the greatest nursing shortage in its history, leaving a gap of approximately 1 million nurses (U.S. DHHS, 2010).
Running Head: LEARNING ORGANIZATION ORGANIZATIONAL COMMITMENT  

Gender

Nursing in the United States continues to be comprised predominantly of females, though more men are joining the nursing workforce, particularly in hospitals (U.S. DHHS, 2010). Approximately 7.1% of registered nurses were men while 92.9% were women (U.S. DHHS, 2010). This represents a slight change from the 2004 NSSRN where only 5.8% of the registered nursing workforce was men and 94.2% was women (U.S. DHHS, 2010).

Racial/ethnic Background

The nursing workforce in the United States continues to grow more diverse though the majority of registered nurses, 83.2% are White, of non-Hispanic origin, 5.8% are of Asian descent, 5.4% are African American and 3.6% are Hispanic/Latino (U.S. DHHS, 2010).

Workplace Setting

Historically, RNs have worked predominantly in hospitals and that continues to be the trend for 2008. Approximately 62.2% of employed RNs reported being employed by a hospital. This is an increase from 2004, when 56.2% of employed RNs reported working in a hospital setting (U.S. DHHS, 2010). Among the 62.2% of nurses that work in hospitals, approximately 70% work on inpatient units and 10.8% work in outpatient clinics and specialty hospitals (U.S. DHHS, 2010). Ambulatory care centers employ approximately 10.5% of nurses while 7.8% are employed in public/community health, 6.4% in home health, 5.3% in nursing homes, 3.5% in academia and 3.9% in other settings (U.S. DHHS, 2010).
Linking the Learning Organization to Organizational Commitment in Nursing

Organizational commitment has been examined in an effort to identify the workplace elements that might improve or increase it because it has been related to citizenship behavior, in-role and extra-role performance, willingness to exert effort on the part of the organization, reduced turnover (Allen & Meyer, 1990), well-being for employees (Meyer & Maltin, 2010) and lower levels of employee stress (Somers, 2009). When organizational commitment is low or non-existent studies have shown that turnover, absenteeism, and tardiness increase (Allen & Meyer, 1990) and that employees experience increased stress (Meyer & Maltin, 2010; Somers, 2009). The nursing literature most frequently mentions turnover as the primary reason to investigate and strengthen organizational commitment because increased nursing turnover not only has been negatively associated with patient health outcomes and safety, RN to patient ratios and nurse job satisfaction (Aiken et al., 1997; Aiken et al., 2002; Gelinas & Bohlen, 2002; Pronovost, et al., 1999; Sovie & Jawad, 2001). Nurses who are more committed to their employer are less likely to voluntarily leave that employer (Nazarey, 2001; Somers, 2009) and experience less job-related stress (Begley & Czajka, 1993; Somers, 2009). A comprehensive literature review of 23 empirical studies found that emotional or affective organizational commitment was more often cited as a significant predictor of turnover among nurses than job satisfaction (Wagner, 2007). Therefore organizational commitment of nurses has been seen as the goal to achieving reduced turnover and a stable workforce that is better able to care for patients (Wagner, 2007).

As previously noted, the nursing literature has offered considerable evidence that elements found in the work environment significantly predict organizational commitment.
The idea that the organization itself contributes to organizational commitment through empowerment has been the focus of several studies in the nursing literature (Almost & Laschinger, 2002; Bonias, et al., 2010; Laschinger & Finegan, 2005; Laschinger & Wong, 1999; Ridley et al., 2009). These studies also found that the work environment contributes to work effectiveness (Almost & Laschinger, 2002), lower job strain, particularly when working in a collaborative environment (Bonias, et al., 2010; Laschinger & Wong, 1999; Ridley et al., 2009) and higher job satisfaction (Laschinger & Finegan, 2005; Ridley et al., 2009) by offering support, access to resources and information and the opportunity to learn and develop professionally on the job. Many of the elements identified by nursing research are congruent with the learning organization literature, which is summarized in Table 8.

Table 8

Nursing Research and Dimensions of the Learning Organization Congruence

<table>
<thead>
<tr>
<th>Nursing Research</th>
<th>Dimension of the Learning Organization</th>
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<tbody>
<tr>
<td>Autonomy, primary nursing, rewards, nurse empowerment, shared vision Aiken, et al., 1997; Almost &amp; Laschinger, 2002; Bonias, et al., 2010; Laschinger &amp; Wong, 1999; McDermott, et al., 1997; Nelson, 2002; Ridley, et al., 2009</td>
<td>Empowerment (Goh, 1998; Senge, 1990; Marsick &amp; Watkins, 2003)</td>
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Table 8 (continued)

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<thead>
<tr>
<th>Nursing Research</th>
<th>Dimension of the Learning Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participatory management, Magnet Organization, (Almost &amp; Laschinger, 2002; ANCC; Bonias, et al., 2010; McDermott, et al., 1997; Nelson, 2002; Ridley, et al., 2009)</td>
<td>Strategic leadership (Goh, 1998)</td>
</tr>
</tbody>
</table>

The alignment between nursing literature and the learning organization literature is congruent with findings that employees are more likely to be adjusted, have trust in the organization and organizational management, to perform on the job (Deci & Ryan, 2000) and to have increased organizational commitment (Gregarus & Diefendorff, 2009) when the work environment satisfies the basic psychological need for competence, autonomy and relatedness. This suggests that elements within the learning organization are positively correlated with and positive predict affective and normative organizational because they provide need satisfaction. A detailed description of the workplace elements found within the nursing literature as aligned with basic needs satisfaction was provided in chapter one of the present paper.

Autonomy and empowerment has been one of the mostly widely studied workplace elements in the nursing literature (Almost & Laschinger, 2002; Bonias, et al., 2010; Bradbury-Jones, Sambrook, & Irvine, 2008; Laschinger & Finegan, 2005; Laschinger & Wong, 1999; Manojlovich, 2007; Ridley, et al., 2009) and empowerment has accounted for
the greatest amount of variance in studies that have empirically investigated the organizational commitment of nurses (McDermott, et al., 1997; Nelson, 2002). Several dimensions of the learning organization that provide empowerment may meet the needs for autonomy. Likewise, collaboration and teamwork, which has been positively attributed to the organizational commitment of nurses (Almost & Laschinger, 2002; Bonias, et al., 2010; Laschinger & Finegan, 2005; Ridley, et al., 2009) may meet the need for relatedness through the team learning, system connection and inquiry and dialogue dimensions of the learning organization. Finally, the opportunity to learn and work in a learning environment (Almost & Laschinger, 2002; Bonias, et al., 2010; Laschinger & Finegan, 2005; Laschinger & Wong, 1999; McDermott, et al., 1997; McNeese-Smith, 2001; Naude & McCabe, 2005; Ridley, et al., 2009) as provided by the continuous learning dimension of the learning organization may contribute to the basic psychological need of competence. As these needs are met by the learning organization, organizational commitment increases.

Many researchers agree that for organizational learning to occur, an organization must possess the supporting structure, systems, processes, procedures, technology, culture, values, strategy and even professionalism in the respective workforce (Easterby-Smith, et al., 2000; Fiol & Lyles, 1985; Popper & Lipshitz, 1998; Shirivastava, 1983; Yorks, 2005). Furthermore, the idea of learning collectively must be embraced by individuals, groups or teams and more broadly, the organization, for it to be successful (Popper & Lipschitz, 1998). This comes from the commitment individuals have to their organization, which helps the current employer to not only retain them but to also gain job role performance, extra role performance, citizenship behavior and the willingness to exert effort on the part of the

The aforementioned suggests that there must be reciprocity between individuals and the workplace for the learning organization to function so that organizational learning occurs and organizational commitment develops and strengthens. While there has been some investigation into the process by which organizational commitment develops, the research is scant but that which does exist suggests that affective commitment and normative commitment, as a moral imperative, does not exist when an employee joins an organization but that as workplace structures provide the opportunity for individual skills and values to align with organizational needs and values, that affective organizational commitment eventually evolves over time (Meyer & Parfyonova, 2010; Meyer et al., 2012). Thus learning on the individual, group and organizational level is an outcome of organizational and individual interaction. As needs and values no longer fit, affective organizational commitment may wane and become more pronounced continuance commitment.

It is unclear where normative commitment plays a role in this reciprocity though recent studies suggest that the interactive effects of the three components of organizational commitment may influence normative commitment to be experienced as either indebted obligation or moral obligation (Meyer & Parfyonova, 2010; Meyer et al., 2012) and this interactive effect may play a larger role in commitment that wanes from the organization but focuses on a workgroup or customer group (Somers, 2009), which may be desirable, depending upon the contract between the organization and the employee. This is congruent with Rousseau’s (1998) suggestion that organizational commitment or levels of identification are differentiated by current world of work organizational roles; core and contingent, which
are deep structure and situational.

Rousseau (1998) posited that “deep structure” (p. 221) identification occurs when the “employment relationship alters the mental model individuals have of themselves to incorporate the organization itself” (p. 221) and is essential to non-contingent, core employees. Deep structure identification can be thought of as that which transcends the work setting, work group and/or assignment because it merges the individual and the whole organization; including its values, culture and way of being. It is deep structure identification, which can be thought of as congruent with affective organizational commitment, that drives individuals to align with their employing organization, to perform, learn, and share information, which in turn, contributes to learning on the organizational level. However situational commitment is important for commitment to teams, a particular event or task that needs to be accomplished or even coping with change in an organization. The theory that deep structure and situational commitment may exist simultaneously and influence commitment over time is aligned with the theory that the three components of organizational commitment interact and influence employee commitment and behavior over time.

In summary, nursing is a hands-on occupation that experiences less threat of jobs being shipped out of the country than other industries. Patient safety, health outcomes and organizational accreditation are directly affected by staffing levels and patient-to-RN ratios. In a country that is and will be facing a nursing shortage, hospitals and other healthcare providers must keep up with the rapid rate at which new technology and procedures change to be able to provide quality patient care and keep the nurses they currently employ because
there will be no surplus from which to recruit. Organizational commitment has been identified as the key to reducing nurse turnover and maintaining a stable workforce (Wagner, 2007) and the learning organization may play a vital role in providing the workplace elements that will increase organizational commitment by meeting the needs for competence, autonomy and relatedness.

Summary

A database search of the Web of Science, Google Scholar, Academic and Business Search Premier, abstract and dissertation database using the subject/keyword terms “learning organization” and “organizational commitment” together produced three articles that discussed both constructs in relation to each other. All three articles were published within the last two years and only one addressed the learning organization and organizational commitment in nursing but was conducted in South Korea (Jeong, et al., 2007; Wang, 2007). To date, there have been no studies that have examined the impact of the learning organization on the organizational commitment of nurses in the United States. Additionally, none have used the DLOQ-A as a measure of the learning organization in relation to organizational commitment in any other industry in the United States. The DLOQ has been used once in the U.S. nursing context to investigate the impact of the learning organization on nurses’ propensity to use evidenced based practice as part of an unpublished dissertation (Estrada, 2007).

The aforementioned indicates that there is a gap in the literature with regard to the impact of the learning organization on organizational commitment across industries in the United States, including nursing. Therefore, results of this study will contribute to existing
literature by providing further empirical research of the DLOQ as a valid and reliable measure of the learning organization in the United States, where no research currently exists. Additionally, it will provide further empirical research of the DLOQ as a valid and reliable measure of the learning organization in nursing in the United States, where only one study has been conducted using this instrument. This is significant because the U.S. is currently facing a nursing shortage and a population that will put increasing demands on the healthcare delivery. Therefore, it is incumbent upon hospitals to retain the nurses they have, which requires gaining an understanding of the factors that impact this retention. Thus the result of a study that examines the relationship between learning organization and organizational commitment in nursing will be useful to HRD professionals, hospital administration as well as the healthcare industry as a whole.
Chapter Three

Methods

Chapter Three provides a description of the research design, research questions, the population and sample, instrumentation, data analysis and a summary.

The purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness on the relationship between the Dimensions of the Learning Organization and affective and normative organizational commitment in the United States nursing population.

Research Design

This study was a non-experimental, correlational survey design using a purposeful sample of registered nurses who are members of seven, state-based professional nursing associations affiliated with the American Nurses Association, located in the southeast, west, mid-west and northeast regions of the United States. This study was conducted with a survey and used correlational methods, which is non-experimental research (Sproull, 2002). It addressed nurses’ perception of the dimensions of the learning organization demonstrated by their employer as well as their commitment to that employer therefore data was collected with a self-administered, on-line survey. According to Sproull (2002) a survey or questionnaire is the appropriate method of data collection to use when capturing subjects’ self reports.

Internal reliability and construct validity for the DLOQ-A, TCMQ-A, and Basic Needs at Work Scale (BNWS), sections two, three and four of this study’s instrument, were examined with Cronbach’s alpha and confirmatory factor analysis respectively. Descriptive
statistics for all demographic data as well as mean scores, standard deviations, inter-correlations, frequencies, and percentages for the DLOQ-A, TCMQ-A and BPNS-W are provided. The study applied multiple regression to determine the predictive ability of the dimensions of the learning organization on the organizational commitment of nurses as mediated by basic psychological needs at work based on Kenny’s (2011) steps to determine mediation. Mediation steps were reflected in the hypotheses statements. The study also used structural equation modeling to test the fit of the model, which posited that satisfaction of the basic psychological needs for competence, autonomy and relatedness partially mediated the relationship between the dimensions of the learning organization and organizational commitment.

Research Hypotheses

This study addressed the following research hypotheses to support the problem and purpose of the study. The hypothesized model is illustrated in Figure 3.

H1: The linear combination of the seven dimensions of the learning organization will predict affective organizational commitment. 

\[ H_1: y = a + b_1 x_1 + b_2 x_2 + \ldots + b_7 x_7 \]

H0: The linear combination of the seven dimensions of the learning organization will not predict affective organizational commitment. 

\[ H_0: y \neq a + b_1 x_1 + b_2 x_2 + \ldots + b_7 x_7 \]

H2: The linear combination of the seven dimensions of the learning organization will predict normative organizational commitment

\[ H_2: y = a + b_1 x_1 + b_2 x_2 + \ldots + b_7 x_7 \]
H₀: The linear combination of the seven dimensions of the learning organization will not predict to normative organizational commitment.  
\[ H₀: y ≠ a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \]

H₃: The linear combination of the seven dimensions of the learning organization will predict basic psychological needs, which is comprised of competence, autonomy and relatedness.  
\[ H₃: y = a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \]

H₀: The linear combination of the seven dimensions of the learning organization will not predict basic psychological needs, which is comprised of competence, autonomy and relatedness.  
\[ H₀: y ≠ a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \]

H₄: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment.  
\[ H₄: (X*M) + X + M = 0, \quad \text{z-value} = a*b/\text{SQRT}(b²sₐ² + a²sₕ² + sₐ²sₕ²), \quad p < .05 \]

H₀: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment.  
\[ H₀: (X*M) + X + M ≠ 0 \]
**H5:** Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment. 

\[ H_5: (X* M) + X + M = 0, \quad z\text{-value} = \frac{a*b}{\text{SQRT}(b^2s_a^2 + a^2s_b^2 + s_a^2s_b^2)}, \quad p < .05 \]

**H0:** Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment. 

\[ H_0: (X* M) + X + M \neq 0 \]

---

**Figure 3**

Study Model
Sample

Participants were a purposeful sample of 870 registered nurses who are members of seven, state-based professional nursing associations affiliated with the American Nurses Association located in the mid-west, northeast, west and southeast regions of the United States. The regional location of these states was based on U.S. Census Bureau (2010) designation. Criteria for selecting nursing associations for this study included openness to participating in third-party research, willingness and ability to distribute the electronic survey on behalf of the researcher at no cost, a readily accessible email address for a point-of-contact for the association, and a membership count that when added to other participating associations maintained a manageable sampling frame. The target sampling frame was 4500, which was based on requirements to conduct confirmatory factor analysis (Swanson & Holton, 2005), multiple regression (Bartlett, Kotrlik and Higgins (2001), structural equation modeling (Nunally, 1967) and registered nurse survey response rate in social science research (Baird, 2009; Nelson, 2002; Jeong et al., 2007; Tourangeau & Cranley, 2006).

Thirty two out of 50 state-based nursing associations were initially invited to participate based on the study’s selection criteria via an e-mail message sent by the researcher. Fifteen of the 32 associations, or approximately 50%, responded to the request. The remaining 28 state organizations were not contacted because the sampling frame was large enough and/or because contact information was not readily available for these respective associations. Seven of the 15 associations that responded were selected to participate in the study because they were interested in the research topic, agreed to forward the survey link electronically to their membership roster via email on behalf of the researcher.
and did not require a fee. Of the remaining eight that were not selected, five said that they
did not participate in third-party research and three required a fee of $200 or more from the
researcher. This information was not readily posted on their websites hence they were
contacted with the initial 32 associations. One of the seven participating associations agreed
to release member e-mail addresses to the researcher for a fee however the volume of e-mail
addresses was technologically unmanageable therefore the researcher asked this organization
to distribute the survey to its members directly. The other six organizations that participated
would not release the email addresses or other contact information of their membership to the
researcher but did agree to forward the survey link.

A total of 870 surveys were returned, representing an overall response rate of 3.5% for
the entire sampling frame of 24,751. The researcher did not have access to members’ e-
mail addresses to verify the accuracy of the overall count of recipients or that the survey link
reached the entire sampling frame due to third party survey distribution. Additionally, state 3
embedded the study announcement and survey link in a newsletter that was sent to its
membership roster via an e-mail message, despite being asked to send it as a separate
announcement, so in this particular case there was no way to isolate the study link and
invitation from other organizational. It is questionable if state 2 distributed the survey to its
members due to the low response rate though several confirmation messages were exchanged
between the researcher and the point-of-contact for that association. The state organizations
that participated in the study requested that they remain anonymous therefore the names of
the organizations and the states in which they are located are not provided. Response rate by
state is presented in Table 9.
Demographic categories similar to those collected by the National Sample Survey of Registered Nurses, the largest survey of registered nurses in the United States (U.S. DHHS, 2010), were captured for this sample and compared to those collected for the most recent NSSRN report in 2008 for the purpose of establishing the representativeness of this study’s participants of nurses working in the U.S. per Sproull’s (2002) recommendation to compare the characteristics of the study sample, such as demographics, to the target population when non-random sampling methods are used. The NSSRN makes its survey, reports and code book available to the public at no cost. The demographics of this study’s sample were

### Table 9

**Response Rate by State**

<table>
<thead>
<tr>
<th>State</th>
<th>Potential Survey Recipients</th>
<th>Surveys Returned/Useable</th>
<th>Response Rate</th>
<th>Early/Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 1 -Northeast</td>
<td>16,100</td>
<td>418/366</td>
<td>2.6%</td>
<td>343/23</td>
</tr>
<tr>
<td>State 2 -Northeast</td>
<td>2010</td>
<td>6/5</td>
<td>&lt;1%</td>
<td>5/0</td>
</tr>
<tr>
<td>State 3 -Southeast</td>
<td>3300</td>
<td>17/13</td>
<td>&lt;1%</td>
<td>5/8</td>
</tr>
<tr>
<td>State 4- Midwest</td>
<td>900</td>
<td>96/92</td>
<td>10%</td>
<td>49/43</td>
</tr>
<tr>
<td>State 5- Midwest</td>
<td>1700</td>
<td>187/182</td>
<td>11%</td>
<td>170/12</td>
</tr>
<tr>
<td>State 6 - Midwest</td>
<td>378</td>
<td>66/63</td>
<td>17%</td>
<td>36/27</td>
</tr>
<tr>
<td>State 7- West</td>
<td>363</td>
<td>81/72</td>
<td>22%</td>
<td>25/47</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>24,751</td>
<td>870/788</td>
<td>3.5%</td>
<td>628/160</td>
</tr>
</tbody>
</table>
similar in age, gender, employment status and work setting to the demographics of the
national nurse sample that participated in the 2008 NSSRN, which was the most recent
NSSRN data at the time the present study was initiated.

The minimal acceptable number of observations needed to perform statistical analysis
was determined by using a ratio formula. Bartlett, et al., (2001) recommend a minimum 5:1
and ideal 10:1 observation-to-item ratio for the independent variable, with a minimum of 200
observations, to conduct multiple-regression. Likewise a minimum 5:1 and ideal 10:1
observation-to-item ratio is recommended to conduct confirmatory factor analysis (Swanson
& Holton, 2005) and structural equation modeling (Nunnally, 1967).

Using these ratios as a guideline for the present study, the number of items in the
mediating variable scale, (BPNS-W) were added to the number of items in the independent
variable scale (DLOQ-A) to determine the item-to-observation ratio for the independent
variable. This is because the dependent variable was regressed on the combination of the
mediating variable and the independent variable therefore the mediating variable is treated
like an independent variable Bartlett et al., (2001). The number of independent variable
items, 45 and the number of dependent variable items, 12 were then multiplied by the
minimum observation ratio, 5 and the ideal observation ratio, 10. The greater number of the
two variables, 45, was used to determine the minimum number of observations, 225 (45x5)
and the ideal number of observations, 450 (45x10). The ideal number of observations, 450,
was targeted to ensure that all statistical analysis could be conducted. Observation number
requirements are presented in Table 10.
Table 10

*Observation Requirement for Statistical Analysis*

<table>
<thead>
<tr>
<th>Analysis Method</th>
<th>Formula</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Equation Modeling</td>
<td>45 x 10</td>
<td>450 ideal (10:1)</td>
</tr>
<tr>
<td>Multiple Regression</td>
<td>45 x 10</td>
<td>450 ideal (10:1)</td>
</tr>
<tr>
<td>Confirmatory factor analysis independent variable</td>
<td>45 x 10</td>
<td>450 ideal (10:1)</td>
</tr>
<tr>
<td>Confirmatory factor analysis dependent variable</td>
<td>12 x 10</td>
<td>120 ideal (10:1)</td>
</tr>
</tbody>
</table>

The response rates of registered nurses were reviewed in other research to determine the size of the sampling frame needed to obtain the target sample size of 450 for the current study. The literature revealed a broad range of response rates by registered nurses in social research, from 37% at a single site (Nelson, 2002) to 65% in a country-based census study outside of the U.S. (Tourangeau & Cranley, 2006), to 95.5% at a single site outside of the U.S. where the survey was distributed directly by nurse managers (Jeong, et al., 2007). An unpublished pilot study with a purposeful sample of RNs that included two of the three instruments used in the present study had an 18% response rate from a nation-wide professional nurses’ association and a 10% response rate from a single site where the survey was distributed by nurse managers via e-mail (Baird, 2009). Therefore, to ensure the ideal 450 observations were captured to conduct statistical analysis, 4500 was the targeted number of registered nurses needed in the sampling frame. This was based on the aforementioned research that suggested that between 10% or 450 and 15% or 675 would respond.
A total of 870 surveys were returned, which was nearly twice the number of surveys needed to conduct statistical analysis based on the ideal number of 450 derived from the previously mentioned item-to-ratio calculation. The overall response rate appeared low at 3.5% however this rate should be viewed with caution due to the large number of members reported by state 1, which inflated the size of the sampling frame, and the inability of the researcher to verify the accuracy of the sampling frame count or that the survey link reached all intended members.

Miller and Smith (1983) recommend using multiple methods to reduce non-response error such as maximizing the number of surveys returned by using reminders and frequent contact, ignoring non-respondents, comparing respondents with the target population, comparing early and late respondents and using multiple methods to reach the sample. This study incorporated several methods to address non-response bias. For example, an attempt was made to maximize the number of returned surveys by following Dillman’s (2007) method for data collection. This included sending more than one request to recipients to participate in the study. The researcher did not have access to the mailing addresses of the participants for the present study therefore a mixed data collection mode (Dillman, 2007), wherein participants are contacted via more than one type of method such as e-mail and postal service was not feasible. However multiple contacts were made electronically with participants via the nursing organizations on behalf of the researcher. The respondents were also compared to the target population, in this case, registered nurses working in the United States, by collecting demographics similar to those gathered by the NSSRN. Demographics
for this study’s sample and the 2008 NSSRN sample were similar and are presented in Chapter Four.

Because of the use of third party distributors it was not possible to compare respondents to non-respondents because non-respondents were unknown to the researcher. However, research has shown that the responses of late respondents are often similar to those of non-respondents (Miller & Smith, 1983), therefore the responses provided by late respondents were estimated to be representative of non-respondents for the current study and were compared to non-late or early respondents. This was done by capturing the date and time that each survey was completed via the web-based survey tool. Late and non-late/early respondents were determined by survey response date. The current study’s survey was re-distributed via e-mail approximately four weeks after it was initially e-mailed to recipients. Surveys completed at least four weeks after the initial survey message was distributed and after the second notice was sent, were considered late for this study. Surveys completed on around the initial distribution date and before the second distribution was sent were considered early. Coding in SPSS 18 was addressed by creating the label “response date”. All early respondents were coded “1” and late respondents were coded as “2” as defined by the response date criteria listed above, before or after the second announcement.

A one-way ANOVA, between subjects design was used to analyze the differences between the mean scores of early and late respondents for all variables. A one-way, between subjects ANOVA is the correct procedure to use when there is a single predictor variable measured on a nominal scale that can take on two or more values, and a single dependent variable that is measured on a numeric scale (O’Rourke, Hatcher, & Stepanski, 2005). The
nominal predictor was response date, defined by the categories “early” or “late”. All of the mean scores for the DLOQ-A, TCMQ-A and BPNS-W were the dependent variables, measured on a numeric scale. No significant differences were found between the mean scores of early and late respondents for any variable. The ANOVA for the present study is presented in more detail in Chapter Four.

The demographics of early and late respondents were also compared using Chi-Square. Chi-Square is the correct procedure to use when all variables are measured on a nominal scale (O’Rourke, 2005). The work setting, job title, employment status, age, race and education level demographics had cells that included less than the minimum cell count needed to determine significance therefore several categories within each of these demographics were combined. Significant differences were noted between the early and late respondents’ demographics in the areas of work setting, educational level and race. Effect size for those categories in which there was significant differences was calculated using Cramer’s Phi (Davenport & El-Sanhurry, 1991). It is important to note that differences between early and late respondents for the present study pertain to demographics and response time to the survey only. There were no significant differences in the mean scores for the variables per the ANOVA therefore there were no differences in survey responses by early and late respondents, only differences in response time. Additionally, the demographic categories for the sample are similar to those of the U.S. nursing population as indicated by comparison to the 2008 NSSRN.

Allen and Meyer (1990) examined demographics such as age, gender and educational level as antecedents of organizational commitment and found that they were not significant
predictors (Allen & Meyer, 1990). A meta-analysis conducted on the antecedents of organizational commitment that included 155 different samples representing 50,146 employees across various industries also revealed that demographics such as age, race, gender and educational level were not significant predictors or antecedents of organizational commitment and that “demographic variables play a relatively minor role in the development of organizational commitment, regardless of its form (Meyer, et al., 2002) therefore demographics were not included in the study for the purpose of determining any influence on the dependent variable. They were included to establish the representativeness of the sample to the target population for the purpose of generalizing study findings, in this case to registered nurses working in the United States.

Measurements

Data was collected using a four section survey, which included section one, demographics, section two, the Dimensions of the Learning Organization Questionnaire-Abbreviated (DLOQ-A) (Yang, et al., 2004) section three, the Three Component Model of Employee Commitment-Abbreviated (TCMQ-A) (Meyer & Allen, 2004) and section four, Basic Psychological Needs Scale-Work (BPNS-W) (Ryan & Deci, 1998). See Appendices for survey instruments.

Section One: Demographics

The first section of the survey included nine questions that collected demographic information including gender, age, race, education level, work setting, employment status, and job title. These demographic categories were based on the demographic data collected by the National Sample Survey of Registered Nurses (NSSRN), which is conducted every
four years by the Health Resources and Services Administration [HRSA] to capture information about the current population of registered nurses with active nursing licenses in the United States (U.S. DHHS, 2010). The same verbiage and demographic categories used by the NSSRN were used on these nine questions for the present study. An additional five questions not found on the NSSRN were included in the demographics section of the survey for the present study by the researcher as areas of interest for future research for the author and/or the participating nursing organizations. These questions were years with current employer, years’ experience as an RN, bed count (if applicable-to determine hospital size), Magnet hospital status, and union affiliation. Descriptions and/or definitions of each of the demographic categories were provided in the survey. See Appendix F for the demographics section of the survey.

Section Two: Dimensions of the Learning Organization Questionnaire-Abbreviated

Section two of the questionnaire included 24 Likert-type questions from the Dimensions of the Learning Organization Questionnaire, abbreviated version (DLOQ-A) related to the seven dimensions of the learning organization that represent the independent variables for this study: 1) continuous learning, 2) inquiry and dialogue, 3) collaboration and team learning, 4) establish systems to capture team learning, 5) empower people toward a collective vision, 6) system connection, and 7) provide strategic leadership for learning.

Yang (2003) empirically selected 21 of the 43 questions found in the DLOQ to create the DLOQ-A (abbreviated version) and recommended using it instead of the longer instrument when investigating other variables because it is shorter yet still a valid and reliable measure of the learning organization.
For scholars who want to use the DLOQ as a research instrument to determine theoretical relationships of the learning culture and other variables such as organizational performance, transfer of learning, and organizational capability, the short version of the DLOQ with 21 measurement items is recommended. The short version includes 3 adequate measurement items for each of the seven dimensions and has better psychometric properties in terms of the formation of an adequate measurement model (Yang, 2003, p. 160).

The DLOQ-A was chosen for the present study because it provided a succinct yet reliable method for capturing data related to the learning culture that could be used with other variables, in this case, the mediating variable, basic psychological needs at work, and the dependent variable, organizational commitment. However question 30, (as numbered on the DLOQ), “my organization supports employees who take calculated risks” (Marsick & Watkins, 2003, p.144), was omitted from the instrument used for the present study because it was not applicable to the target population. According to the McGill model of nursing, “the primary goal of nursing is to maintain, strengthen and develop the patient’s health” (Gottlieb & Rowat, 1987, p. 51) therefore taking calculated risks with patients’ health and/or safety is counter-intuitive to this widely accepted model of practice and is not promoted or supported in healthcare settings.

Four questions were taken from the longer, 43-item version of the DLOQ and added to the abbreviated, 21-item DLOQ-A to capture information related to the population and their work setting that would not be possible to obtain with the existing items in the abbreviated instrument. Adding these four questions and omitting question 30, as noted
above, resulted in a 24-item instrument used in the present study. See Table 11 for a list of questions that were added to the DLOQ-A from the DLOQ. A discussion of the rationale for these changes follows the table.

Table 11

Present Study: Summary of Questions added to the DLOQ-A from the DLOQ

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Questions Added to the DLOQ-A</th>
</tr>
</thead>
</table>
| Continuous Learning  | DLOQ Question 4
“In my organization, people can get money and other resources to support their learning” |
| Empowerment          | DLOQ Question 28
“My organization invites people to contribute to the organization’s vision”               |
| System connection    | DLOQ Question 34
“My organization encourages everyone to bring the customer’s (patient’s/family’s) views into the decision making process” |
| Strategic Leadership | DLOQ Question 38
“In my organization, leaders generally support requests for learning”                      |

As previously noted, researchers have posited that learning and continuing education as well as the opportunity to develop oneself professionally reduces nursing turnover and improves patient safety and outcomes (McDermott, et al., 1997; Scanlon, et al., 1999).

Continuous learning not only requires resources, such as time and money, it also requires that
these resources be made available. Additionally, the opportunity to participate in a developmental job assignment, work as or with a preceptor as well as the ability to rotate job assignments for developmental purposes must also be approved by a manager. Marsick and Watkins (2003) note that “leaders and managers provide strategic leadership for learning” (p.142) therefore leaders and/or managers within the organization must provide time, money and the opportunity for continuous learning to occur via classes, job assignments or other means. Questions 4 and 38 address whether a registered nurse believes that management and/or leadership within a given organization makes money, time, and other resources available and generally supports opportunities for learning, therefore these questions were added to the instrument for the present study and self-reported by nurses.

Empowerment is often associated with primary nursing practice in the nursing literature, which refers to nurses’ ability to “exert control over the practice setting to focus resources as required for good patient care” (Aiken, et al., 1997, p.17) and to have the authority to make decisions related to nursing practices sans hospital bureaucracy (Nelson, 2002). Nurse autonomy and empowerment accounted for the greatest amount of variance in the organizational commitment of nurses in two respective studies by Nelson (2002) and McDermott, et al. (1997). The empowerment dimension of the learning organization refers to the opportunity to provide input into the organizational vision, which invites ownership in that vision, demonstrates inclusiveness with levels below top leadership and may prove to empower employees, specifically nurses, to direct their practice toward the vision, therefore, question 28 was included in the instrument for the present study. Involving the patient and the patient’s family in decision making is espoused by primary nursing practice and the
McGill model of nursing (Gottlieb & Rowat, 1987) therefore, question 34 was included in the instrument for the present study and the term “customer” has been changed to “patient/patient’s family” to make it more applicable to nurses. See Appendix A for present study question-to-Learning Organization Dimension alignment.

All Likert-type questions required responses on a scale from 1 to 6 with 1=never to 6=always. Each of the seven dimensions was represented by the sum of the questions related to it. Continuous learning and strategic leadership scales included four questions each for a total score range of 4 to 24 for these respective factors. Inquiry and dialogue, collaboration and team learning, empowerment, embedded system and system connection included three questions each for a total score range of 3 to 18 for these factors. Summing all questions on all dimensions produced an overall learning organization variable score that ranged from 23 to 138. Scores reflected the degree to which nurses perceive that their employer supports and uses learning at an individual, team, and organizational level. See Appendix B for the DLOQ-A section of the survey.

Reliability and Validity: Dimensions of the Learning Organization

To create the DLOQ and establish content validity, Yang, et al., (2004) generated an item pool based on literature review and the previously referenced work of Lewin (1946), Argyris and Schon (1978), Senge (1990), Meyer (1982) and Goh (1998) as well as their observations in the field. A group of human resource professionals and managers then rated each question as it pertained to their organization (Yang, et al., 2004). After this step, the seven scales were further refined with by two panels of graduate students from two
universities for coherence and readability (Yang, et al., 2004). Three phases of field testing were then conducted to ensure validity and reliability of each scale (Yang, et al., 2004).

During each phase of the three phases of field testing, managers and human resource professionals from different organizations completed each scale as it pertained to their employer or work group. A total of 48, 71, and 191 subjects participated in stages one through three respectively (Yang, et al., 2004). Responses were coded and analyzed using SPSS and item analysis was conducted during each phase of field testing (Yang, et al., 2004). Reliability, as indicated by Cronbach’s alpha was used to revise the instrument and “field tests continued until acceptable reliability and content validity were achieved” (Yang et al., 2004, p. 37). The result was a 43-item questionnaire named the Dimensions of the Learning Organization Questionnaire (DLOQ). All scales had reliability coefficients >.70. Scales are determined to be reliable when coefficients are ≥ .70 (O’Rourke, et al., 2005).

After establishing reliability and content validity, construct validity of the DLOQ was conducted during three phases with a non-random sample 836 managers and human resource professionals from multiple organizations (Yang, et al., 2004). Participants were randomly selected into two, equally sized groups of 418 each; one group was designated exploratory and the other was designated confirmatory (Yang, et al., 2004). Three alternative models were tested during phase 1 with both groups using confirmatory factor analysis (Yang, et al., 2004). During phase two, the instrument was refined and during phase three, structural equation modeling was used to determine the nomological validity of the DLOQ (Yang, et al., 2004). The phase three SEM revealed that all correlations were significant, (p = .001). Inter-correlations between the four dimensions found on the people level of the model were
running head: learning organization organizational commitment

high, with all coefficients ≥ .74. The structure level of the model revealed low to moderate
inter-correlations between the remaining three dimensions, with .15 being the lowest
correlate (Yang, et al., 2004, p.41). Furthermore, the relationship of the people level and
structure level was found to have a correlation score of R = .56 and both were also correlated
to the organizational outcomes of knowledge performance and financial performance, R = .51
and R = .59 respectively (Yang, et al., 2004, p. 49). The RMSEA for the seven factor model
was .08, CFI was .83 and GFI was .75. A value ≥ .90 on the GFI or CFI indicate adequate
models (Swanson & Holton, 2005). The RMSEA indicates a close fit between the model and
the population. A RMSEA ≤ .05 indicates a very close fit while values < .08 revealed a
reasonably good fit (Swanson & Holton, 2005, p.196) therefore the findings for this study
suggested a reasonably good fit for this model with the population.

Due to the length of the DLOQ, Yang et al. (2004) developed a shorter version of the
questionnaire that included only “those items that most accurately represented the designated
dimensions from statistical and substantive viewpoints” (p.38). They employed a “model
generating method” (Yang, et al., 2004, p.38) to identify only those items most representative
of each scale and began omitting them from the 43-item questionnaire until an acceptable
fitting model was obtained. This resulted in a 21-item, shortened version of the instrument
called the Dimensions of the Learning Organization-Abbreviated (DLOQ-A). Reliability for
the seven dimensions of the DLOQ-A was assessed using Cronbach’s alpha, which ranged
from .68 to .83 (Yang, 2003) and .83 to .93 under the “congeneric model” (p. 160) while the
overall reliability estimate for the 21-item DLOQ-A was .93 (p. 160).
Both the DLOQ and DLOQ-A have been used in studies by other scholars who have reported validity and reliability in their research. In a study that investigated the impact of the learning organization on the propensity of physical therapists to engage in evidence based practice, Bridges, et al. (2007) established reliability of the DLOQ using Cronbach’s alpha. Reliability coefficients for all scales were ≥ .79.

In a study conducted for an unpublished doctoral dissertation, the DLOQ was used to examine the impact of the learning organization on the propensity of nurses to use evidenced based practice (Estrada, 2007). Findings from this study revealed an overall Cronbach’s alpha of .96 for the instrument with reliability coefficients ≥.80 for all scales. Estrada (2007) used factor analysis with principle components extraction to assess the validity of the DLOQ in this study. Findings revealed two components with Eigen values > 1, which corresponded to the DLO’s structure and people levels.

Ellinger, et al. (2002) used the DLOQ to examine the relationship between the learning organization and the financial performance of U.S. manufacturing firms. Confirmatory factor analysis was used to establish validity of the DLOQ. Results revealed RMSEA of .07, CFI = .94 and GFI = .87 (Ellinger, et al., 2002, p. 14).

Wang (2007) translated the DLOQ into Mandarin and used it to examine the relationship between organizational learning, job satisfaction and organizational commitment in native Chinese enterprises. Cronbach’s alpha was used to establish reliability. All scales were ≥ .70. Validity for the instrument was not reported in this article however the study found a significant path co-efficient between the learning organization and job satisfaction, .80 (p < .001) (Wang, 2007, p. 174).
Hernandez (2003) translated the DLOQ into Spanish and used it to examine the learning organization in manufacturing companies located in the country of Columbia. Cronbach’s alpha was used to establish reliability, which ranged from .79 to .84 (Hernandez, 2003, p. 218). Validity was not reported in this article although it did incorporate structural equation modeling to determine the effect of the learning organization on the transfer of tacit knowledge and found a significant path.

In a study that used the DLOQ-A in multiple industries in South Korea, Song, et al. (2009a) translated the instrument into Korean then used confirmatory factor analysis to establish validity. The RMSEA for this study was .05, CFI = .99 and GFI = .95 (p < .001) for the Korean version of the 21-item DLOQ-A (Song, et al., 2009a, p.55). Cronbach’s alpha was used to establish reliability and all coefficients were ≥ .74.

In another study that used the DLOQ-A to examine the mediating effect of the learning organization on organizational commitment in multiple industries in South Korea, Song, et al. (2009b) used confirmatory factor analysis to establish validity and Cronbach’s alpha to examine reliability. The RMSEA was .08, GFI = .92, CFI = .97 and reliability coefficient’s ranged from .72 to .80.

In summary, the DLOQ and DLOQ-A have been examined empirically in a number of studies in the United States and other countries and have been shown to be valid and reliable instruments. All studies had a RMSEA ≤ .08, GFI and CFI’s near .90, and reliability coefficients ≥ .70, even for the instruments translated into other languages.
Section Three: Three Component Model of Employee Commitment Questionnaire

Section three of the survey included 18 Likert-type questions from Meyer and Allen’s (2004) shortened version of the Three Component Model of Employee Commitment Questionnaire – Abbreviated (TCMQ-A) related to the commitment employees have to their employing organizations. While data was collected for all three scales, only two scales or components, affective and normative organizational commitment, were used as the dependent variables for this study and subsequently analyzed. Item numbers 4, 5, 6 (affective commitment) and 13 (normative commitment) were reverse-scored in the original instrument designed by Allen and Meyer (1990) however they note that reverse-scored items can cause confusion for respondents, which can in turn affect findings (Meyer & Allen, 2004). They suggest that researchers reword the reverse-scored items in their instrument to address this issue therefore, the aforementioned reverse-scored items, 4, 5, 6 and 13 were re-written for the present study so that reverse scoring would not be required in SPSS. All Likert-type questions required responses on a scale from 1 to 5 with 1 = strongly disagree to 5 = strongly agree. See Appendix C: for present study Organizational Commitment Question Alignment.

Affective and normative organizational commitment were represented by the sum of the six questions related to each respective scale. Meyer and Allen (2004) suggest averaging the score for each commitment scale rather than summing the scale as a way to offset issues with missing data that occurs when respondents fail to answer all of the questions for one or more of the scales. They also note that summing is acceptable for the purpose of data analysis. Missing data was controlled for in the present study by making each question in
the web-based survey “required”, which kept respondents from advancing through the survey if they didn’t answer all questions for each section. Therefore, missing data was not an issue and the scales were summed rather than averaged.

Summing produced an overall score that ranged from 6-30 for the affective and normative organizational commitment scales. Summing all questions on both scales combined produced an overall organization commitment score that ranged from 12 to 60. Higher scores indicated higher levels of organizational commitment on each scale while lower scores indicated lower levels of organizational commitment on each scale. See Appendix D for the TCMQ-A section of the survey.

Reliability and Validity: Three Component Model of Employee Commitment

To develop the Three Component Model of Employee Commitment, Allen and Meyer (1990) generated a pool of 51 items based on questions that they wrote themselves or modified from different scales, including all 15 items from the Organizational Commitment Questionnaire previously created and validated by Mowday et al. (1979). All questions were worded to fit into one of the three scales: affective commitment scale (ACS), normative commitment scale (NCS), and continuance commitment scale (CCS). The instrument was then distributed to a non-random sample of 500 employees from three different organizations, including two manufacturing companies (Allen & Meyer, 1990). A total of 250 returned questionnaires were analyzed to determine validity and reliability.

Questions were included in the final version of the scales based on total correlations as indicated by Pearson correlation (R) and redundancy as indicated by factor loadings (Allen & Meyer, 1990). This resulted in a final instrument that included three scales with eight
items each. Reliability for each scale was established using Cronbach’s alpha. Co-efficients were .75, .79 and .87 for the NCS, CCS and ACS respectively. Exploratory factor analysis using principle components with a varimax rotation was used to determine validity (Allen & Meyer, 1990). Allen and Meyer (1990) reported that all items loaded on the factor related to the construct, accounting for “58.8, 25.8 and 15.4 per cent of the total variance, respectively” (p. 6). Correlations for each scale and Mowday et al.’s (1979) OCQ revealed that the CCS was independent of both the ACS and NCS. The OCQ and the ACS were highly, positively correlated, R =.83 (Allen & Meyer, 1990) indicating content and concurrent validity for this scale (Sproull, 2002). The ACS and NCS were significantly correlated, (R = .48, p. >.001) (Allen & Meyer, 1990, p. 9) which suggested that normative commitment was not as clearly delineated from affective commitment as both were from continuance commitment. Therefore a second phase of validation was conducted using canonical correlation to delineate each respective component of organizational commitment via respective antecedents (Allen & Meyer, 1990). Results of this phase confirmed three separate correlates leading Allen and Meyer to conclude that each of the three, affective, normative and continuance commitment could be classified as separate components of one organizational commitment model.

In 1996, five years after they published their initial validity study of the TCMQ, Allen and Meyer (1996) reported that it had been used in 40 subsequent studies that involved over 16,000 employees across multiple industries. A summary of this research noted that 35 of the 40 studies had Cronbach’s alphas that ranged from .70 to .89 on all scales. The lowest coefficient alpha that was reported was .65 on the normative commitment scale in a study
conducted by Cohen in 1993 (Allen & Meyer, 1996). The factor structure of the TCMQ was also by examined using both exploratory and confirmatory factor analysis by several researchers subsequent to the initial study in 1990. Five of these 40 studies confirmed discriminant validity between the ACS, NCS and CCS and eight of the 40 studies reported that all items on the TCMQ loaded on three separate factors (Allen & Meyer, 1996).

In summary, the findings of the aforementioned studies support organizational commitment as a valid and reliable construct that includes affective or emotional commitment, perceived obligation or normative commitment and perceived costs or continuance commitment, as representative of its core essence.

Section Four: Basic Psychological Needs Scale-Work

Section four of the survey included 21 Likert-type questions from Ryan and Deci’s (1998) Basic Psychological Needs Scale-Work (BPNS-W) related to the degree to which individuals experience satisfaction of each of three needs: 1) competence, 2) autonomy, and 3) relatedness. These three needs represent the mediating variable in the present study. All Likert-type questions required responses on a scale from 1 to 7 with 1 = not true to 4 = somewhat true to 7 = very true. Item numbers 5, 11, 20 (autonomy); 3, 14, 19 (competence); and 7, 16 and 18 (relatedness) were written to be reverse-scored in the instrument designed by Ryan and Deci (1998). To offset possible confusion by respondents and to maintain consistency with sections two (DLOQ-A) and three (TCMQ-A) of the instrument used in the present study, the reversed-scored items in section four of the survey (BPNS-W) that could be re-worded were re-written so that reverse-scoring would not be required in SPSS. Item numbers 7 and 16 (relatedness), and 4 (autonomy) remained reverse-
scored because rewriting them would have altered their meaning or created more confusion. Reverse-scoring was addressed by subtracting the individual response for these items from eight using the “transform variable” function in SPSS 18 prior to conducting data analysis. See Appendix E for the Basic Psychological Needs Scale-Work section of the survey.

Each of the three scales was represented by the sum of the seven questions related to it. Ryan and Deci (1998) suggest averaging the score for each scale to address missing data resulting from respondents not answering all of the questions. As previously noted, missing data was controlled for in the present study by requiring responses to all questions in the web-based survey therefore averaging was not required and all scales were summed.

Summing produced an overall score that ranged from 6-42 for the competence scale, 7-49 for the autonomy scale and, 8-56 for the relatedness scale. Higher scores indicated that the work environment met more of the basic psychological need at work represented by each scale while lower scores indicated that the work environment met fewer needs represented by each scale.

Reliability and Validity: Basic Psychological Needs Scale-Work

The Basic Psychological Needs Scale-Work (Ryan & Deci, 1998) is a 21-item instrument that derived questions related to competence, autonomy and relatedness from the Work Motivation Form-Employee (WMF-E). The WFM-E is a 15-item instrument created by Kasser, Davey and Ryan (1992) to assess competence, autonomy, relatedness and dependability. The WMF-E was created by adding new items to address relatedness, autonomy, and dependability to the perceived-competence sub-scale of the Intrinsic Motivation Inventory (IMI) developed by Ryan (1982). The WMF-E included only the
perceived-competence scale from the IMI along with the aforementioned autonomy and relatedness scales. No other sub-scales or items from the IMI were used in the WMF-E. The WMF-E included three items each that pertained to relatedness and autonomy, three items that addressed worker dependability (e.g., how often do you come to work on time) and six items that addressed competence. The competence items are identical to those used in the perceived-competence sub-scale of the IMI. Thus there were 12 items that addressed basic psychological needs at work in the WFM-E. The remaining three items in the WFM-E address worker dependability and were not considered by Ryan and Deci (1998) to be part of meeting basic psychological needs at work therefore they are not included in the BPNS-W instrument.

The literature does not note when the additional items, five for relatedness and four for autonomy, were added to the 12-item WMF-E to create the 21-item Basic Psychological Needs Scale-Work (BPNS-W). Despite different nomenclature and item counts, Deci considers the WMF-E and the BPNS-W to be interchangeable, noting, “the Work Motivation form for employees IS the basic needs scale-work” (E. Deci, personal communication 10/23/2010).

Using differently named instruments that contain similar or identical questions and the lack of empirical examination of the BPNS-W was problematic for establishing how the instrument was created and for determining how the initial reliability and validity of the overall instrument was derived because items were taken from other instruments and added to the BPNS-W. Though similar items or scales were used or combined, the instruments were renamed depending upon the topic of the study being conducted. Therefore
ascertaining the reliability and validity of the BPNS-W has been relegated to examining the literature for three different instruments, the WMF-E, the Basic Needs Scale-Work (BPNS-W) and the IMI, all of which have used items and scales to assess three basic psychological needs at work, specifically competence, autonomy and relatedness.

The BPNS-W has been used in several studies that have reported its reliability and validity and it has been used to assess basic psychological needs in models that have included other variables. The most well documented scale of the BPNS-W is the competence scale, which as previously noted, is identical to the perceived-competence sub-scale on the Intrinsic Motivation Scale, IMI (Ryan, 1982). McCauley, Duncan and Tammen (1989) examined the factor structure of the IMI and reported co-efficient alpha of .80 for the perceived-competence scale. Confirmatory factor analysis revealed that the 16 item model in their study, which included the perceived-competence sub-scale, was a better fit than the 18-item model, RMSR = .112 and GFI = .80. The latter is a measure of the validity of the IMI overall, not just the perceived-competence subscale, however, these findings suggest that the IMI is a valid instrument and that the perceived competence subscale of the IMI, which is identical to the competence scale used in the WMF-E and BPNS-W, is a reliable measure of competence.

In a study that compared basic psychological needs of employees in an Eastern bloc country and the United States using the BPNS-W, Deci, et al. (2001) reported the Cronbach’s alpha for the total need-satisfaction scale, which included autonomy, relatedness and competence, in the Bulgarian sample as .83 and .89 for the American sample (p.934). For the competence, relatedness, and autonomy subscales, the alphas in the Bulgarian data were
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.81, .57, and .62, respectively, and in the American data were .73, .84, and .79, respectively (Deci, et al., 2001, p.934). Validity was assessed in this study using confirmatory factor analyses for each sample. Findings revealed significant chi square statistics for both however the other fit indices suggested that the model was a reasonable fit (Deci et al., 2001). For the Bulgaria sample the results were Chi-square ($df = 131$) 402.38 ($p < .001$), the NNFI = .87, CFI = .89, and the RMSEA = .07; and in the United States, the chi-square ($df = 131$) 259.34 ($p < .001$), the NNFI = .87, the CFI = .89, and the RMSEA = .09 (Deci et al., 2001, p. 936). The full structural model was then tested for each sample. Again, the chi-square statistics were significant for each country. Other specific indices were, NNFI =.91, CFI =.92, and the RMSEA = .06 for Bulgaria; and for the United States, the NNFI =.88, the CFI =.90, and the RMSEA = .09. A value ≥ .90 on the GFI or CFI indicate adequate models (Swanson & Holton, 2005). The RMSEA indicates fit between the model and the population. A value <= .05 indicates a very close fit while values > .08 are reasonably good fitting (Swanson & Holton, 2005, p.196). Findings from this study suggest that the BPNS-W is a reliable and valid measure of basic psychological needs at work in the United States and in Bulgaria.

Baard et al., (2004) used the Intrinsic Need Satisfaction Scale to assess the competence, autonomy and relatedness in two work settings. The INS contains 23 items, 21 of which are identical to those found on the Basic Psychological Needs Scale-Work (BPNS-W). Principal components factor analysis with varimax rotation was used to assess validity of the INS. The process revealed three factors, with seven items for autonomy, eight for competence and eight for relatedness, thus two items were added to the six item competence
scale. Cronbach’s alpha was used to assess reliability, which revealed .87 for all three scales combined.

Andreassen, Hetland, Pallesen (2010) used the Norwegian version of the BPNS-W to assess the relationship between workaholism, basic needs satisfaction and personality in a Norwegian sample of employees from six different companies. Validity was not referenced or reported in the article. Reliability was assessed using Cronbach’s alpha, which revealed .68 for the autonomy scale, .67 for the competence scale, and .81 for the relatedness scale.

Gregarus and Diefendorff (2009) used the BPNS-W to assess the mediating effects of basic psychological needs at work on the relationship between person-organization fit, person-group fit and job demands-abilities fit and affective organizational commitment. Confirmatory factor analysis revealed that “all indicators loaded significantly on their corresponding latent constructs” (Gregarus & Diefendorff, 2009, p. 471). Cronbach’s alpha was .66 for the autonomy scale, .85 for the relatedness scale, and .67 for the competence scale. Fit indices were provided for the overall model, which included competence, autonomy, and relatedness combined to form the basic psychological needs at work variable. These were Chi-square 284.75 (df = 236), RMSEA = .036, CFI = .99, TLI=.98, RMR=.058. A value ≥ .90 on the GFI or CFI indicate adequate models (Swanson & Holton). The RMSEA indicates fit between the model and the population. A value < /= .05 indicates a very close fit while values > .08 are reasonably good fitting (Swanson & Holton, p.196).

Kasser et al. (1992) used the WMF-E, the early version of the BPNS-W, to assess motivation and employee-supervisor discrepancies in a psychiatric rehabilitation setting. The
The article did not report new validity for the study but rather referred the reader to Ryan (1982) for construct validity. Kasser et al. (1992) reported Cronbach’s alpha of .79 for the competence, autonomy and relatedness scales of the WMF-E combined.

Gagne (2003) used the BPNS-W to assess motivation to volunteer. In this study the term “volunteer” or “volunteering” (Gagne, 2003, p. 213) replaced the term “work” in the items. This change was the only one made to the instrument. The item count for this study is somewhat questionable as Gagne (2003) reported using a 20-item instrument that included seven items for autonomy, six for relatedness, and eight for competence, however, this adds up to 21, not 20 (7 + 6 + 8= 21). The BPNS-W contains 21-items so this could be a typographical error in the article.

The item count per scale presents a discrepancy as well when compared to the Deci, et al., (2001) study, which also used the “BPNS-W” (p.934). Deci et al., (2001) reported six items for the competence scale, not eight as reported by Gagne (2003), and eight items for the relatedness scale, not six, as reported by Gagne (2003). Again, these could be typographical errors in the article. Gagne (2003) referred the reader to Ilardi et al., (1993) for validity of the instrument; however, the Ilardi et al. study reported using the 15-item WMF-E. Since Gagne (2003) reported using a 20-item instrument there is some discrepancy as to whether Gagne used the same instrument as Ilardi et al., (1993). The scales in Gagne’s (2003) instrument have the same names as those used by Deci et al., (2001) and Ilardi et al., (1993) even though the item count that was reported does not match. Again, these could be typographical errors and the assumption is that the scales in Gagne’s (2003) study are the same as those in the BPNS-W. Reliability was assessed using Cronbach’s alpha which
revealed .76 for the autonomy scale, .81 for the relatedness scale, .60 for the competence scale and .88 for all three scales combined (Gagne, 2003).

Findings from the aforementioned studies suggest that the BPNS-W is a reliable and valid measure of basic psychological needs at work.

Pretest

Pretests, which include survey implementation with a small sample of the representative population, are recommended prior to conducting the research to ensure survey understandability and usability (Groves, Fowler, Couper, Lepkowski, & Singer, et al., 2009). A pretest was conducted for the present study using a convenience sample of registered nurses to evaluate the survey for accessibility via an e-mailed link to the internet site on which it was located, navigation, readability, and question and scale understandability as recommended by Dillon (2007) and Groves, et al. (2009). Nurses that participated in the pretest received a link to the survey so that they could review it and test accessibility via the link to the internet. They were instructed not to complete the survey but rather to submit suggestions for survey revisions directly to the researcher via e-mail. No issues were noted with survey accessibility or links. The response list was changed from horizontal to vertical alignment so that participants would be able to determine which response number aligned with which button. Minimal wording changes were also made but these did not involve major revisions or item deletion.
Pilot Study

A pilot study was conducted by the researcher (Baird, 2009) with a purposeful sample of 109 registered nurses using two of the three instruments from the present study, the DLOQ-A (Marsick & Watkins, 2003) and the TCMQ-A (Meyer & Allen, 2004). The mediator variable, basic psychological needs at work, and its associated instrument, Basic Psychological Needs Scale-Work (Ryan & Deci, 1998) were added after the initial proposal was accepted by the Dissertation Committee and was therefore not tested in the pilot. Basic Psychological Needs at Work was added as a mediating variable to the study with the dissertation Committee’s permission following a review of new literature that revealed that basic psychological needs at work mediated the relationship between the work environment and organizational commitment (Gregarus & Diefendorff, 2009). The researcher wanted to examine the possibility that basic psychological needs at work would mediate the relationship between the dimensions of the learning organization, found in the work environment, and the organizational commitment of nurses.

Data collection procedures using multiple layers of contacts within the organizations that participated in the pilot study made it difficult to capture the ideal number of 250 observations to complete confirmatory factor analysis based on a 10:1 observation-to-item ratio. One hundred observations, while not ideal, is the minimum number that should be used to conduct confirmatory factor analysis (Swanson & Holton, 2005), and multiple regression (Bartlett, et al., 2001), therefore, the 109 observations that was used to complete the pilot study was deemed acceptable to conduct data analysis.
Cronbach’s alpha was used to establish reliability for all variables. All Cronbach’s alpha co-efficients were \( \geq .70 \) for all scales on both the DLOQ-A and the TCMQ-A. Means, standard deviations, inter-correlations and reliability estimates are shown for the DLOQ-A and TCMQ-A in Tables 12 and 13.

Table 12

*Means, Standard Deviations, Intercorrelations, and Cronbach’s Alpha Estimates DLOQ-A*  

*Pilot Study*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Continuous Learning</td>
<td>16.62</td>
<td>4.06</td>
<td>(.80 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Collaborate Team Learning</td>
<td>11.74</td>
<td>3.14</td>
<td>.69*</td>
<td>.72*</td>
<td>(.88)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Embedded system Learning</td>
<td>15.62</td>
<td>4.03</td>
<td>.71*</td>
<td>.78*</td>
<td>.77*</td>
<td>(.86)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Collective Vision</td>
<td>10.98</td>
<td>3.13</td>
<td>.81*</td>
<td>.71*</td>
<td>.81*</td>
<td>.77*</td>
<td>(.84)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. System connection</td>
<td>23.88</td>
<td>6.37</td>
<td>.76*</td>
<td>.78*</td>
<td>.83*</td>
<td>.81*</td>
<td>.81*</td>
<td>.91*</td>
<td>(.91)</td>
</tr>
<tr>
<td>7. Strategic Leadership</td>
<td>16.43</td>
<td>4.34</td>
<td>.81*</td>
<td>.77*</td>
<td>.82*</td>
<td>.82*</td>
<td>.84*</td>
<td>.91*</td>
<td>(.91)</td>
</tr>
</tbody>
</table>

N = 109. Reliability estimates (Cronbach’s alpha) appear on the diagonal above correlation coefficients. *p < .001*
Table 13

*Means, Standard Deviations, Intercorrelations, and Cronbach’s Alpha Estimates TCMQ-A*

**Pilot Study**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Affective Commitment</td>
<td>21.28</td>
<td>5.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Normative Commitment</td>
<td>18.52</td>
<td>3.66</td>
<td>.35*</td>
<td>.80</td>
</tr>
</tbody>
</table>

Note. N = 109. Reliability estimates (Cronbach’s alpha) appear on the diagonal above correlation coefficients. *p < .001

Confirmatory factor analysis (CFA) was used to assess the construct validity for both instruments. Factor coefficients for items on each of the seven scales of the DLOQ-A and the affective and normative commitment scales of the TCMQ-A were ≥ .70. Continuous commitment was not used in the study. Chi-Square was assessed for the DLOQ-A and the TCMQ-A in addition to several other measurement indices determine goodness-of-fit for the pilot study, including, GFI, RMR, CFI, AGFI and RMSEA. Fit indices are displayed in Table 14.
A value ≥ .90 on the GFI or CFI indicate an adequate fit for the model (Swanson & Holton, 2005). The RMSEA indicates fit between the model and the population. A value ≤ .05 indicates a very close fit while values ≤ .08 are reasonably good fitting (Swanson & Holton, p.196). Findings for the pilot study suggested that both models are a moderately good fit for this population with the DLOQ-A being a slightly better fit given a CFI of .91 and RMSEA of .08 compared to that of the TCMQ-A, which had a CFI of .84 and RMSEA of .13. It is important to note that the continuous commitment scale was removed from the Three Component Model of Organizational Commitment from the pilot study because the literature suggests that the work environment does not have an impact on continuous commitment (Allen & Meyer, 1990). Additionally, the sample size for the pilot study, while adequate to conduct confirmatory factor analysis, was relatively small. While these results
were interpreted with caution they were deemed adequate for further analysis with a larger sample.

Confidentiality

IRB approval was obtained prior to collecting data for the present study. This complied with the Regulations for the Protection of Human Subjects, which requires IRB review of surveys that are “conducted at U.S. institutions that receive federal funding for research” (Groves, et al., 2009, p. 377), which applies to the academic institution with which the researcher was affiliated. Participants were not asked to provide their name, mailing address or the name of their employer on the survey and the survey provided no space for them to include this information. They were also not asked to sign a consent form, so no names were collected in any format. The cover letter/survey introduction explained that survey respondents consented to participate in the study by submitting their answers to the survey questions. The web-based assessment site was accessible via a password known only to the researcher. E-mail addresses of study participants were not released to the researcher. The state-based professional nursing associations had no access to the survey data. They forwarded the survey link to their members and were not notified if respondents accessed or completed the survey. Finally, the state-based professional nursing associations requested anonymity therefore the names and locations of these organizations were not provided in the study thereby further protecting the confidentiality and traceability of study participants.
Data Collection Procedures

Data was collected using the aforementioned four-section survey via a web-based survey in Survey Monkey. A web-based survey may be used in place of a paper survey delivered via postal mail to minimize cost (Groves, et al., 2009). In this case, the cost to maintain the survey database was much less than the cost of multiple mailings to reach a sampling frame of 4500 to meet the minimum number of observations of 450 to conduct statistical analysis. Dillman (2007) suggests that a “four contact e-mail survey strategy (yields) a response rate comparable to postal mail” (p. 400). These four steps, referred to as a mixed data collection mode, include sending 1) a pre-notice, 2) the survey, and 3) a thank you/reminder via e-mail and then sending 4) a replacement questionnaire via postal mail (Dillman, 2007). The researcher did not have the names or mailing addresses of the participants for the present study therefore a mixed data collection mode was not feasible. However, multiple contacts were made electronically via the nursing organizations on behalf of the researcher to follow Dillman’s (2007) suggested procedure. No incentives were offered to survey recipients for completing the survey.

The survey was distributed using e-mail messages that were forwarded by the professional nursing organizations to their members on behalf of the researcher. The first message included a cover letter that explained the purpose of the study and the link to the survey. A second request was sent to participants via the nursing organizations on behalf of the researcher approximately one month after the initial message was sent. As previously noted, demographics for the study sample were compared with those reported by the NSSRN in 2010 to determine its representativeness of the target population (Miller & Smith, 1983;
Sproull, 2002). Late respondents were estimated to be representative of non-respondents for this study. Their responses were compared with early respondents’ to address non-response issues using one-way ANOVA, between subjects design.

Data Analysis

This section includes descriptive statistics followed by reliability, validity, pre-analysis data screening and analysis procedures by hypothesis. Data was analyzed using SPSS 18.0 and AMOS 19.0.

Descriptive Statistics

Sproull (2002) recommends examining the characteristics of the sample, such as demographics, for comparison to the population when non-random sampling procedures are used. Because this study used non-random, purposeful sampling techniques, demographic categories matching those collected by the NSSRN (U.S. DHHS, 2010) were captured for comparison to those from the most recent NSSRN in 2008 for the purpose of establishing the representativeness of this study’s registered nurses to registered nurses working in the United States. Descriptive statistics were reported for age, gender, race, job title, work setting, and employment status. Mean scores, standard deviations, inter-correlations frequencies and percentages for the DLOQ-A, TCMQ-A and BPNS-W were also presented. Details regarding the data analysis procedures are provided in the sections below.

Reliability

Reliability for the present study was based on measures of internal consistency using Cronbach’s co-efficient alpha. Internal consistency is the extent to which each test item correlates with another (O’Rourke, et al., 2005). Cronbach’s alpha is a single statistical
method used for demonstrating internal consistency of an instrument that eliminates the time it would take to use a test-retest procedure to determine reliability (O’Rourke, et al., 2005), and the inconsistency of a split halves method of assessing reliability when that method involves multiple ways of subdividing the items on a survey (Carmines & Zeller, 1979). According to O’Rourke, et al., (2005) a co-efficient alpha $\geq .70$ is acceptable to establish reliability.

**Validity**

Content validity for the DLOQ, TCMQ and BPNS-W was established by the respective researchers during questionnaire construction (Allen & Meyer, 1990; Ryan & Deci, 1998; Yang, et al., 2004) and was reported in the Reliability and Validity sections of this document for sections two, three and four respective for the present study.

Confirmatory factor analysis (CFA) was used to determine construct validity for the DLOQ-A, TCMQ-A and BPNS-W for the present study. “CFA is more appropriate for confirming a predetermined factor structure based on theory or prior research” (Swanson & Holton, 2005, p. 182). The DLOQ-A, TCMQ-A and BPNS-W have been empirically examined in several published studies therefore CFA is the appropriate statistical procedure to use to determine validity for each of these instruments.

Swanson and Holton (2005) note that if conducting CFA, Chi-Square and degrees of freedom should be reported, however, other fit indices such as the goodness-of-fit index (GFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA) should also be used because Chi-Square is sensitive to sample size. A non-significant Chi-Square and a value $\geq .90$ on the GFI or CFI indicate adequate models (Swanson & Holton, 2005).
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2005). The RMSEA also indicates a close fit between the model and the population where a value $\leq .05$ indicate a very close fit while values $\leq .08$ indicate a reasonably good or moderate fit (Swanson & Holton, 2005, p.196). Chi-Square (df) and goodness of fit indices including GFI, AGFI, NFI, CFI and RMSEA were assessed for the DLOQ-A, TCMQ-A and BPNS-W for the present study.

Pre-Analysis Data Screening

Data was screened prior to conducting statistical analysis to ensure its quality. According to Mertler and Vannatta (2005), frequency distributions, descriptive statistics, histograms, normal Q-Q plots, box plots, stem and leaf plots and scatter plots are appropriate data screening procedures. For the current study, frequency distributions and descriptive statistics were used to screen for missing data and univariate outliers. Mahalanobis distance was used to analyze multivariate outliers. Normality and linearity, including skewness and kurtosis were assessed using normal Q-Q plots and scatter plots (Mertler & Vannatta, 2005). Levene’s test was used to assess homoscedacity (Mertler & Vannatta, 2005).

As previously noted, all questions were required to be answered before respondents could advance from one section to the next. This requirement was programmed into the web-based survey to control for missing data. For this reason, none of the surveys used for data analysis included missing data. The first section of the survey was demographics. Some respondents completed only the demographics questions then stopped and submitted their responses. Surveys that only included demographics information were considered unusable and were eliminated before data-analysis was conducted. A total of 82 surveys were omitted prior to data analysis due to missing data. Deleting cases is an acceptable procedure
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for managing missing data (Mertler & Vannatta, 2005).

Outliers were assessed via frequency distributions and histograms, observation of standardized z scores and Mahalanobis distance. One case was found to have a standard z score > +3.00 or -3.00 of the mean and Mahalanobis distance revealed 10 items with Chi-Square above the critical value of 29.588, (df =10), p <.001. These 11 values were considered outliers (Mertler & Vannatta, 2005) and were reviewed in more detail to determine if the cause for extreme values was due to a coding or data entry error. The conclusion was that the 11 outliers represented responses that were different than the rest of the sample and were therefore eliminated prior to data analysis. Deleting cases is an acceptable procedure for managing outliers (Merler & Vannatta, 2005).

Normality and linearity was assessed using normal Q-Q plots, descriptive statistics indicating skewness and kurtosis and tests for normality. The closer the value for skewness and kurtosis is to zero, the more normal the distribution (Mertler & Vannatta, 2005). Specifically, “skewness and kurtosis values should lie between +1 and -1” (Mertler & Vannatta, 2005, p.38). All variables were slight to moderate, negatively skewed with the exception of normative commitment, which was slight, positively skewed, and all variables had some degree of kurtosis. Visual review of Q-Q plots and scatter plots indicated relatively normal distributions. No variables were transformed because all skewness and kurtosis values were within +1 and -1 and plots appeared normal. All variables appeared linear via residuals plots (Mertler & Vannatta, 2005). Levene’s test for homoscedacity revealed equal variances for all variables.
Data Analysis by Research Hypothesis

Details of the statistical analysis for each research hypothesis are provided in the following section. The purpose of this study was to determine if the relationship between the learning organization and organizational commitment was mediated by psychological needs satisfaction at work. A mediator variable is the means through which an independent or predictor variable influences a dependent or outcome variable (Baron & Kenny, 1986). As previously presented, the literature suggests that the learning organization may influence the organizational commitment of nurses by meeting basic psychological needs at work, therefore, a mediated model was used as the conceptual framework for this study.

The study used Kenny’s (2011) four step process to determine mediation. Each of the four steps is represented and described in the research hypotheses. The amount of mediation is referred to as the indirect effect and is represented by the product of paths a, and b (Kenny, 2011). The direct effect is the effect of the independent variable on the dependent variable when the mediator variable is introduced to the equation, represented by path c’ (c-prime) (Kenny, 2011). Finally, the total effect, represented by path c, is calculated by adding the indirect effect, the product of paths a, and b to the direct effect, path c’ (c = c’+ab) (Kenny, 2011). Un-standardized regression coefficients are used for all paths. An example of a mediated model is provided in Figure 4. An explanation of the statistical method follows each hypothesis statement.
Hypothesis One

$H_1$: The linear combination of the seven dimensions of the learning organization will predict affective organizational commitment. $H_1$: $y = a + b_1x_1 + b_2x_2 + \ldots + b_7x_7$

$H_0$: The linear combination of the seven dimensions of the learning organization will not predict affective organizational commitment. $H_0$: $y \neq a + b_1x_1 + b_2x_2 + \ldots + b_7x_7$

Per Kenny (2011), the first step in determining mediation is to show that the independent variable is correlated with the outcome or dependent variable in a regression equation, which establishes that there is an effect that may be mediated. Per this step, multiple regression was used to determine the predictive ability of the seven dimensions of the learning organization on affective organizational commitment. The un-standardized regression coefficient for the effect of the independent variable on the dependent variable was used to establish “path c” in the mediated model. If path c was significant this satisfied
Kenny (2011) step 1 that the independent variable has a significant effect on the dependent variable. Multiple regression is the correct statistical procedure to use when examining the predictive ability of two or more categorical or continuous independent variables on one continuous dependent variable with a normal distribution (O’Rourke, et al., 2005). Beta weights (standardized multiple regression coefficients) and significance was reviewed to assess the relative importance of the seven dimensions of the learning organization on the prediction of affective organizational commitment.

Hypothesis Two

H₂: The linear combination of the seven dimensions of the learning organization will predict normative organizational commitment

\[ H₂: y = a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \]

H₀: The linear combination of the seven dimensions of the learning organization will not predict to normative organizational commitment. \[ H₀: y \neq a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \]

Per Kenny (2011), the first step in determining mediation is to show that the independent variable is correlated with the outcome or dependent variable in a regression equation, which establishes that there is an effect that may be mediated. Per this step, multiple regression was used to determine the predictive ability of the seven dimensions of the learning organization on normative organizational commitment. The un-standardized regression coefficient for the effect of the independent variable on the dependent variable was used to establish “path c” in the mediated model. If path c was significant this satisfied Kenny (2011) step 1 that the independent variable has a significant effect on the dependent
variable. Multiple regression is the correct statistical procedure to use when examining the predictive ability of two or more categorical or continuous independent variables on one continuous dependent variable with a normal distribution (O’Rourke, et al., 2005). Beta weights (standardized multiple regression coefficients) and significance were reviewed to assess the relative importance of the seven dimensions of the learning organization on the prediction of normative organizational commitment.

Hypothesis Three

H₃: The linear combination of the seven dimensions of the learning organization will predict basic psychological needs, which is comprised of competence, autonomy and relatedness. $H₃: y = a + b₁x₁ + b₂x₂ +…+ b₇x₇$

H₀: The linear combination of the seven dimensions of the learning organization will not predict basic psychological needs, which is comprised of competence, autonomy and relatedness. $H₀: y ≠ a + b₁x₁ + b₂x₂ +…+ b₇x₇$

According to Kenny (2011) the second step in determining mediation is to show that the independent variable is correlated with the mediator variable when the mediator is treated like an outcome or dependent variable in a regression equation. Per this step, multiple regression was used to determine the predictive ability of the seven dimensions of the learning organization on basic psychological needs, which is comprised of competence, autonomy and relatedness. Three separate regression equations were conducted, one each for competence, autonomy and relatedness. The un-standardized regression coefficient for the effect of the seven dimensions of the learning organization on competence, autonomy and relatedness was used to establish “path a” in each of the mediated models. If “path a” was
significant this satisfied Kenny (2011) step 2 that the independent variable has a significant
effect on the mediator variable. Multiple regression is the correct statistical procedure to use
when examining the predictive ability of two or more categorical or continuous independent
variables on one continuous dependent variable with a normal distribution (O’Rourke, et al.,
2005). Beta weights (standardized multiple regression coefficients) and significance were
reviewed to assess the relative importance of the seven dimensions of the learning
organization on the prediction of competence, autonomy, and relatedness.

Hypothesis Four

H₄: Basic psychological needs, comprised of the variables competence, autonomy
and relatedness will partially mediate the predictive ability of the seven
dimensions of the learning organization on affective organizational
commitment.  H₄:  \((X \times M) + X + M = 0\),  \(z\)-value = \(a \times b/\sqrt{b^2 \times s_a^2 + a^2 \times s_b^2 + s_a^2 \times s_b^2}\),  \(p < .05\)

H₀: Basic psychological needs, comprised of competence, autonomy and
relatedness will not mediate the predictive ability of the seven dimensions of
the learning organization on affective organizational commitment.

H₀:  \((X \times M) + X + M \neq 0\)

According to Kenny (2011) the third step in determining mediation is to show that the
mediator variable has an effect on the dependent variable while controlling for the
independent variable. This analysis should be conducted by combining the independent
variable and the mediator variable as predictor variables of the dependent variable in a
regression equation then observing the change in the value of the un-standardized regression
coefficient of both the mediating and independent variables (Barron & Kenny, 1986; Kenny, 2011).

Per this step, multiple regression was used to determine the predictive ability of the mediator, basic psychological needs, comprised of competence, autonomy and relatedness, on affective organizational commitment while controlling for the independent variable, the seven dimensions of the learning organization. Separate regression equations for each of the seven dimensions of the learning organization that were significant predictors of affective organizational commitment as determined by hypothesis one for the present study, and the respective mediating variable, as determined by hypothesis three for the present study, were conducted for the dependent variable, affective organizational commitment.

The independent variable was “controlled” by being entered into the same regression equation as the mediator variable. The un-standardized regression coefficient for the effect of the mediator on the dependent variable while controlling for the independent variable was used to establish “path b” in the mediated model. If “path b” was significant this satisfied Kenny (2011) step 3 that the mediator has a significant effect on the dependent variable while controlling for independent variable.

Per Kenny (2011), the fourth step in determining mediation is to show that the effect of the independent variable is diminished by the presence of the mediator variable in the same regression equation. Therefore the un-standardized regression coefficient for the effect of the independent variable on the dependent variable while controlling for the mediator variable was used to establish “path c’” (c-prime) and to evaluate Kenny (2011) step 4 in this same regression equation. Kenny (2011) suggested that statistical significance for the
predictor variable in a regression equation in step 4 is not relevant to mediation. Therefore
the un-standardized regression co-efficient for the effect of the independent variable on the
dependent variable when the mediator is in the equation might still be significant, which does
not negate mediation. If path c’ was reduced to zero this indicated a completely mediated
model. If path c’ was reduced but not to zero, this indicated a partially mediated model. If
there was no change in path c’ or path b was no longer significant when the independent
variable was included in the equation then there was no mediation.

After using Kenny’s (2011) four steps as outlined above, the effect of mediation was
then tested for significance using Sobel tests in an on-line calculator (Preacher & Leonardelli,
2011). In these tests, the product of paths “a” and “b”, un-standardized regression
coefficients, are divided by their standard errors, which yields a z score (Frazier, Tix and
Barron, 2004, p. 128). If the z score is greater than 1.96, the mediated effect was significant
at the .05 level.

Once it was determined that there was a mediating effect, the amount of mediation,
expressed as the proportion of the total effect mediated, was calculated for each model using
the formula ab/c (Shrout & Bolger, 2002) where “a” is the un-standardized regression
coefficient of the effect of the independent variable on the mediator variable, “b” is the un-
standardized regression coefficient of the effect of the mediator variable on the dependent
variable while controlling for the independent variable, and “c” is the total effect, the sum of
adding path c’, un-standardized regression coefficient of the effect of the independent
variable on the dependent variable to the product of paths a, and b. This measure was only
attempted if the standardized regression coefficient for path c, the total effect, was ± .2
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(Kenny, 2011). A sample size of at least 500 is needed for accurate point and variance estimates of the proportion of total effect mediated (MacKinnon, Warsi, & Dwyer, 1995). The current study meets this requirement with a sample size of 777. This procedure is a means of describing the amount of mediation rather than a test of the significance of the mediated effect.

After determining mediation, each model was screened for goodness of fit using structural equation modeling in AMOS 19. All variables were drawn as latent variables, per the structural component of SEM (Mertler & Vannatta, 2005). Swanson and Holton (2005) note that Chi-Square and degrees of freedom should be reported to determine if a model is a good or true representation of the data however, they suggest that it should be deemphasized because it is sensitive to sample size. Larger samples will yield a large and significant Chi-Square. Chi-Square values may be better interpreted when converted to a Z score using the formula \( Z = \sqrt{(2\chi^2)} - \sqrt{(2df - 1)} \) (Kenny, 2011). Chi square to df ratio using the formula \( \chi^2/df \), was also used to determine fit. If the ratio between \( \chi^2 \) and degrees of freedom is two or less then the model is a good fit (Ullman, 1996). Additional fit indices such as the goodness-of-fit index (GFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA) were also used to determine goodness of fit (Swanson & Holton, 2005). A non-significant Chi-Square and a value ≥ .90 on the GFI or CFI indicate adequate models while RMSEA value < /= .05 indicates a very close fit and RMSEA < .08 indicate a reasonably good or moderate fit (Swanson & Holton, 2005, p.196).

Models with fit indices that were close in value were examined to determine the significance of the difference in fit using Chi-Square (df) wherein the Chi-Square fit statistic
for the model with fewer parameters, in this case fewer mediator variables, was subtracted from the model with more parameters. Degrees of freedom were calculated by subtracting the degrees of freedom from the model with fewer parameters from the model with more parameters (Ullman, 1996). A non-significant Chi-square indicated that removal of the parameters did not significantly reduce the fit of the model to the data (Merler & Vannatta, 2005).

Hypothesis Five

\( H_5: \) Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment. \( H_5: \ (X^*M) + X + M = 0, \ z\text{-value} = \frac{a*b}{\text{SQRT}(b^2s_a^2 + a^2s_b^2 + s_a^2s_b^2)}, \ p < .05 \)

\( H_0: \) Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment.

\( H_0: \ (X^*M) + X + M \neq 0 \)

According to Kenny (2011) the third step in determining mediation is to show that the mediator variable has an effect on the dependent variable while controlling for the independent variable. This analysis should be conducted by combining the independent variable and the mediator variable as predictor variables of the dependent variable in a regression equation then observing the change in the value of the un-standardized regression
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coefficient of both the mediating and independent variables (barron & kenny, 1986; kenny, 2011).

per this step, multiple regression was used to determine the predictive ability of the mediator, basic psychological needs, comprised of competence, autonomy and relatedness, on normative organizational commitment while controlling for the independent variable, the seven dimensions of the learning organization. separate regression equations for each of the seven dimensions of the learning organization that were significant predictors of normative organizational commitment as determined by hypothesis two for the present study, and the respective mediator variable, as determined by hypothesis three for the present study, were conducted for the dependent variable, normative organizational commitment.

the independent variable was “controlled” by being entered into the same regression equation as the mediator variable. the un-standardized regression coefficient for the effect of the mediator on the dependent variable while controlling for the independent variable was used to establish “path b” in the mediated model. if “path b” was significant this satisfied kenny (2011) step 3 that the mediator has a significant effect on the dependent variable while controlling for independent variable.

per kenny (2011), the fourth step in determining mediation is to show that the effect of the independent variable is diminished by the presence of the mediator variable in the same regression equation. therefore the un-standardized regression coefficient for the effect of the independent variable on the dependent variable while controlling for the mediator variable was used to establish “path c’ ” (c-prime) and to evaluate kenny (2011) step 4 in this same regression equation. kenny (2011) suggested that statistical significance for the
predictor variable in a regression equation in step 4 is not relevant to mediation. Therefore
the un-standardized regression co-efficient for the effect of the independent variable on the
dependent variable when the mediator is in the equation might still be significant, which does
not negate mediation. If path c’ was reduced to zero this indicated a completely mediated
model. If path c’ was reduced but not to zero, this indicated a partially mediated model. If
there was no change in path c’ or path b was no longer significant when the independent
variable was included in the equation then there was no mediation.

After using Kenny’s (2011) four steps as outlined above, the effect of mediation was
then tested for significance using Sobel tests in an on-line calculator (Preacher & Leonardelli,
2011). In these tests, the product of paths “a” and “b”, un-standardized regression
coefficients, are divided by their standard errors, which yielded a z score (Frazier, et al.,
2004, p. 128). If the z score was greater than 1.96, the mediated effect was significant at the
.05 level.

Once it was determined that there was mediation, the amount of mediation, expressed
as the proportion of the total effect mediated, was calculated for each model using the
formula \( \frac{ab}{c} \) (Shrout & Bolger, 2002) where “a” is the un-standardized regression
coefficient of the effect of the independent variable on the mediator variable, “b” is the un-
standardized regression coefficient of the effect of the mediator variable on the dependent
variable while controlling for the independent variable, and “c” is the total effect, the sum of
adding path c’, un-standardized regression coefficient of the effect of the independent
variable on the dependent variable to the product of paths a and b. This measure was only
attempted if the standardized regression coefficient for path c, the total effect, was \( \pm .2 \)
(Kenny, 2011). A sample size of at least 500 is needed for accurate point and variance estimates of the proportion of total effect mediated (MacKinnon, et al., 1995). The current study meets this requirement with a sample size of 777. This procedure is a means of describing the amount of mediation rather than a test of the significance of the mediated effect.

After determining mediation, each model was screened for goodness of fit using structural equation modeling in AMOS 19. All variables were drawn as latent variables, per the structural component of SEM (Mertler & Vannatta, 2005). Swanson and Holton (2005) note that Chi-Square and degrees of freedom should be reported to determine if a model is a good or true representation of the data however, they suggest that it should be deemphasized because it is sensitive to sample size. Larger samples will yield a large and significant Chi-Square. Therefore additional fit indices such as the goodness-of-fit index (GFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA) were also used to determine goodness of fit (Swanson & Holton, 2005). A non-significant Chi-Square and a value ≥ .90 on the GFI or CFI indicate adequate models while RMSEA value < = .05 indicates a very close fit and RMSEA < .08 indicate a reasonably good or moderate fit (Swanson & Holton, 2005, p.196).

Models with fit indices that were close in value were examined to determine the significance of the difference in fit using Chi-Square (df) wherein the Chi-Square fit statistic for the model with fewer parameters, in this case fewer mediator variables, was subtracted from the model with more parameters. Degrees of freedom were calculated by subtracting the degrees of freedom from the model with fewer parameters from the model with more
parameters. A non-significant Chi-square indicated that removal of the parameters did not significantly reduce the fit of the model to the data (Merler & Vannatta, 2005).
Chapter Four

Findings

The purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness on the relationship between the Dimensions of the Learning Organization and affective and normative organizational commitment in the United States nursing population. Statistical analysis addressed the following research hypotheses to support the problem and purpose of the study.

H₁: The linear combination of the seven dimensions of the learning organization will predict affective organizational commitment. \( H₁: y = a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \)

H₀: The linear combination of the seven dimensions of the learning organization will not predict affective organizational commitment. \( H₀: y ≠ a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \)

H₂: The linear combination of the seven dimensions of the learning organization will predict normative organizational commitment. \( H₂: y = a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \)

H₀: The linear combination of the seven dimensions of the learning organization will not predict to normative organizational commitment. \( H₀: y ≠ a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \)
H₃: The linear combination of the seven dimensions of the learning organization will predict basic psychological needs, which is comprised of competence, autonomy and relatedness. \( H₃: y = a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \)

H₀: The linear combination of the seven dimensions of the learning organization will not predict basic psychological needs, which is comprised of competence, autonomy and relatedness. \( H₀: y ≠ a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \)

H₄: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment. \( H₄: (X*M) + X + M = 0, z\text{-value} = a*b/\text{SQRT}(b^2*s_a^2 + a^2*s_b^2 + s_a^2*s_b^2), p < .05 \)

H₀: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment. \( H₀: (X*M) + X + M ≠ 0 \)

H₅: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment. \( H₅: (X*M) + X + M = 0, z\text{-value} = a*b/\text{SQRT}(b^2*s_a^2 + a^2*s_b^2 + s_a^2*s_b^2), p < .05 \)
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$H_0$: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment. $H_0$: $(X*M) + X + M \neq 0$

Organization of Data Analysis

This section is based on the final sample of 870 participants, which represents a 3.5% return rate for the sampling frame of 24,751 registered nurses who are members of seven, state-based professional nursing associations located in the mid-west, northeast, west and southeast regions of the United States. Participant demographics were compared to the 2008 NSSRN (U.S. DHHS, 2010) to determine their representativeness of registered nurses in the United States for the purpose of generalizing findings. Confirmatory factor analysis followed by means, standard deviations, inter-correlations and reliability are presented for the DLOQ-A, TCMQ-A and BPNS-W for the present study. Finally, findings for each hypothesis statement, including multiple regressions and significance of each mediated model are presented.

Sample

Participants were a purposeful sample of 870 registered nurses who are members of seven, state-based professional nursing associations located in the mid-west, northeast, west and southeast regions of the United States. The participating nursing organizations are affiliate members of the American Nurses Association (ANA). The number of surveys returned represents an overall response rate of 3.5%. It is unknown if the sampling frame count of 24,751 is accurate because it was provided to the researcher by the nursing
associations and could have contained inaccurate or outdated e-mail addresses. It is also possible that the state-based professional nursing associations miscalculated the number of members to whom they forwarded the survey on behalf of the researcher. It is also unknown if the survey link reached the entire sampling frame due to third party survey distribution.

Of the 870 surveys submitted, 82 were missing all but the demographic information and were therefore deemed unusable and subsequently deleted from the data set. Mahalanobis distance revealed 10 items with Chi-Square above the critical value of 29.588, (df =10), p < .001 and one case with a standardized z score + 3 to -3. These 11 values were considered outliers and were deleted from the data set. A total of 777 cases were analyzed for findings. The target number of returned surveys for the present study was 450 therefore a sufficient number of observations were collected to conduct statistical analysis. Deleting cases is an acceptable method for handling missing data and outliers (Mertler & Vannatta, 2005).

A total of 159 of the 777 cases that were analyzed, 20% of all surveys, were considered “late” because they were submitted after the second notice. Late responders were considered representative of non-responders for the purpose of conducting one-way, between subjects ANOVA to analyze non-response bias in the data set (Miller & Smith, 1983). Chi-Square was used to assess demographic differences between late and non-late responders. Additionally, the demographics of the entire sample was compared to the demographics of registered nurses completing the 2008 NSSRN (U.S. DHHS, 2010) to determine the sample’s representativeness of registered nurses in the United States.
Chi-Square Demographics Early and Late Respondents

A chi-square test of independence was performed to examine the relationship between early and late respondents’ demographics, which included age, gender, race, job title, employment status and education level. Effect size was calculated for all significant Chi-Square values. The relationship was significant between response time and work setting, $\chi^2=29.26$ (df=4), $p<.001$, small effect size (Phi and Cramer’s V = .12), response time and race, $\chi^2=10.50$ (df=3), $p<.001$, small effect size (Phi and Cramer’s V =.12), response time and education level, $\chi^2=12.66$ (df=3), $p<.001$, small effect size (Phi and Cramer’s V = .13) and response time and respondent employment status, $\chi^2=6.07$ (df=1), $p = .01$ (1-sided). Chi-Square findings are displayed in Tables 15 through 20.

Table 15

Chi-Square: Late and Early Respondent Age

<table>
<thead>
<tr>
<th>Age in Years</th>
<th>&lt;25-29</th>
<th>30-35</th>
<th>36-40</th>
<th>41-45</th>
<th>46-50</th>
<th>51-55</th>
<th>56-60</th>
<th>61-65</th>
<th>&gt;65</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response Time</td>
<td>Early Count</td>
<td>66</td>
<td>46</td>
<td>42</td>
<td>51</td>
<td>88</td>
<td>132</td>
<td>104</td>
<td>72</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Expected</td>
<td>61</td>
<td>43</td>
<td>41</td>
<td>50</td>
<td>83</td>
<td>133</td>
<td>111</td>
<td>76</td>
<td>21</td>
</tr>
<tr>
<td>Late Count</td>
<td>11</td>
<td>8</td>
<td>9</td>
<td>12</td>
<td>16</td>
<td>35</td>
<td>36</td>
<td>23</td>
<td>9</td>
<td>159</td>
</tr>
<tr>
<td></td>
<td>Expected</td>
<td>16</td>
<td>11</td>
<td>10</td>
<td>13</td>
<td>21</td>
<td>34</td>
<td>29</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<td>Total Count</td>
<td>77</td>
<td>54</td>
<td>51</td>
<td>63</td>
<td>104</td>
<td>167</td>
<td>140</td>
<td>95</td>
<td>26</td>
<td>777</td>
</tr>
<tr>
<td></td>
<td>Expected</td>
<td>77</td>
<td>54</td>
<td>51</td>
<td>63</td>
<td>104</td>
<td>167</td>
<td>140</td>
<td>95</td>
<td>26</td>
</tr>
</tbody>
</table>

Table results: $\chi^2=11.25$ (df=8), $p = .19$ The under-25 age group was combined with 25-to-29 age group because the expected count for under 25 was < 5 for that cell.
Table 16

**Chi-Square: Late and Early Respondent Gender**

<table>
<thead>
<tr>
<th>Response Time</th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Count</td>
<td>564</td>
<td>54</td>
<td>618</td>
</tr>
<tr>
<td>Expected</td>
<td>568</td>
<td>50</td>
<td>618</td>
</tr>
<tr>
<td>Late Count</td>
<td>150</td>
<td>9</td>
<td>159</td>
</tr>
<tr>
<td>Expected</td>
<td>146</td>
<td>13</td>
<td>159</td>
</tr>
<tr>
<td>Total Count</td>
<td>714</td>
<td>63</td>
<td>777</td>
</tr>
<tr>
<td>Expected</td>
<td>714</td>
<td>63</td>
<td>777</td>
</tr>
</tbody>
</table>

Table results: $\chi^2 = 1.61$ (df=1), Fisher’s Exact Test for 2x2 table, $p = .25$ (2-sided) and $p = .13$ (1-sided).

Table 17

**Chi Square: Late and Early Respondent Race**

<table>
<thead>
<tr>
<th>Response Time</th>
<th>Asian/H/A</th>
<th>Hispanic</th>
<th>Black</th>
<th>White/Bi</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Count</td>
<td>28</td>
<td>19</td>
<td>38</td>
<td>533</td>
<td>618</td>
</tr>
<tr>
<td>Expected</td>
<td>24</td>
<td>24</td>
<td>34</td>
<td>536</td>
<td>618</td>
</tr>
<tr>
<td>Late Count</td>
<td>2</td>
<td>11</td>
<td>5</td>
<td>141</td>
<td>159</td>
</tr>
<tr>
<td>Expected</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>138</td>
<td>159</td>
</tr>
<tr>
<td>Total Count</td>
<td>30</td>
<td>30</td>
<td>43</td>
<td>674</td>
<td>777</td>
</tr>
<tr>
<td>Expected</td>
<td>30</td>
<td>30</td>
<td>43</td>
<td>674</td>
<td>777</td>
</tr>
</tbody>
</table>

Table results: $\chi^2 = 10.50$ (df=3), $p = .02$. Small effect size per Cramer’s V and Phi = .12.
Asian and Hawaiian/Alaskan Native racial categories were combined into one racial category because the expected count for these cells was < 5. More-than-one-race was combined with the White racial category because its expected count was < 5.

Table 18

*Chi Square: Late and Early Respondent Education Level*

<table>
<thead>
<tr>
<th>Response Time</th>
<th>Diploma</th>
<th>Associate</th>
<th>BA/other</th>
<th>Master</th>
<th>Doctorate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Count</td>
<td>29</td>
<td>114</td>
<td>228</td>
<td>197</td>
<td>50</td>
<td>618</td>
</tr>
<tr>
<td>Expected Count</td>
<td>27</td>
<td>103</td>
<td>224</td>
<td>212</td>
<td>53</td>
<td>618</td>
</tr>
<tr>
<td>Late Count</td>
<td>5</td>
<td>15</td>
<td>54</td>
<td>69</td>
<td>16</td>
<td>159</td>
</tr>
<tr>
<td>Expected Count</td>
<td>7</td>
<td>26</td>
<td>58</td>
<td>54</td>
<td>14</td>
<td>159</td>
</tr>
<tr>
<td>Total Count</td>
<td>34</td>
<td>129</td>
<td>282</td>
<td>266</td>
<td>66</td>
<td>777</td>
</tr>
<tr>
<td>Expected Count</td>
<td>34</td>
<td>129</td>
<td>282</td>
<td>266</td>
<td>66</td>
<td>777</td>
</tr>
</tbody>
</table>

Table results: $\chi^2 = 12.66$ (df=4), $p = .01$. Small effect size per Phi and Cramer’s V = .13.

For Table 18, bachelor’s degree category was combined with “other” degree category because the expected cell count for other was < 5. The other category represents people who have a bachelor’s degree in a field other than nursing.
Table 19

Chi Square: Late and Early Respondent Work Setting

<table>
<thead>
<tr>
<th>Response Time</th>
<th>Inpatient</th>
<th>Outpatient</th>
<th>Nursing Education</th>
<th>Public Health</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Count</td>
<td>438</td>
<td>33</td>
<td>74</td>
<td>56</td>
<td>17</td>
<td>618</td>
</tr>
<tr>
<td>Expected Count</td>
<td>410</td>
<td>41</td>
<td>88</td>
<td>60</td>
<td>20</td>
<td>618</td>
</tr>
<tr>
<td>Late Count</td>
<td>78</td>
<td>18</td>
<td>36</td>
<td>19</td>
<td>8</td>
<td>159</td>
</tr>
<tr>
<td>Expected Count</td>
<td>106</td>
<td>10</td>
<td>23</td>
<td>15</td>
<td>5</td>
<td>159</td>
</tr>
<tr>
<td>Count</td>
<td>516</td>
<td>51</td>
<td>110</td>
<td>75</td>
<td>25</td>
<td>777</td>
</tr>
<tr>
<td>Total Expected Count</td>
<td>516</td>
<td>51</td>
<td>110</td>
<td>75</td>
<td>25</td>
<td>777</td>
</tr>
</tbody>
</table>

Table results: $\chi^2 = 29.26$ (df=4), $p < .001$. Moderate effect size per Cramer’s V and Phi = .19.

For table 19, inpatient refers to hospital and nursing home/extended care facility combined. The expected count for the nursing home/extended care facility was < 5 therefore it was combined with hospital. Outpatient refers to ambulatory care facilities and physician’s offices, where patients do not spend the night. Nursing education includes continuing education in the workplace as well as higher education/degree granting programs. The public health category refers to public health nursing, community health centers and home health agencies.
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Table 20

*Chi Square: Early and Late Responders’ Employment Status*

<table>
<thead>
<tr>
<th>Response Time</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Count</td>
<td>528</td>
<td>90</td>
<td>618</td>
</tr>
<tr>
<td>Expected Count</td>
<td>518</td>
<td>100</td>
<td>618</td>
</tr>
<tr>
<td>Late Count</td>
<td>123</td>
<td>36</td>
<td>159</td>
</tr>
<tr>
<td>Expected Count</td>
<td>133</td>
<td>26</td>
<td>159</td>
</tr>
<tr>
<td>Total Count</td>
<td>651</td>
<td>126</td>
<td>777</td>
</tr>
<tr>
<td>Expected Count</td>
<td>651</td>
<td>126</td>
<td>777</td>
</tr>
</tbody>
</table>

Table results: $\chi^2 = 6.07$ (df=1), Fisher’s Exact Test for 2x2 table, $p = .02$ (2-sided) and $p = .01$ (1-sided). Small effect size per Cramer’s V and Phi = .12.

For Table 20 the per Diem/PRN categories were combined with self-employed and part-time categories because the expected cell count for the per-diem/PRN and self-employed cells were < 5.
Table 21

Chi-Square: Early and Late Responders’ Job Title

<table>
<thead>
<tr>
<th>Response Time</th>
<th>Staff</th>
<th>Mgmt</th>
<th>Administration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Count</td>
<td>515</td>
<td>65</td>
<td>38</td>
<td>618</td>
</tr>
<tr>
<td>Expected Count</td>
<td>510</td>
<td>69</td>
<td>39</td>
<td>618</td>
</tr>
<tr>
<td>Late Count</td>
<td>126</td>
<td>69</td>
<td>39</td>
<td>159</td>
</tr>
<tr>
<td>Expected Count</td>
<td>131</td>
<td>69</td>
<td>39</td>
<td>159</td>
</tr>
<tr>
<td>Total Count</td>
<td>641</td>
<td>87</td>
<td>49</td>
<td>777</td>
</tr>
<tr>
<td>Expected Count</td>
<td>641</td>
<td>87</td>
<td>49</td>
<td>777</td>
</tr>
</tbody>
</table>

Table results: $\chi^2 = 1.62$ (df = 2), $p = .45$.

For Table 21, the “Other” job category, which included job titles such as nurse practitioner, nurse-anesthesiologist and faculty (non-administrative) was combined with the “Staff” category because it had an expected cell count < 5. Management refers to nurses who have direct reports but are not in administration. The administration category refers to those who have roles such as Chief Nursing Officer or who are Deans in higher education.

ANOVA

A one-way ANOVA, between subjects design was used to analyze the differences between the mean scores of early and late respondents for all independent and dependent variables. Levene’s test for equality of variances showed that all variances were equal. Main effects results revealed no significant differences between the mean scores of early and late respondents for any variables, $p < .01$. ANOVA for sample means are displayed in Table 22.
Table 22

ANOVA – *Early and Late Responders*

<table>
<thead>
<tr>
<th>Variable</th>
<th>SS</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions of the Learning Organization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Continuous Learning</td>
<td>.00</td>
<td>.00</td>
<td>.99</td>
</tr>
<tr>
<td>2. Inquiry and Dialogue</td>
<td>14.27</td>
<td>1.08</td>
<td>.30</td>
</tr>
<tr>
<td>3. Collaboration and Teamwork</td>
<td>11.07</td>
<td>.69</td>
<td>.41</td>
</tr>
<tr>
<td>4. Embedded system</td>
<td>9.83</td>
<td>.62</td>
<td>.43</td>
</tr>
<tr>
<td>5. Empowerment/Shared Vision</td>
<td>20.83</td>
<td>1.16</td>
<td>.28</td>
</tr>
<tr>
<td>6. Connect organization to environment</td>
<td>9.00</td>
<td>.36</td>
<td>.55</td>
</tr>
<tr>
<td>7. Strategic Leadership</td>
<td>19.11</td>
<td>.63</td>
<td>.42</td>
</tr>
<tr>
<td><strong>Basic Psychological Needs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Competence</td>
<td>40.00</td>
<td>1.61</td>
<td>.20</td>
</tr>
<tr>
<td>2. Autonomy</td>
<td>158.32</td>
<td>3.23</td>
<td>.07</td>
</tr>
<tr>
<td>3. Relatedness</td>
<td>8.54</td>
<td>.21</td>
<td>.65</td>
</tr>
<tr>
<td><strong>Organizational Commitment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Affective Commitment</td>
<td>29</td>
<td>.88</td>
<td>.35</td>
</tr>
<tr>
<td>2. Normative Commitment</td>
<td>24</td>
<td>.86</td>
<td>.35</td>
</tr>
</tbody>
</table>

*Participant Demographics*

Research has indicated that demographics or personal characteristics do not play a role as an antecedent to organizational commitment (Allen & Meyer, 1990) therefore demographics were not included in the study for the purpose of determining any influence on the dependent variable. Table 23 provides a comparison of this study’s sample to major demographic categories of the 2008 NSSRN (U.S. DHHS, 2010). This demographic comparison is important in establishing the representativeness of the sample to the target population of registered nurses in the United States for the purpose of generalizing study
findings because purposeful sampling, which is a non-random technique, was used (Sproull, 2002).

Age was collected categorically in the same manner as the NSSRN (U.S. DHHS, 2010). Age categories ranged from under 25 years to over 65 years. The largest percentage of this study’s sample, 22%, was represented by the 50-54 age range. The largest percentage of nurses who participated in the 2008 NSSRN (U.S. DHHS, 2010) was also represented by the 50-54 age range. A majority of the sample was female and Caucasian, 92% and 85% respectively.

A majority of the sample, 84%, was employed full-time while 18% were employed part-time. The part-time category for the sample includes PRN and self-employed categories, which were not provided in the NSSRN. The NSSRN includes nurses who aren’t employed in the nursing industry however all of the nurses that participated in the present study were employed in nursing. More than half of the sample, 63%, works in hospitals and approximately one quarter of that 63%, or 24% work in a Magnet hospital. The “other” category for work setting includes managed care/insurance company, home health, school nurse, correctional facility, nursing union and professional nursing organization. More than half of the sample, 63%, are employed in non-management roles.
### Table 23

*Study Sample’s Demographics Compared to National Survey Sample of RNs (2008)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
<th>2008 NSSRN Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 25 years</td>
<td>19</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25 - 29 years</td>
<td>58</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>30 - 34 years</td>
<td>54</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>35 - 39 years</td>
<td>53</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>40 - 44 years</td>
<td>64</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>45 - 49 years</td>
<td>104</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>50 - 54 years</td>
<td>160</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>55 - 59 years</td>
<td>144</td>
<td>18</td>
<td>13</td>
</tr>
<tr>
<td>60 - 64 years</td>
<td>97</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>65 years and over</td>
<td>26</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>724</td>
<td>92</td>
<td>93</td>
</tr>
<tr>
<td>Male</td>
<td>64</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>4</td>
<td>&lt; 1</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Asian/Hawaiian/Pacific Islander</td>
<td>27</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>31</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>African American</td>
<td>44</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Caucasian</td>
<td>667</td>
<td>84</td>
<td>82</td>
</tr>
<tr>
<td>Two or more races</td>
<td>15</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 23 (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
<th>2008 NSSRN Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>34</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>ADN</td>
<td>133</td>
<td>17</td>
<td>36</td>
</tr>
<tr>
<td>BSN</td>
<td>279</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>MSN</td>
<td>270</td>
<td>34</td>
<td>10</td>
</tr>
<tr>
<td>Doctorate</td>
<td>66</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>&lt; 1</td>
<td>5</td>
</tr>
<tr>
<td><strong>Work Setting</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>502</td>
<td>63</td>
<td>62</td>
</tr>
<tr>
<td>Nursing home/extended care</td>
<td>18</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Ambulatory care/physician’s office</td>
<td>53</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Community/public health</td>
<td>75</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>140</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td><strong>Job Title</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff (non-management)</td>
<td>494</td>
<td>63</td>
<td>66</td>
</tr>
<tr>
<td>Management</td>
<td>88</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Administration (C-level, VP)</td>
<td>49</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>157</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>651</td>
<td>84</td>
<td>63</td>
</tr>
<tr>
<td>Part-time</td>
<td>126</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>Not employed in nursing</td>
<td>NA</td>
<td>NA</td>
<td>17</td>
</tr>
</tbody>
</table>
Validity

Confirmatory factor analysis (CFA) was used to assess the construct validity for the DLOQ-A, TCMQ-A and BPNS-W. Standardized regression weights, which is the same as standardized total effects, for each of the seven scales of the DLOQ-A and affective and normative commitment scales of the TCMQ-A were $\geq .70$ level of acceptability (Swanson & Holton, 2005). Several questions on the BPNS-W had standardized regression weights < .70 and were therefore removed prior to further statistical analysis. These included question 2 on the competence scale, with a standardized regression weight of .51, questions 3 and 5 on the relatedness scale, with standardized regression weights of .34 and .30 respectively, and questions 2 and 4 on the autonomy scale with standardized regression weights of .52 and -.17 respectively. Question 3 on the reliability scale and questions 2 and 4 on the autonomy scale were initially reverse-scored items. Question 2 on the autonomy scale and question 3 on the reliability scale were re-written so that they would not need to be reverse scored in SPSS. Question 4 on the autonomy scale was not re-written and was reverse-scored. Factor scores for each section of the survey are shown in Tables 24 through 26.
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Table 24

*DLOQ*-A Factor Loadings

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Continuous Learning</th>
<th>Inquiry Dialogue</th>
<th>Collaborate Team Learning</th>
<th>Empower Shared Vision</th>
<th>Embedded System</th>
<th>Connect System to Org</th>
<th>Lead Strgc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contln1</td>
<td>.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contln2</td>
<td>.67</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contln3</td>
<td>.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contln4</td>
<td>.83</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inqdl1</td>
<td></td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inqdl2</td>
<td></td>
<td>.86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inqdl3</td>
<td></td>
<td>.85</td>
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<td>Conorg2</td>
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<td>Conorg3</td>
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<td>.82</td>
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<td>.84</td>
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</tr>
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</table>

Table 24 Note:  Cont=continuous learning, Inqdl=Inquiry and Dialogue, Collab=Collaborative and Team Learning, Empw=Empowerment, Syscap=System Capture, Conorg=Connecting the Organization to the Environment, Lead=Strategic Leadership
Table 25

*TCMQ-A Factor Loadings*

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Affective Commitment</th>
<th>Normative Commitment</th>
</tr>
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<tbody>
<tr>
<td>Affective Commitment 1</td>
<td>.69</td>
<td></td>
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<tr>
<td>Affective Commitment 2</td>
<td>.61</td>
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<td>Affective Commitment 5</td>
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<td>Affective Commitment 6</td>
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<td>Normative Commitment 1</td>
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<td>Normative Commitment 2</td>
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<td>.71</td>
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<td>Normative Commitment 3</td>
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<td>.70</td>
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<tr>
<td>Normative Commitment 4</td>
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<td>.75</td>
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<td>Normative Commitment 5</td>
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<td>.68</td>
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<tr>
<td>Normative Commitment 6</td>
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<td>.70</td>
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</table>

Table 26

*BPNS-W Factor Loadings*

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Competence</th>
<th>Autonomy</th>
<th>Relatedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competence 1</td>
<td>.70</td>
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<tr>
<td>Competence 2</td>
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</tr>
<tr>
<td>Competence 3*</td>
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<tr>
<td>Competence 4</td>
<td>.69</td>
<td></td>
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</tr>
<tr>
<td>Competence 5</td>
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<td></td>
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</tr>
<tr>
<td>Competence 6</td>
<td>.74</td>
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<td></td>
</tr>
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</table>
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Table 26 (continued)

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Competence</th>
<th>Autonomy</th>
<th>Relatedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy 1</td>
<td></td>
<td>.74</td>
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</tr>
<tr>
<td>Autonomy 2*</td>
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<td>Autonomy 3</td>
<td>.80</td>
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<td></td>
</tr>
<tr>
<td>Autonomy 4*</td>
<td>-.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy 5</td>
<td>.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy 6</td>
<td>.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy 7</td>
<td>.72</td>
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<td></td>
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<tr>
<td>Relatedness 1</td>
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<td>.77</td>
<td></td>
</tr>
<tr>
<td>Relatedness 2</td>
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<td>.76</td>
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</tr>
<tr>
<td>Relatedness 3*</td>
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<td></td>
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</tr>
<tr>
<td>Relatedness 4</td>
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<td>.71</td>
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<td>Relatedness 5</td>
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<td>Relatedness 8</td>
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<td>.83</td>
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</tr>
</tbody>
</table>

*deleted prior to further data analysis

**Fit Indices**

Chi-Square was assessed for the DLOQ-A, TCMQ-A and BPNS-W in addition to several other measurement indices to determine goodness-of-fit for the present study including, GFI, RMR, CFI, AGFI and RMSEA after items with low factors scores were removed (Swanson & Holton, 2005). Fit indices are displayed in Table 27.
Table 27

*Fit Indices TCMQ-A, DLOQ-A and BPNS-W*

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>TCMQ-A</th>
<th>DLOQ-A</th>
<th>BPNS-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$ (df)</td>
<td>667.85 (53)*</td>
<td>977.36 (231)*</td>
<td>112.24 (101)*</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.12</td>
<td>.07</td>
<td>.11</td>
</tr>
<tr>
<td>RMR</td>
<td>.12</td>
<td>.08</td>
<td>.14</td>
</tr>
<tr>
<td>GFI</td>
<td>.85</td>
<td>.89</td>
<td>.83</td>
</tr>
<tr>
<td>AGFI</td>
<td>.78</td>
<td>.86</td>
<td>.77</td>
</tr>
<tr>
<td>CFI</td>
<td>.89</td>
<td>.96</td>
<td>.87</td>
</tr>
<tr>
<td>NFI</td>
<td>.88</td>
<td>.94</td>
<td>.86</td>
</tr>
</tbody>
</table>

Note N = 777 *p < .001

Reliability

*Reliability Dimensions of the Learning Organization*

The distribution for each of the seven dimensions of the learning organization was linear and slightly negatively skewed. Variables were not changed because skewness and kurtosis values were between +1.00 and -1.00. All of the inter-correlations were statistically significant ($p < .01$).

Descriptive statistics and reliability coefficients for the Dimensions of the Learning Organization are displayed in Table 29. All scales had reliability estimates above the acceptable level of .70 (O’Rourke, et al., 2005). The reliability estimate for all items on all seven scales combined was $\alpha = .97$. 
Table 28

*Means, Standard Deviations, Intercorrelations, and Cronbach’s Alpha Estimates DLOQ-A*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Continuous Learning</td>
<td>16.49</td>
<td>4.94</td>
<td>(.84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Inquiry &amp; Dialogue</td>
<td>10.86</td>
<td>3.64</td>
<td>.72*</td>
<td>(.87)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Collaborate Team Learning</td>
<td>10.61</td>
<td>4.01</td>
<td>.74*</td>
<td>.84*</td>
<td>(.92)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Embedded system Learning</td>
<td>10.56</td>
<td>4.00</td>
<td>.67*</td>
<td>.70*</td>
<td>.77*</td>
<td>(.86)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Empower Shared Vision</td>
<td>10.63</td>
<td>4.23</td>
<td>.71*</td>
<td>.76*</td>
<td>.85*</td>
<td>.81*</td>
<td>(.89)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. System Connection</td>
<td>15.64</td>
<td>4.97</td>
<td>.67*</td>
<td>.74*</td>
<td>.79*</td>
<td>.77</td>
<td>.83*</td>
<td>(.87)</td>
<td></td>
</tr>
<tr>
<td>7. Strategic Leadership</td>
<td>15.34</td>
<td>5.50</td>
<td>.74*</td>
<td>.77*</td>
<td>.83*</td>
<td>.79*</td>
<td>.88*</td>
<td>.84*</td>
<td>(.92)</td>
</tr>
<tr>
<td>8. Affective Commitment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: N = 777  Reliability estimates (Cronbach’s alpha) appear on the diagonal above correlation coefficients.*p < .01.

*Reliability Three Component Model of Employee Commitment*

The distribution for affective organizational commitment was linear and slightly negatively skewed, while the distribution for normative organizational commitment was linear and slightly positively skewed. Variables were not changed because skewness and kurtosis values were between +1.00 and -1.00. All of the inter-correlations were statistically significant (p < .01).
Descriptive statistics and reliability coefficients for the Three Component Model of Organizational Commitment are displayed in Table 29. The reliability estimates for affective and normative commitment were above the acceptable level of .70 (O’Rourke, et al., 2005) at $\alpha = .90$ and $\alpha = .85$ respectively. Research indicates that continuous commitment is related risk and the opportunity for employment elsewhere, not to programs the organization offers (Allen & Meyer, 1990). Additionally, confirmatory factor analysis revealed that the continuous commitment variable was not valid for this study’s sample therefore it is not included in the present study.

Table 29

*Means, Standard Deviations, Intercorrelations, and Cronbach’s Alpha Estimates TCMQ-A*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Affective Commitment</td>
<td>20.73</td>
<td>5.73</td>
<td>(.90)</td>
<td></td>
</tr>
<tr>
<td>2. Normative Commitment</td>
<td>17.14</td>
<td>5.29</td>
<td>.64*</td>
<td>(.85)</td>
</tr>
</tbody>
</table>

Note. N = 777. Reliability estimates (Cronbach’s alpha) appear on the diagonal above correlation coefficients. *p < .01
Reliability Basic Psychological Needs Scale-Work

The distribution for each of the scales that comprise the basic psychological needs scale-work was linear and slightly negatively skewed. Variables were not changed because skewness and kurtosis values were between +1.00 and -1.00. All of the inter-correlations were statistically significant (p < .01).

Descriptive statistics and reliability coefficients for the BPNS-W are displayed in Table 31. All items had reliability coefficients above the acceptable level of .70 (O’Rourke, et al., 2005). Questions 2 and 4 on the “autonomy” scale, questions 3 and 6 on the “relatedness” scale and question 3 on the “competence” scale were omitted prior to reliability screening because confirmatory factor analysis revealed that these items had low factor loadings.

Table 30
Means, Standard Deviations, Intercorrelations, and Cronbach’s Alpha Estimates BPNS-W

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>24.70</td>
<td>6.94</td>
<td>(.87)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relatedness</td>
<td>33.37</td>
<td>6.46</td>
<td>.67*</td>
<td>(.89)</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>29.17</td>
<td>4.97</td>
<td>.66*</td>
<td>.66*</td>
<td>(.83)</td>
</tr>
</tbody>
</table>

Note. N = 777. Reliability estimates (Cronbach’s alpha) appear on the diagonal above correlation coefficients. *p < .01.
Research Hypotheses

Hypothesis One

H₁: The linear combination of the seven dimensions of the learning organization will predict affective organizational commitment. \( H₁: \ y = a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \)

H₀: The linear combination of the seven dimensions of the learning organization will not predict affective organizational commitment. \( H₀: \ y \neq a + b₁x₁ + b₂x₂ + \ldots + b₇x₇ \)

Multiple regression was used to determine the predictive ability of the seven dimensions of the learning organization on affective organizational commitment. All seven dimensions of the learning organization were positively and significantly correlated with affective organizational commitment. Collinearity tolerance statistics for each variable was >.1, which indicated that there were no multicollinearity effects. Regression findings indicated that the linear combination of the seven dimensions of the learning organization significantly predicted affective commitment, \( F = 121.48 \) (df=7), \( p < .001 \), \( R^2 = .53 \), \( R^2_{adj} = .52 \). The seven dimensions of the learning organization accounted for approximately 53% of observed variance in affective commitment. Regression statistics are displayed in Table 31.
A review of beta weights specified that five of the seven variables, continuous learning $\beta = .10$ ($p < .05$), inquiry and dialogue $\beta = .17$ ($p < .001$), embedded system learning $\beta = -.11$ ($p < .05$), empowerment $\beta = .23$ ($p < .001$), and system connection $\beta = .29$ ($p < .001$), significantly contributed to the model. This finding also satisfied step 1 of mediation requirements that the independent variable significantly predicts the dependent variable (Kenny, 2011). The un-standardized regression coefficients for the five dimensions of the learning organization that significantly predicted affective organizational commitment were subsequently used to represent “path c”, direct effects, in the each mediated model. All coefficients with the exception of embedded system learning were in the positive direction.
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Hypothesis Two

\[ H_2: \text{The linear combination of the seven dimensions of the learning organization will predict normative organizational commitment} \]

\[ H_2: y = a + b_1x_1 + b_2x_2 + \ldots + b_7x_7 \]

\[ H_0: \text{The linear combination of the seven dimensions of the learning organization will not predict to normative organizational commitment.} \quad H_0: y \neq a + b_1x_1 + b_2x_2 + \ldots + b_7x_7 \]

Multiple regression was used to determine the predictive ability of the seven dimensions of the learning organization on normative organizational commitment. All seven dimensions of the learning organization were positively and significantly correlated with normative organizational commitment. Collinearity tolerance statistics for each variable was > .1, which indicated that there were no multicollinearity effects. Regression findings indicated that the linear combination of the seven dimensions of the learning organization significantly predicted normative commitment, \( F = 31.50 \, (7), \, p < .001, \, R^2 = .22, \, R^2_{adj} = .22 \).

The seven dimensions of the learning organization accounted for approximately 22% of observed variance in normative commitment. Regression statistics are displayed in Table 32.
Table 32

Multiple Regression Analysis Predicting Normative Organizational Commitment

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>Std. Error $\beta$</td>
</tr>
<tr>
<td>1. Continuous Learning</td>
<td>.01</td>
<td>.06</td>
</tr>
<tr>
<td>2. Inquiry &amp; Dialogue</td>
<td>.13</td>
<td>.09</td>
</tr>
<tr>
<td>3. Collaborate/Team Learning</td>
<td>.16</td>
<td>.10</td>
</tr>
<tr>
<td>4. Embedded system</td>
<td>-.14</td>
<td>.08</td>
</tr>
<tr>
<td>5. Empowerment</td>
<td>.33</td>
<td>.10</td>
</tr>
<tr>
<td>6. System connection</td>
<td>.14</td>
<td>.07</td>
</tr>
<tr>
<td>7. Strategic Leadership</td>
<td>-.02</td>
<td>.08</td>
</tr>
</tbody>
</table>

*p<.01, **p < .05, *** p < .001

A review of beta weights specified that two of the seven variables, empowerment $\beta =.26$ ($p < .001$), and connecting the organization to the environment $\beta =.13$ ($p < .05$), significantly contributed to the model. This also satisfied step 1 of mediation requirements that the independent variable significantly predicts the dependent variable (Kenny, 2011).

The un-standardized regression coefficients for the two dimensions of the learning organization that significantly predicted normative organizational commitment were subsequently used to represent “path c”, direct effects, in the mediated model for normative commitment. All coefficients with the exception of embedded system learning and strategic leadership were in the positive direction.
Hypothesis Three

**H3:** The linear combination of the seven dimensions of the learning organization will predict basic psychological needs, which is comprised of competence, autonomy and relatedness. \[ H_3: y = a + b_1x_1 + b_2x_2 + \ldots + b_7x_7 \]

**H0:** The linear combination of the seven dimensions of the learning organization will not predict basic psychological needs, which is comprised of competence, autonomy and relatedness. \[ H_0: y \neq a + b_1x_1 + b_2x_2 + \ldots + b_7x_7 \]

Multiple regression was used to determine the predictive ability of the seven dimensions of the learning organization on basic psychological needs, which is comprised of competence, autonomy and relatedness. Regression findings indicated that the linear combination of the seven dimensions of the learning organization significantly predicted competence, \( F = 40.62 \) (7), \( p < .001 \), \( R^2 = .27 \), \( R^2_{adj} = .26 \); autonomy, \( F = 155.42 \) (7), \( p < .001 \), \( R^2 = .59 \), \( R^2_{adj} = .58 \); and relatedness, \( F = 50.57 \) (7), \( p < .001 \), \( R^2 = .32 \), \( R^2_{adj} = .31 \). The seven dimensions of the learning organization accounted for approximately 27% of observed variance in competence, 59% of observed variance in autonomy and 32% of observed variance in relatedness.

A review of beta weights specified that two of the seven dimensions of the learning organization significantly predicted competence and relatedness respectively inquiry and dialogue \( \beta = .30 \) (p < .001), and system connection \( \beta = .37 \) (p < .001), \( \beta = .41 \) (p < .001), \( \beta = .16 \) (p < .001). Four of the seven variables, inquiry and dialogue \( \beta = .27 \) (p < .001), embedded system learning \( \beta = -.22 \) (p < .001), empowerment \( \beta = .24 \) (p < .001), and system connection \( \beta = .28 \) (p < .001), significantly predicted autonomy. These findings satisfied step 2 of
The un-standardized regression coefficients for the dimensions of the learning organization that significantly predicted the mediator variables, competence, autonomy and relatedness were subsequently used to represent “path a” in each of the mediated models. Correlation coefficients for competence, autonomy and relatedness and the seven dimensions of the learning organization are listed in the last column on the right, under “R”. Regression statistics are displayed in Tables 33 through 35 for competence, autonomy and relatedness respectively.

Table 33

*Multiple Regression Analysis Predicting Competence*

<table>
<thead>
<tr>
<th>Prediction Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>$t$</th>
<th>$R$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>Std. Error</td>
<td>$\beta$</td>
<td></td>
</tr>
<tr>
<td>1. Continuous Learning</td>
<td>.07</td>
<td>.05</td>
<td>.07</td>
<td>1.37</td>
</tr>
<tr>
<td>2. Inquiry &amp; Dialogue</td>
<td>.40</td>
<td>.08</td>
<td>.30**</td>
<td>4.88</td>
</tr>
<tr>
<td>3. Collaborate/team learning</td>
<td>.07</td>
<td>.09</td>
<td>.06</td>
<td>.77</td>
</tr>
<tr>
<td>4. Embedded system</td>
<td>-.09</td>
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<td>-.07</td>
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<td>.09</td>
<td>-.10</td>
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<td>.06</td>
<td>.37**</td>
<td>5.86</td>
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<td>7. Strategic Leadership</td>
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<td>.07</td>
<td>-.08</td>
<td>-1.03</td>
</tr>
</tbody>
</table>
Table 34

*Multiple regression predicting Autonomy*

<table>
<thead>
<tr>
<th>Prediction Variables</th>
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<th>Standardized Coefficients</th>
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<td>.05</td>
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<td>3. Collaborate/team learning</td>
<td>.46</td>
<td>.10</td>
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<td>4. Embedded system</td>
<td>-.38</td>
<td>.07</td>
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<td>5. Empowerment</td>
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<td>.07</td>
</tr>
<tr>
<td>7. Strategic Leadership</td>
<td>-.02</td>
<td>.07</td>
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</table>

*p<.01, **p<.001

Table 35

*Multiple regression predicting Relatedness*

<table>
<thead>
<tr>
<th>Prediction Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
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<tbody>
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<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1. Continuous Learning</td>
<td>.06</td>
<td>.06</td>
</tr>
<tr>
<td>2. Inquiry &amp; Dialogue</td>
<td>.72</td>
<td>.10</td>
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<tr>
<td>3. Collaborate/team learning</td>
<td>-.01</td>
<td>.12</td>
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<td>4. Embedded system</td>
<td>-.17</td>
<td>.09</td>
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<td>5. Empowerment</td>
<td>.06</td>
<td>.116</td>
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<td>.21</td>
<td>.08</td>
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<tr>
<td>7. Strategic Leadership</td>
<td>.05</td>
<td>.09</td>
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</tbody>
</table>

*p<.01, **p<.05, ***p<.001
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Hypothesis Four

H₄: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment.

\[ H₄: (X*M) + X + M = 0, \text{where} \quad z-value = \frac{a*b}{\sqrt{b^2s_a^2 + a^2s_b^2 + s_a^2s_b^2}}, \quad p < .05 \]

H₀: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment.

\[ H₀: (X*M) + X + M \neq 0 \]

Multiple regression was used to determine the predictive ability of the mediator, basic psychological needs, comprised of competence, autonomy and relatedness, on affective organizational commitment while controlling for the independent variable, the seven dimensions of the learning organization to determine. Separate regression equations for each of the seven dimensions of the learning organization that were significant predictors of affective organizational commitment as determined by hypothesis one for the present study, and the respective mediating variable, as determined by hypothesis three for the present study, were conducted for the dependent variable, affective organizational commitment.

The independent variable was “controlled” by being entered into the same regression equation as the mediator variable. The un-standardized regression coefficient for the effect of the mediator on the dependent variable while controlling for the independent variable was used to establish “path b” in the mediated model. If “path b” was significant this satisfied
Kenny (2011) step 3 that the mediator has a significant effect on the dependent variable while controlling for independent variable. Likewise, the un-standardized regression coefficient for the effect of the independent variable on the dependent variable while controlling for the mediator variable was used to establish “path c’ ” (c-prime) and to evaluate Kenny (2011) step 4, which is to show that the effect of the independent variable is diminished by the presence of the mediator variable in the same regression equation.

Kenny (2011) suggested that statistical significance for the predictor variable in a regression equation in step 4 is not relevant to mediation. Therefore the un-standardized regression co-efficient for the effect of the independent variable on the dependent variable when the mediator is in the equation might still be significant, which does not negate mediation. If path c’ was reduced to zero this indicated a completely mediated model. If path c’ was reduced but not to zero, this indicated a partially mediated model. If there was no change in path c’ or path b was no longer significant when the independent variable was included in the equation then there was no mediation.

After using Kenny’s (2011) four steps as outlined above, the effect of mediation was tested for significance using an on-line calculator (Preacher & Leonardelli, 2011). The amount of mediation, expressed as the proportion of the total effect mediated, was calculated using the formula, ab/c (Shrout & Bolger, 2002) when the standardized regression coefficient for path c was + .2 (Kenny, 2011) and if the mediated effect was determined to be significant per Sobel tests. Each model was then screened for goodness-of-fit (Baron & Kenny, 1986).
Mediating Effects of Competence on Affective Organizational Commitment

Each of the seven dimensions of the learning organization were significantly and positively correlated with affective organizational commitment and with basic psychological needs, comprised of the variables competence, autonomy and relatedness. Correlation coefficients for competence were displayed in Table 34 for hypothesis three of the present study.

Two of the five variables that significantly predicted affective organizational commitment in hypothesis one, including inquiry and dialogue and system connection significantly predicted competence. To satisfy Kenny (2011) steps one and two, only these two variables were analyzed for mediated effects for competence.

Regression analysis revealed that the direct effect of inquiry and dialogue on affective organizational commitment was reduced from 1.01 to .82 and the direct effect of system connection on affective organizational commitment was reduced from .78 to .65 however both independent variables remained significant predictors when competence was introduced into their respective equations. Approximately 18% of the effect of inquiry and dialogue and 16% of the effect of system connection is mediated by competence. Findings are displayed in Table 36. Mediated models for inquiry and dialogue and system connection and competence are displayed in Figures 5 & 6 respectively.
### Table 36

**Mediating Effects of Competence on Affective Organizational Commitment**

<table>
<thead>
<tr>
<th>Prediction Variables</th>
<th>Path</th>
<th>B</th>
<th>Std Error</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inquiry and dialogue</strong></td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1 (X) → (Y)</td>
<td>C</td>
<td>1.01</td>
<td>.04</td>
<td>.64*</td>
</tr>
<tr>
<td>Step 2 (X) → (M)</td>
<td>A</td>
<td>.65</td>
<td>.04</td>
<td>.48*</td>
</tr>
<tr>
<td>Step 3 (M) + (X) → (Y)</td>
<td>B</td>
<td>.28</td>
<td>.04</td>
<td>.25*</td>
</tr>
<tr>
<td>Step 4 (X) + (M) → (Y)</td>
<td>c'</td>
<td>.82</td>
<td>.05</td>
<td>.52*</td>
</tr>
<tr>
<td><strong>System connection</strong></td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1 (X) → (Y)</td>
<td>C</td>
<td>.78</td>
<td>.03</td>
<td>.67*</td>
</tr>
<tr>
<td>Step 2 (X) → (M)</td>
<td>A</td>
<td>.47</td>
<td>.03</td>
<td>.47*</td>
</tr>
<tr>
<td>Step 3 (M) + (X) → (Y)</td>
<td>B</td>
<td>.26</td>
<td>.03</td>
<td>.23*</td>
</tr>
<tr>
<td>Step 4 (X) + (M) → (Y)</td>
<td>c'</td>
<td>.65</td>
<td>.03</td>
<td>.57*</td>
</tr>
</tbody>
</table>

*p < .001

![Diagram](chart.png)

**Figure 5**

Inquiry and Dialogue and Affective Commitment Mediated by Competence
Sobel tests were statistically significant for inquiry and dialogue, shown in Figure 4, (Sobel test statistic = 6.43, Aroian test = 6.42, and Goodman test = 6.44, p < .05) and for system connection, shown in Figure 5, (Sobel test statistic = 7.58, Aroian test = 7.57, and Goodman test = 7.80, p < .05), which indicated that the indirect effect was significantly different from zero.

Summary of Causal Effects for Affective Commitment Mediated by Competence

Path analysis via structural equation modeling was conducted to determine the causal effects among the independent variables that significantly predicted affective organizational commitment, and the mediator variable, competence, specifically continuous learning, inquiry and dialogue and system connection. Continuous learning was not among the seven dimensions of the learning organization that significantly predicted competence therefore...
there is no path between these two variables. All variables were drawn as latent variables in AMOS 19 (Mertler & Vannata, 2005).

The initial model was identified, recursive and consistent with the empirical data. None of the correlations exceeded a difference of .05. All path coefficients were significant, p < .001, with the exception of inquiry and dialogue to competence, which was significant at p < .003. The variable with the largest total effect was continuous learning on affective organizational commitment (β = .58), which was not mediated by competence. The primary determinant of competence in this model was system connection (β = .32). The primary determinant of affective organizational commitment in this model was continuous learning, (β = .58). This model explained approximately 53% of the variance in affective organizational commitment. The model is displayed in Figure 7. The direct, indirect and total effects are presented in Table 37.

![Diagram of the model](image)

**Figure 7**

Affective Organizational Commitment Mediated by Competence

Note *p < .001, **p < .003
Table 37

*Standardized Causal Effects for Affective Commitment Mediated by Competence*

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>Determinant</th>
<th>Direct</th>
<th>Indirect</th>
<th>Total</th>
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<td>.58*</td>
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<td></td>
<td>Inquiry &amp; Dialogue</td>
<td>.00</td>
<td>.07</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>System connection</td>
<td>.00</td>
<td>.09</td>
<td>.09</td>
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<td></td>
<td>Competence</td>
<td>.27</td>
<td>.00</td>
<td>.27</td>
</tr>
<tr>
<td>Competence</td>
<td>Inquiry &amp; Dialogue</td>
<td>.25**</td>
<td>.00</td>
<td>.25**</td>
</tr>
<tr>
<td></td>
<td>System connection</td>
<td>.32**</td>
<td>.00</td>
<td>.32**</td>
</tr>
</tbody>
</table>

* p<.001, ** p<.003

*Mediating Effects of Autonomy on Affective Organizational Commitment*

Each of the seven dimensions of the learning organization were significantly and positively correlated with affective organizational commitment and with basic psychological needs, comprised of the variables competence, autonomy and relatedness. Correlation coefficients for autonomy were displayed in Table 35 for hypothesis three of the present study.

Four of the five variables that significantly predicted affective organizational commitment in hypothesis one, including inquiry and dialogue, embedded system, empowerment and system connection, also significantly predicted autonomy. To satisfy Kenny (2011) steps one and two, only these four variables were analyzed for the mediated effects for autonomy.
Regression analysis revealed that the direct effect of inquiry and dialogue on affective organizational commitment was reduced from 1.01 to .47, collaborate and team learning was reduced from .94 to .45, embedded system was reduced from .82 to .36, empowerment was reduced from .91 to .48 and system connection was reduced from .78 to .65. All independent variables remained significant predictors when autonomy was introduced into their respective regression equations.

The standardized coefficient or beta weight for “path a” was greater than the standardized coefficient for “path b” for collaborate and team learning, empowerment and system connection therefore the mediator is distal and these independent variables are linearly closer to affective organizational commitment than the mediator, autonomy. Approximately 26% of the effect of inquiry and dialogue, 56% of the effect of embedded system, 48% of the effect of empowerment, and 42% of the effect of system connection is mediated by autonomy. Findings are displayed in Table 3. Mediated models for inquiry and dialogue, empowerment, embedded system and system connection are displayed in Figures 8, 9, 10 and 11 respectively.
Table 38

**Mediating Effects of Autonomy on Affective Organizational Commitment**

<table>
<thead>
<tr>
<th>Prediction Variables</th>
<th>Path</th>
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<th>Std Error</th>
<th>β</th>
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<td></td>
<td></td>
</tr>
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<td>(X)→(Y)</td>
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</tr>
<tr>
<td>Step 2</td>
<td>(X)→(M)</td>
<td>A</td>
<td>.65</td>
<td>.04</td>
</tr>
<tr>
<td>Step 3</td>
<td>(M) + (X)→(Y)</td>
<td>B</td>
<td>.41</td>
<td>.03</td>
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<td>Step 4</td>
<td>(X) + (M)→(Y)</td>
<td>c'</td>
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<td>.05</td>
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<td>Embedded system</td>
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<td>Step 1</td>
<td>(X)→(Y)</td>
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<td>.04</td>
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<td>Step 2</td>
<td>(X)→(M)</td>
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<td>.97</td>
<td>.05</td>
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<tr>
<td>Step 1</td>
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<td>c'</td>
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*p < .01
Figure 8
Inquiry and Dialogue and Affective Commitment Mediated by Autonomy

Figure 9
Embedded System and Affective Commitment Mediated by Autonomy

Figure 10
Empowerment and Affective Commitment Mediated by Autonomy
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Figure 11
System Connection and Affective Commitment Mediated by Autonomy

Sobel Findings Affective Organizational Commitment Mediated by Autonomy

Sobel tests were statistically significant for inquiry and dialogue (Sobel test statistic = 10.46, Aroian test = 10.45, and Goodman test = 10.47 (p<.05), embedded system (Sobel test statistic = 14.96, Aroian test = 14.95, and Goodman test = 14.97 (p<.05), empowerment (Sobel test statistic = 11.57, Aroian test = 11.57, and Goodman test = 11.58 (p<.05), and system connection, (Sobel test statistic = 10.25, Aroian test = 10.24, and Goodman test = 10.26 (p<.05) which indicated that the indirect effect was significantly different from zero.

Summary of Causal Effects for Affective Organizational Commitment Mediated by Autonomy

Path analysis via structural equation modeling was conducted to determine the causal effects among the independent variables that significantly predicted affective organizational commitment, specifically continuous learning, inquiry and dialogue, embedded system, empowerment and system connection and the mediator variable, autonomy. Continuous learning was not among the seven dimensions of the learning organization that significantly predicted autonomy therefore there is no path between these two variables. However
continuous learning was a significant predictor of affective organizational commitment therefore it is included in the overall model but not as a mediated variable. All variables were drawn as latent variables in AMOS 19 (Mertler & Vannata, 2005).

The initial model was identified, recursive and consistent with the empirical data. None of the correlations exceeded a difference of .05. All path coefficients were significant, \( p < .001 \). The variable with the largest total effect was empowerment (\( \beta = .67 \)), which was the primary determinant of autonomy in this model. The mediator autonomy was the primary determinant of affective organizational commitment (\( \beta = .67 \)). This model explained approximately 58% of the variance in affective organizational commitment. The model is displayed in Figure 12. The direct, indirect and total effects are presented in Table 39.

**Figure 12**

Affective Organizational Commitment Mediated by Autonomy

*Correlation values for exogenous variables are shown in Table 26*

*\( *p < .001 \)
Table 39

*Standardized Causal Effects for Affective Commitment Mediated by Autonomy*

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>Determinant</th>
<th>Causal Effects</th>
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<tbody>
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<td></td>
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<td>Inquiry &amp; Dialogue</td>
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<td>Embedded system</td>
<td>.00</td>
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<tr>
<td></td>
<td>Empowerment</td>
<td>.00</td>
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<tr>
<td></td>
<td>System connection</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>Autonomy</td>
<td>.67*</td>
</tr>
<tr>
<td></td>
<td>Inquiry &amp; Dialogue</td>
<td>.39*</td>
</tr>
<tr>
<td></td>
<td>Embedded system</td>
<td>-.65*</td>
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<td>Empowerment</td>
<td>.67*</td>
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<tr>
<td></td>
<td>System connection</td>
<td>.44*</td>
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</table>

*p > .001

Mediating Effects of Relatedness on Affective Organizational Commitment

Each of the seven dimensions of the learning organization were significantly and positively correlated with affective organizational commitment and with basic psychological needs, comprised of the variables competence, autonomy and relatedness. Correlation coefficients for relatedness were displayed in Table 35 for hypothesis three of the present study.

Two of the five variables that significantly predicted affective organizational commitment in hypothesis one, including inquiry and dialogue and system connection significantly predicted relatedness. To satisfy Kenny (2011) steps one and two, only these two variables were analyzed for mediated effects for relatedness.

Regression analysis revealed that the direct effect of inquiry and dialogue on affective
organizational commitment was reduced from 1.01 to .76 however the mediator, relatedness was no longer a significant predictor when it was introduced into this specific regression equation. This indicated that it was no longer mediating the effect of inquiry and dialogue and inquiry and dialogue was no longer a significant predictor when relatedness was entered into the equation. Therefore a mediated model for relatedness did not include inquiry and dialogue. The direct effect of system connection on affective organizational commitment was reduced from .78 to .62 and remained a significant predictor when relatedness was introduced into this specific regression equation. Approximately 21% of the effect of system connection is mediated by relatedness. Findings are displayed in Table 40. The mediated model is displayed in Figure 13.

Table 40

Mediating Effects of Relatedness on Affective Organizational Commitment

<table>
<thead>
<tr>
<th>Prediction Variables</th>
<th>Path</th>
<th>B</th>
<th>Std Error</th>
<th>β</th>
</tr>
</thead>
<tbody>
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<td>Inquiry and dialogue</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td>(X)</td>
<td>(Y)</td>
<td>C</td>
<td>1.01</td>
</tr>
<tr>
<td>Step 2</td>
<td>(X)</td>
<td>(M)</td>
<td>A</td>
<td>.97</td>
</tr>
<tr>
<td>Step 3</td>
<td>(M)</td>
<td>(X)</td>
<td>B</td>
<td>.26</td>
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<tr>
<td>Step 4</td>
<td>(X)</td>
<td>(M)</td>
<td>c'</td>
<td>.76</td>
</tr>
<tr>
<td>System connection</td>
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<td></td>
</tr>
<tr>
<td>Step 1</td>
<td>(X)</td>
<td>(Y)</td>
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</tr>
<tr>
<td>Step 4</td>
<td>(X)</td>
<td>(M)</td>
<td>c'</td>
<td>.62</td>
</tr>
</tbody>
</table>

*p < .001
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![Diagram of system connection and affective commitment mediated by relatedness](image)

**Figure 13**

System Connection and Affective Commitment Mediated by Relatedness

*Sobel Findings Affective Organizational Commitment Mediated by Relatedness*

Sobel tests were statistically significant for system connection, which indicated that the indirect effect was significantly different from zero (Sobel test = 7.78, Aroian test = 7.77 and Goodman test = 7.80 (p < .05).

*Summary of Causal Effects Affective Organizational Commitment Mediated by Relatedness*

Path analysis via structural equation modeling was conducted to determine the causal effects among the independent variables that significantly predicted affective organizational commitment, and the mediator variable, relatedness, specifically continuous learning, and system connection. Continuous learning was not among the seven dimensions of the learning organization that significantly predicted relatedness therefore there is no path between these two variables. Inquiry and dialogue was not included in the model as mediation analysis suggested that it was not a significant predictor of affective organizational commitment. All variables were drawn as latent variables in AMOS 19 (Mertler & Vannata, 2005).
The initial model was identified, recursive and consistent with the empirical data. None of the correlations exceeded a difference of .05. All path coefficients were significant, \( p < .001 \). The variable with the largest total effect was system connection (\( \beta = .56 \)), which was the primary determinate of relatedness in this model. Continuous learning was the primary determinant of affective organizational commitment (\( \beta = .49 \)), which was not mediated by relatedness. This model explained approximately 53\% of the variance in affective organizational commitment. The model is displayed in Figure 14. The direct, indirect and total effects are presented in Table 41.

Figure 14

Affective Organizational Commitment Mediated by Relatedness
Table 41

*Standardized Causal Effects for Affective Commitment Mediated by Relatedness*

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>Determinant</th>
<th>Causal Effects</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Direct</td>
<td>Indirect</td>
<td>Total</td>
</tr>
<tr>
<td>Affective Commitment</td>
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<td>.00</td>
<td>.49*</td>
</tr>
<tr>
<td></td>
<td>System connection</td>
<td>.00</td>
<td>.22*</td>
<td>.22*</td>
</tr>
<tr>
<td></td>
<td>Relatedness</td>
<td>.40</td>
<td>.00</td>
<td>.40*</td>
</tr>
<tr>
<td>Relatedness</td>
<td>System connection</td>
<td>.56*</td>
<td>.00</td>
<td>.56*</td>
</tr>
</tbody>
</table>

*p < .001

Summary of Causal Effects Affective Organizational Commitment Mediated Model

Path analysis via structural equation modeling was conducted to determine the causal effects among the independent variables that significantly predicted affective organizational commitment, specifically continuous learning, inquiry and dialogue, embedded system, empowerment, and system connection and all of the mediator variables, specifically competence, autonomy and relatedness. Continuous learning was not among the seven dimensions of the learning organization that significantly predicted any of the mediator variables therefore there are no paths between it and any of the exogenous variables. All variables were drawn as latent variables in AMOS 19 (Mertler & Vannata, 2005).

The initial model was identified, recursive and consistent with the empirical data. None of the correlations exceeded a difference of .05. All path coefficients were significant, p < .001, with the exception of competence to affective organizational commitment, which was not significant in the overall model. The variable with the largest total effect was
embedded system (β = -0.67). The primary determinant of competence in this model was inquiry and dialogue (β = 0.55). The primary determinant of autonomy in this model was embedded system (β = -0.67), followed by system connection (β = 0.63). The primary determinant of affective organizational commitment in this model was autonomy (β = 0.58) followed by system connection (β = 0.46). This model explained approximately 59% of the variance in affective organizational commitment. The model is displayed in Figure 15. The direct, indirect and total effects are presented in Table 42.

Figure 15
Affective Organizational Commitment Full Mediated Model
Table 42

*Standardized Causal Effects for Affective Organizational Commitment Mediated Model*

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>Determinant</th>
<th>Causal Effects</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Direct</td>
<td>Indirect</td>
<td>Total</td>
</tr>
<tr>
<td>Affective Commitment</td>
<td>Continuous Learning</td>
<td>.18*</td>
<td>.00</td>
<td>.18*</td>
</tr>
<tr>
<td></td>
<td>Competence</td>
<td>-.03</td>
<td>.00</td>
<td>-.03</td>
</tr>
<tr>
<td></td>
<td>Autonomy</td>
<td>.58*</td>
<td>.00</td>
<td>.58*</td>
</tr>
<tr>
<td></td>
<td>Relatedness</td>
<td>.17*</td>
<td>.00</td>
<td>.17*</td>
</tr>
<tr>
<td></td>
<td>System connection</td>
<td>.46*</td>
<td>.46*</td>
<td>.46*</td>
</tr>
<tr>
<td></td>
<td>Embedded system</td>
<td>-.39*</td>
<td>-.39*</td>
<td>-.39*</td>
</tr>
<tr>
<td></td>
<td>Inquiry &amp; Dialogue</td>
<td>.21*</td>
<td>.21*</td>
<td>.21*</td>
</tr>
<tr>
<td></td>
<td>Empowerment</td>
<td>.28*</td>
<td>.28*</td>
<td>.28*</td>
</tr>
<tr>
<td>Competence</td>
<td>Inquiry &amp; Dialogue</td>
<td>.55*</td>
<td>.00</td>
<td>.55*</td>
</tr>
<tr>
<td>Autonomy</td>
<td>System connection</td>
<td>.63*</td>
<td>.00</td>
<td>.63*</td>
</tr>
<tr>
<td></td>
<td>Embedded system</td>
<td>-.67*</td>
<td>.00</td>
<td>-.67*</td>
</tr>
<tr>
<td></td>
<td>Inquiry &amp; Dialogue</td>
<td>.39*</td>
<td>.00</td>
<td>.39*</td>
</tr>
<tr>
<td></td>
<td>Empowerment</td>
<td>.50*</td>
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<td>.50*</td>
</tr>
<tr>
<td>Relatedness</td>
<td>System connection</td>
<td>.59*</td>
<td>.00</td>
<td>.59*</td>
</tr>
</tbody>
</table>

*Fit Indices Mediated and Non-Mediated Models Affective Organizational Commitment*

The model that did not contain any mediating variables and model that included autonomy as the only mediator were better fits for the data than the other models. Findings for the model without mediators were $\chi^2 = 881.18$ (215), $p = < .001$, RMSEA = .06, GFI = .91, CFI = .95 and the model mediated by autonomy only, $\chi^2 = 1219.85$ (334), $p = < .001$, RMSEA = .06, GFI = .90, CFI = .95. The GFI was .01 higher for the non-mediated model,
which would indicate a slightly better fit with the RMSEA and CFI being the same for both models. The Chi-Square was larger for the model that included autonomy as the only mediator however this model included more parameters so a larger Chi-Square is to be expected. A non-significant Chi-Square and a value ≥ .90 on the GFI or CFI and indicate adequate models (Swanson & Holton, 2005) however, large sample sizes tend to produce large and significant Chi-Square values (Kenny, 2011) therefore other fit indices were also observed, such as RMSEA, where a value < /= .05 indicates a very close fit while values < .08 indicate a reasonably good or moderate fit (Swanson & Holton, 2005, p.196).

The significance of the difference in fit between the model without mediators and the model mediated by autonomy only were examined to determine if removing autonomy from the model significantly reduced the fit of the model to the data. Results of this calculation were $\chi^2 = 343.92$ (df=119), which was greater than the critical value of 167.61 (df=115), $p < .001$. This indicated that removal of autonomy did not significantly reduce the fit of the model to the data, which means there is essentially no difference in fit with autonomy in the model or not in the model. The $\chi^2$/df ratio for the model with no mediators was slightly larger, 4.10, than that of the autonomy mediated model, which had a $\chi^2$/df ratio of 3.65. If the ratio between $X^2$ and degrees of freedom is less than two, the model is a good fit (Ullman 1996). Fit indices for all models are displayed in Table 43.
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Table 43

*Fit Indices Affective Commitment Mediated and Non-Mediated Models*

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>Non-mediated (Table 32)</th>
<th>Mediated Competence (Fig. 7)</th>
<th>Mediated Autonomy (Fig. 13)</th>
<th>Mediated Relatedness (Fig. 14)</th>
<th>All Mediators Combined (Fig 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$ (df)</td>
<td>881.18 (215)*</td>
<td>1225.10 (202)*</td>
<td>1219.85 (334)*</td>
<td>1014.05 (166)*</td>
<td>3294 (682)*</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.06</td>
<td>.08</td>
<td>.06</td>
<td>.08</td>
<td>.07</td>
</tr>
<tr>
<td>RMR</td>
<td>.10</td>
<td>.14</td>
<td>.10</td>
<td>.12</td>
<td>.20</td>
</tr>
<tr>
<td>GFI</td>
<td>.91</td>
<td>.86</td>
<td>.90</td>
<td>.88</td>
<td>.81</td>
</tr>
<tr>
<td>AGFI</td>
<td>.88</td>
<td>.82</td>
<td>.87</td>
<td>.85</td>
<td>.78</td>
</tr>
<tr>
<td>CFI</td>
<td>.95</td>
<td>.91</td>
<td>.95</td>
<td>.92</td>
<td>.89</td>
</tr>
<tr>
<td>NFI</td>
<td>.94</td>
<td>.89</td>
<td>.93</td>
<td>.90</td>
<td>.86</td>
</tr>
</tbody>
</table>

Note: N=777. *p < .001

*Hypothesis Five*

$H_5$: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment.

$H_5$: (X*M) + X + M= 0, $z$-value = $a^*b$/SQRT($b^2*sa^2 + a^2*sb^2 + sa^2*sb^2$), $p < .05$

$H_0$: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment.

$H_0$: (X*M) + X + M ≠ 0
Multiple regression was used to determine the predictive ability of the mediator, basic psychological needs, comprised of competence, autonomy and relatedness, on normative organizational commitment while controlling for the independent variable, the seven dimensions of the learning organization. Separate regression equations for each of the seven dimensions of the learning organization that were significant predictors of normative organizational commitment as determined by hypothesis two for the present study, and the respective mediating variable, as determined by hypothesis three for the present study, were conducted for the dependent variable, normative organizational commitment.

The independent variable was “controlled” by being entered into the same regression equation as the mediator variable. The un-standardized regression coefficient for the effect of the mediator on the dependent variable while controlling for the independent variable was used to establish “path b” in the mediated model. If “path b” was significant this satisfied Kenny (2011) step 3 that the mediator has a significant effect on the dependent variable while controlling for independent variable. Likewise, the un-standardized regression coefficient for the effect of the independent variable on the dependent variable while controlling for the mediator variable was used to establish “path c’” (c-prime) and to evaluate Kenny (2011) step 4.

Kenny (2011) suggested that statistical significance for the predictor variable in a regression equation in step 4 is not relevant to mediation. Therefore the un-standardized regression co-efficient for the effect of the independent variable on the dependent variable when the mediator is in the equation might still be significant, which does not negate mediation. If path c’ was reduced to zero this indicated a completely mediated model. If
path c’ was reduced but not to zero, this indicated a partially mediated model. If there was no change in path c’ or path b was no longer significant when the independent variable was included in the equation then there was no mediation.

After using Kenny’s (2011) four steps as outlined above, the effect of mediation was then tested for significance using an on-line calculator (Preacher & Leonardelli, 2011). The amount of mediation, expressed as the proportion of the total effect mediated, was calculated using the formula, ab/c (Shrout & Bolger, 2002) when the standardized regression coefficient for path c was $\pm .2$ (Kenny, 2011) and if the mediated effect was determined to be significant per Sobel tests. Each model was then screened for goodness-of-fit (Kenny, 2011).

Mediating Effects of Competence on Normative Organizational Commitment

Each of the seven dimensions of the learning organization were significantly and positively correlated with normative organizational commitment and with basic psychological needs, comprised of the variables competence, autonomy and relatedness. Correlation coefficients for competence were displayed in Table 34 for hypothesis three of the present study.

System connection, one of the variables that significantly predicted normative organizational commitment in hypothesis two, also significantly predicted competence. To satisfy Kenny (2011) steps one and two, only this variable was analyzed for mediated effects for competence.

Regression analysis revealed that the direct effect of regressing normative organizational commitment on system connection B = .45 (p<.001). The indirect effect B = .03, was not statistically significant. The direct effect of system connection on normative
organizational commitment was reduced from .45 to .42 however the mediator, competence was no longer a significant predictor when it was introduced into the equation, and therefore was not mediating any effect. Because there was no mediation, a graphic for the combination of system connection and competence in a mediated model was not provided. Sobel tests were not significant, which indicated that the difference between the direct and indirect effect was not statistically different than zero. Therefore competence did not mediate the effect of system connection on normative organizational commitment. Findings are displayed in Table 44.

Table 44

<table>
<thead>
<tr>
<th>Mediating Effects of Competence on Normative Organizational Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prediction Variables</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>System connection</td>
</tr>
<tr>
<td>Step 1 (X) ( \rightarrow ) (Y)</td>
</tr>
<tr>
<td>Step 2 (X) ( \rightarrow ) (M)</td>
</tr>
<tr>
<td>Step 3 (M) + (X) ( \rightarrow ) (Y)</td>
</tr>
<tr>
<td>Step 4 (X) + (M) ( \rightarrow ) (Y)</td>
</tr>
</tbody>
</table>

*p < .001

Mediating Effects of Autonomy on Normative Organizational Commitment

Each of the seven dimensions of the learning organization were significantly and positively correlated with normative organizational commitment and with basic psychological needs, comprised of the variables competence, autonomy and relatedness.
Correlation coefficients for autonomy were displayed in Table 34 for hypothesis three of the present study.

The same two variables that significantly predicted normative organizational commitment in hypothesis two, empowerment and system connection also significantly predicted autonomy. To satisfy Kenny (2011) steps one and two, only these two variables were analyzed for mediated effects for autonomy.

Regression analysis revealed that the direct effect of empowerment on normative organizational commitment was reduced from .56 to .30 and the direct effect of system connection on normative organizational commitment was reduced from .45 to .20 however both remained significant predictors when autonomy was introduced into their respective regression equations. Approximately 47% of the effect of empowerment and 55% of the effect of system connection were mediated respectively by autonomy. Findings are displayed in Table 45. The mediated model for empowerment and system connection are displayed in Figures 16 and 17.

Table 45

*Mediating Effects of Autonomy on Normative Organizational Commitment*

<table>
<thead>
<tr>
<th>Prediction Variables</th>
<th>Path</th>
<th>B</th>
<th>Std Error</th>
<th>(\beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empowerment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1 (X) (\rightarrow) (Y)</td>
<td>c</td>
<td>.56</td>
<td>.04</td>
<td>.45*</td>
</tr>
<tr>
<td>Step 2 (X) (\rightarrow) (M)</td>
<td>a</td>
<td>1.14</td>
<td>.04</td>
<td>.70*</td>
</tr>
<tr>
<td>Step 3 ((M) + \ (X) \rightarrow) (Y)</td>
<td>b</td>
<td>.23</td>
<td>.03</td>
<td>.30*</td>
</tr>
<tr>
<td>Step 4 ((X) + \ (M) \rightarrow) (Y)</td>
<td>c'</td>
<td>.30</td>
<td>.05</td>
<td>.24*</td>
</tr>
</tbody>
</table>
Table 45 (continued)

<table>
<thead>
<tr>
<th>System connection</th>
<th>55% mediated effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 (X) → (Y)</td>
<td>c       0.45 0.04 0.42*</td>
</tr>
<tr>
<td>Step 2 (X) → (M)</td>
<td>a       0.96 0.04 0.69*</td>
</tr>
<tr>
<td>Step 3 (M) + (X) → (Y)</td>
<td>b 0.26 0.03 0.34*</td>
</tr>
<tr>
<td>Step 4 (X) + (M) → (Y)</td>
<td>c' 0.20 0.05 0.19*</td>
</tr>
</tbody>
</table>

p < .001

Figure 16
Empowerment and Normative Commitment Mediated by Autonomy

Figure 17
System Connection and Normative Commitment Mediated by Autonomy
Sobel Findings Normative Organizational Commitment Mediated by Autonomy

Sobel tests were statistically significant for empowerment Sobel test statistic = 7.40, Aroian test = 7.40, and Goodman test = 7.41 (p < .05). And system connection, (Sobel test statistic = 8.15, Aroian test = 8.15, and Goodman test = 8.16 (p < .05), which indicated that the indirect effect was significantly different from zero.

Summary of Causal Effects Normative Organizational Commitment Mediated by Autonomy

Path analysis via structural equation modeling was conducted to determine the causal effects among the independent variables that significantly predicted normative organizational commitment and the mediator variable, autonomy, specifically empowerment and system connection. All variables were drawn as latent variables in AMOS 19 (Mertler & Vannata, 2005).

The initial model was identified, recursive and consistent with the empirical data. None of the correlations exceeded a difference of .05. All path coefficients were significant, p < .001. The variable with the largest total effect was empowerment (β = .56). The primary determinant of autonomy in this model was empowerment (β = .56) and the primary determinant of normative organizational commitment was autonomy (β = .54). This model explained approximately 25% of the variance in normative organizational commitment in a regression equation. The model is displayed in Figure 18. The direct, indirect and total effects are presented in Table 46.
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Figure 18

Normative Organizational Commitment Mediated by Autonomy

Table 46

*Standardized Causal Effects Normative Organizational Commitment Mediated by Autonomy*

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>Determinant</th>
<th>Causal Effects</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>Direct</td>
</tr>
<tr>
<td>Normative Commitment</td>
<td>System connection</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>Empowerment</td>
<td>.00</td>
</tr>
<tr>
<td></td>
<td>Autonomy</td>
<td>.54*</td>
</tr>
<tr>
<td>Autonomy</td>
<td>System connection</td>
<td>.27*</td>
</tr>
<tr>
<td></td>
<td>Empowerment</td>
<td>.56*</td>
</tr>
</tbody>
</table>

*p<.001

Mediating Effects of Relatedness on Normative Organizational Commitment

Each of the seven dimensions of the learning organization were significantly and positively correlated with normative organizational commitment and with basic psychological needs, comprised of the variables competence, autonomy and relatedness. Correlation coefficients for relatedness were displayed in Table 36 for hypothesis three of the present study.
System connection, one of the variables that significantly predicted normative organizational commitment in hypothesis two, also significantly predicted relatedness. To satisfy Kenny (2011) steps one and two, only this variable was analyzed for mediated effects for relatedness.

Regression analysis revealed that the direct effect system connection on normative organizational commitment was reduced from .45 to .35 and remained a significant predictor when relatedness was introduced into the equation. Approximately 22% of the effect of system connection is mediated by relatedness. Findings are displayed in Table 47. The mediated model for system connection is displayed in Figure 19.

Table 47

*Mediating Effects of Relatedness on Normative Organizational Commitment*

<table>
<thead>
<tr>
<th>Prediction Variables</th>
<th>Path</th>
<th>B</th>
<th>Std Error</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>System connection</td>
<td>22% mediated effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1 (X) → (Y)</td>
<td>C</td>
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<td>.04</td>
<td>.42*</td>
</tr>
<tr>
<td>Step 2 (X) → (M)</td>
<td>A</td>
<td>.62</td>
<td>.04</td>
<td>.48*</td>
</tr>
<tr>
<td>Step 3 (M) + (X) → Y</td>
<td>B</td>
<td>.16</td>
<td>.03</td>
<td>.19*</td>
</tr>
<tr>
<td>Step 4 (X) + (M) → (Y)</td>
<td>c’</td>
<td>.35</td>
<td>.04</td>
<td>.33*</td>
</tr>
</tbody>
</table>

*p < .001
Sobel tests were statistically significant for system connection, (Sobel test statistic = 7.77, Aroian test = 7.78, and Goodman test = 7.78 (p<.05), which indicated that the indirect effect was significantly different from zero.

Summary of Causal Effects Relatedness and Normative Organizational Commitment Model

Path analysis via structural equation modeling was conducted to determine the causal effects among the independent variables that significantly predicted normative organizational commitment, and the mediator variable, relatedness, specifically empowerment and system connection. Empowerment was not one of the seven dimensions of the learning organization that significantly predicted relatedness therefore there is no path between these two variables. All variables were drawn as latent variables in AMOS 19 (Mertler & Vannata, 2005).

The initial model was identified, recursive and consistent with the empirical data. None of the correlations exceeded a difference of .05. All path coefficients were significant,
p < .001. The variable with the largest total effect was system connection ($\beta = .54$). The primary determinant of relatedness in this model was connect the organization to environment ($\beta = .54$). The primary determinant of normative organizational commitment in this model was empowerment ($\beta = .40$). This model explained approximately 23% of the variance in normative organizational commitment in a regression equation. The model is displayed in Figure 20. The direct, indirect and total effects are presented in Table 48.

*Figure 20*
Normative Organizational Commitment Mediated by Relatedness

*Table 48*

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>Determinant</th>
<th>Causal Effects</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Direct</td>
<td>Indirect</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Normative Commitment</td>
<td>System connection</td>
<td>.09*</td>
<td>.07*</td>
<td>.09*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Empowerment</td>
<td>.41*</td>
<td>.00</td>
<td>.41*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relatedness</td>
<td>.16*</td>
<td>.00</td>
<td>.16*</td>
<td></td>
</tr>
<tr>
<td>Relatedness</td>
<td>System connection</td>
<td>.54*</td>
<td>.00</td>
<td>.54*</td>
<td></td>
</tr>
</tbody>
</table>

*p < .001*
Summary of Causal Effects Normative Organizational Commitment Mediated Model

Path analysis via structural equation modeling was conducted to determine the causal effects among the independent variables that significantly predicted normative organizational commitment and the mediator variables, autonomy and relatedness, specifically empowerment and system connection. The mediator variable competence was determined not have a mediating effect on normative organizational commitment therefore it was not included in this model. All variables were drawn at latent variables in AMOS 19 (Mertler & Vannata, 2005).

The initial model was identified, recursive and consistent with the empirical data. None of the correlations exceeded a difference of .05. All path coefficients were significant, p <.001, with the exception of the path between relatedness and normative organizational commitment, once it was entered into the structural model. The variable with the largest total effect was system connection (β = .57). The primary determinant of normative organizational commitment in this model was autonomy (β=.52). This model explained approximately 21% of the variance in normative organizational commitment in a regression equation. The mediated model is displayed in Figure 21. The direct, indirect and total effects are presented in Table 49.
Table 49

*Standardized Causal Effects for Normative Organizational Commitment Mediated Model*

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>Determinant</th>
<th>Direct</th>
<th>Indirect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normative Commitment</td>
<td>System connection</td>
<td>.00</td>
<td>.31*</td>
<td>.31*</td>
</tr>
<tr>
<td></td>
<td>Empowerment</td>
<td>.00</td>
<td>.15*</td>
<td>.15*</td>
</tr>
<tr>
<td></td>
<td>Autonomy</td>
<td>.04</td>
<td>.00</td>
<td>.04</td>
</tr>
<tr>
<td></td>
<td>Relatedness</td>
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<td>.00</td>
<td>.528</td>
</tr>
<tr>
<td>Autonomy</td>
<td>System connection</td>
<td>.56*</td>
<td>.00</td>
<td>.56*</td>
</tr>
<tr>
<td></td>
<td>Empowerment</td>
<td>.29*</td>
<td>.00</td>
<td>.29*</td>
</tr>
<tr>
<td>Relatedness</td>
<td>System connection</td>
<td>.57*</td>
<td>.00</td>
<td>.57*</td>
</tr>
</tbody>
</table>

P < .001
**Fit Indices Mediated and Non-Mediated Models Normative Organizational Commitment**

The mediated models had similar fit indices for the data. Findings for the model with autonomy as the only mediator were $\chi^2 = 760 (131)$, $p < .001$, RMSEA = .08, GFI = .89, CFI = .93, and relatedness only $\chi^2 = 904.83 (148)$, $p < .001$, RMSEA = .08, GFI = .88, CFI = .92, while the model that included both relatedness and autonomy as mediators $\chi^2 = 1552.66 (246)$, $p < .001$, RMSEA = .08, GFI = .85, CFI = .89. There are slight differences that range from .01 to .04 in the GFI and CFI values. A non-significant Chi-Square and a value ≥ .90 on the GFI or CFI and indicate adequate models (Swanson & Holton, 2005) however, large sample sizes tend to produce large and significant Chi-Square values (Kenny, 2011) therefore other fit indices were also observed, such as RMSEA, where a value < /= .05 indicates a very close fit while values < .08 indicate a reasonably good or moderate fit (Swanson & Holton, 2005 p.196).

The significance of the difference in fit between the model that included both autonomy and relatedness was examined to determine if removing relatedness and autonomy, respectively, from the model significantly reduced the fit of the model to the data. Findings for removing relatedness from the model, $\chi^2 = 792.66 (115)$, and removing autonomy from the model $\chi^2 = 647.83 (98)$. The Chi-Square value after removing relatedness was greater than the critical value of 167.61 (df=115), $p < .001$, and after removing autonomy was greater than the critical value of 147.01 (df=98), $p < .001$, which indicated that removing relatedness and/or autonomy did not significantly reduced the fit of the model to the data. The $\chi^2$/df ratio for the model with no mediators was larger, at 8.58, than for the model that included
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autonomy as the only mediator, which had a $\chi^2$/df ratio of 5.8 although neither of these ratios as the only indices indicated a good fit. Fit indices for all models are displayed in Table 50.

Table 50

*Fit Indices Normative Organizational Commitment Mediated and Non-Mediated Models*

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th>Non-Mediated (Table 33)</th>
<th>Mediated Competence (Fig. 18)</th>
<th>Mediated Autonomy</th>
<th>Mediated Relatedness (Fig. 20)</th>
<th>Both Mediators Combined (Fig. 21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$(df)</td>
<td>532.15 (62)*</td>
<td>NA</td>
<td>760 (131)*</td>
<td>904.83 (148)*</td>
<td>1552.66(246)*</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.10</td>
<td>NA</td>
<td>.08</td>
<td>.08</td>
<td>.08</td>
</tr>
<tr>
<td>RMR</td>
<td>.15</td>
<td>NA</td>
<td>.16</td>
<td>.14</td>
<td>.19</td>
</tr>
<tr>
<td>GFI</td>
<td>.89</td>
<td>NA</td>
<td>.89</td>
<td>.88</td>
<td>.85</td>
</tr>
<tr>
<td>AGFI</td>
<td>.84</td>
<td>NA</td>
<td>.86</td>
<td>.84</td>
<td>.81</td>
</tr>
<tr>
<td>CFI</td>
<td>.92</td>
<td>NA</td>
<td>.93</td>
<td>.92</td>
<td>.89</td>
</tr>
<tr>
<td>NFI</td>
<td>.91</td>
<td>NA</td>
<td>.91</td>
<td>.90</td>
<td>.87</td>
</tr>
</tbody>
</table>

Note: N=777. *p < .001
Chapter Five

Discussion, Conclusion and Implications

This chapter provides a summary of the study, discussion of the findings per hypotheses based on the data analysis presented in chapter four, and conclusions. These will provide a foundation from which to drawn implications and recommendations for practice and future research.

Summary of the Study

Research has indicated that low RN-to-patient ratios and low nurse turnover rates lead to better patient safety and health outcomes (Aiken et al., 1997; Aiken et al., 2010; Gelinas & Bohlen, 2002; Pronovost, et al., 1999; Sovie & Jawad, 2001). However, it has been a challenge for hospitals and other healthcare institutions to maintain these staffing ratios because the U.S. has been facing a nursing shortage for the past decade (U.S. DHHS, 2010). This is true even despite the recent economic downturn in the U.S. as the healthcare industry continued to add positions while other industries have experienced layoffs (U.S. BLS, 2012). Thus, it is important for healthcare organizations to retain the nurses they currently employ because there is no surplus from which to recruit when there is turnover.

Organizational commitment has been identified as one of the most important work related concepts that contributes to a reduction in turnover (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Tett & Meyer, 1993; Wagner, 2007). While reducing turnover is a valuable outcome of organizational commitment, it is not the only one. A lack of or low affective organizational commitment has also been associated with poor quality work performance, tardiness, and absenteeism while high affective organizational commitment has
been associated with attendance, punctuality and willingness to go above and beyond at work (Allen & Meyer, 1996; McDermott, et al., 1997; Somers, 2009). Therefore increasing affective and normative organizational commitment may not only improve nurse retention, it may also influence job performance, absenteeism, tardiness and work effort. In fact the nursing literature has suggested that improving affective organizational commitment is the goal to achieving reduced turnover and creating a stable workforce that is better able to care for patients (Wagner, 2007). However, hospitals and other healthcare organizations must be able to identify and define the work related factors that influence organizational commitment to be able to influence it.

The purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness on the relationship between the Dimensions of the Learning Organization and affective and normative organizational commitment in the United States nursing population. Multiple regression analysis revealed that specific dimensions of the learning organization predicted the organizational commitment of nurses and explained 53% and 22% of the variance in affective and normative organizational commitment respectively. These findings contribute to the existing literature, which has examined the learning organization, self-determination theory and organizational commitment as separate constructs but not as predictive of or related to the other and not in the nursing field and can be used to inform the focus of future programs designed to strengthen the organizational commitment of nurses.

Confirmatory factor analysis and reliability analysis revealed that the Dimensions of the Learning Organization Questionnaire, Basic Psychological Needs Scale-Work and the
Three Components of Organizational Commitment Questionnaire are valid and reliable measurement instruments of the dimensions of the learning organization, basic psychological needs at work and organizational commitment respectively for use with nurses in the United States. These findings contribute to the existing literature because DLOQ-A and the BPNS-W have not been used exclusively in the nursing industry in the United States prior to this present study. Additionally, this study provides a detailed accounting of the construction of the BPNS-W, which was derived from a variety of instruments over a period of several years (Deci, et al., 2001; Gagne, 2003; Ilardi et al., 1993; Kasser et al., 1992; Ryan, 1982), but was never recorded in one document. Thus this study can be used as a vetted model for HRD and the healthcare industry to use to design their own studies to determine if their organizations incorporate the dimensions of the learning organizations and if so, the impact this has on the organizational commitment of the nurses and other healthcare staff they employ.

Discussion of Findings

Findings for the study will be discussed in the order in which they were presented in chapter four. First, the study sample’s demographics are compared to those collected by the 2008 NSSRN to support generalizability of the findings to the U.S. nursing population. Next, reliability and validity for the instruments used in the study survey, the DLOQ-A, BPNS-W and TCMQ-A is provided. Findings are then discussed by hypothesis. Conclusions are then presented for affective organizational commitment and normative organizational commitment as separate outcome variables and then summarized for the study overall.
Demographics

Research has indicated that demographics do not play a role as an antecedent to organizational commitment (Allen & Meyer, 1990) therefore they were not included in this study for the purpose of determining any influence on the dependent variable. The demographics for this study’s sample closely matched those provided by the 2008 NSSRN (U.S. DHHS, 2010) with the exception of education level, wherein 34% of this study’s sample were master’s prepared nurses with an MSN and only 10% of nurses who participated in the NSSRN reported an MSN. Likewise, only 17% of this study’s sample reported an Associate’s degree in nursing whereas 36% of the nurses who participated in the NSSRN reported that an Associate’s degree was the highest nursing degree they have earned. The disparity in education level between the sample and those who participated in the NSSRN may be due to the number of nurses working in academia who are members of one of the state-based professional nursing organizations that participated in this study. Given that these educational categories represent the largest difference between the study sample and the U.S. nursing population as represented by the NSSRN, generalizability of this study’s findings to RN’s working in the U.S. is appropriate however, the sample for this study was collected via non-random means in the form of purposeful sampling therefore the findings should still be interpreted with caution.

Reliability and Validity

Reliability estimates for all scales on all instruments were > .70 after adjustment to the BPNS-W, indicating that the DLOQ-A, BPNS-W and TCMQ-A are reliable measures of the dimensions of the learning organization, basic psychological needs and organizational
commitment respectively. Confirmatory factor analysis for the DLOQ-A, BPNS-W and TCMQ revealed that all were moderately good fits for the data.

**Research Hypotheses**

**Hypothesis One**

$H_1$: The linear combination of the seven dimensions of the learning organization will predict affective organizational commitment.

$H_0$: The linear combination of the seven dimensions of the learning organization will not predict affective organizational commitment.

The null hypothesis was rejected because multiple regression analysis indicated that the linear combination of the seven dimensions of the learning organization significantly predicted affective commitment, $F = 121.48$ (df = 7), $p < .001$. This finding also satisfied step 1 of mediation requirements that the independent variable significantly predicts the dependent variable (Kenny, 2001). The seven dimensions of the learning organization accounted for approximately 53% of observed variance in affective organizational commitment. Observed variance is the proportion or relative amount of affective organizational commitment, represented by scores on the affective organizational commitment scale that is explained by the combination of the seven dimensions of the learning organization. A Pearson R of .53 suggests a large effect size (Cohen, 1992). Effect size indicates the degree of a relationship between two or more variables (Cohen, 1992). This means that the seven dimensions of the learning organization have a large effect on or
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strong relationship to affective organizational commitment and explain a little over half, 53%, of the affective organizational commitment of the nurses participating in the present study.

Significant Predictors Affective Commitment

A review of beta weights specified that five of the seven dimensions of the learning organization, including continuous learning, inquiry and dialogue, embedded system learning, empowerment and connecting the organization to the environment significantly contributed to the model. This suggests that these five dimensions are the most important and statistically significant predictors of affective organizational commitment for the nurses who participated in this study, which is consistent with the nursing literature. For example, continuous learning and inquiry and dialogue, defined by Marsick and Watkins (2003) as on-going learning opportunities for employees at all levels and the opportunity to engage and learn through questioning, feedback, and experimentation, are closely aligned with nursing literature concepts of learning and continuing education (Scanlon, et al., 1999), the opportunity to learn and work in a learning environment (McDermott, et al., 1997; McNeese-Smith, 2001; Naude & McCabe, 2005) and the opportunity to develop oneself professionally (McDermott, et al., 1997), all of which have been identified as having a positive impact on the organizational commitment of nurses.

Findings that empowerment significantly predicted affective organizational commitment is aligned with nursing studies that have linked empowerment to increased organizational commitment (McDermott, et al., 1997; Liou, 2008). Empowerment toward a shared vision is defined within the dimensions of the learning organization as employee
empowerment to not only give input to the vision but to think strategically about it and to have ownership in it (Marsick & Watkins, 2003). It is congruent with the concept of empowerment in nursing, which has been focused on power that is derived from structures and programs within the workplace (Aiken, et al., 1997; Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong 1999; Manojlovich, 2007) that allow nurses to have the ability to “exert control over the practice setting” (Aiken, et al., 1997, p.17) and to have authority to make decisions related to nursing practices sans hospital bureaucracy (Nelson, 2002).

The system connection dimension, defined as thought processes and activities that connect the organization to both the internal and external environment (Marsick & Watkins, 2003) had the largest beta weight of the significant predictors, $\beta = .29$ ($p < .001$), which indicated that it is the most important of the seven dimensions for the nurses who participated in the present study with regard to affective organizational commitment. It refers to providing the opportunity for the organization’s members to connect internally, which builds relationships, connects individuals across the organization, and allows employees to scan the environment for data and make adjustments accordingly (Marsick & Watkins, 2003).

The system connection dimension also underscores the importance of connecting the organization or relating it to the external world. For nurses this would include the community they serve as well as patients, their families and specialists outside of the workplace setting. External connections and interrelatedness in the work setting may be experienced as collaboration and teamwork. Collaborative working (Kaye, et al., 2000; Young, et al., 1998) as well as workgroup cohesion and collaboration (Tourangeau &
Cranley, 2006) have been identified as having a positive influence on nurses’ organizational commitment and also contribute to meeting the basic psychological need of relatedness. Questions in the system connection dimension category included “my organization helps people balance work and family, my organization encourages everyone to bring the patient’s/family’s view into the decision making process, my organization works together with the outside community to meet mutual needs, my employer encourages people to get answers from across the organization when solving problems” (Marsick & Watkins, 2003, p. 144).

The embedded system dimension was also a significant predictor of affective organizational commitment though it was in the negative direction. A negative predictor can be interpreted similarly to a negative correlation, which is that the less there is of the predictor variable the greater the outcome variable. Marsick and Watkins (2003) define embedded system learning, which they also to refer to as embedded system, as the processes, procedures and tools used to collect and disseminate learning within an organization. Thus these findings suggest that affective organizational commitment is stronger when fewer systems and methods are used by an organization to capture learning.

Questions in the embedded system dimension category included “my organization creates systems to measure gaps between current and expected performance, my organization measures the results of the time and resources spent on training and my organization makes its lessons learned available to all employees” (Marsick & Watkins, 2003, p. 144). These questions may have been interpreted by nurses in the present study as not being helpful, useful or focused on performance metrics rather than on implementing programs and
processes that directly support learning for employees, hence its negative effect. This is congruent with previous research that suggests that nurses view hospitals as large, bureaucratic organizations with “their own set of rules and obligations” (Almost & Laschinger, 2002, p. 411) that are not associated with nurses’ needs. This finding is also consistent in organizational psychology literature which has found that limiting external controls, comprised of procedures and processes, has been positively associated with facilitating needs satisfaction (Ryan & Deci, 2000). Therefore the more external procedures and processes are used the less likely the work environment will meet basic psychological needs and increase affective organizational commitment.

**Non-significant Predictors Affective Commitment**

Two of the five of the seven dimensions of the learning organization, team learning and strategic leadership were not significant predictors of affective organizational commitment however they did contribute when included in the seven dimensions of the learning organization model that collectively, significantly predicted affective organizational commitment. Strategic leadership is defined in the dimensions of the learning organization as actions taken by leaders to remove barriers to learning, provide resources and encourage experimentation (Goh, 1998; Marsick & Watkins, 2003). It is possible that strategic leadership was not identified as a significant predictor of affective organizational commitment because the nurses who completed the survey were not aware of the efforts directed by their organizational leaders toward supporting the learning organization.

It is surprising that collaboration and team learning, though positively and significantly correlated with affective organizational commitment, was not a significant
predictor for the nurses in the present study in the regression equation, given that the nursing literature has shown that collaborative working (Kaye, et al., 2000; Young, et al., 1998) as well as workgroup cohesion and collaboration (Tourangeau & Cranley, 2006) has had a positive influence on nurses’ organizational commitment. However, elements of collaboration and teamwork may have been represented by the system connection dimension, which was a significant predictor in the model as previously discussed.

Hypothesis Two

H$_2$: The linear combination of the seven dimensions of the learning organization will predict normative organizational commitment. $H_2$: $y = a + b_1x_1 + b_2x_2 + ... + b_7x_7$

H$_0$: The linear combination of the seven dimensions of the learning organization will not predict to normative organizational commitment. $H_0$: $y \neq a + b_1x_1 + b_2x_2 + ... + b_7x_7$

The null hypothesis was rejected because the linear combination of the seven dimensions of the learning organization significantly predicted normative commitment, $F = 31.50 (7), p < .001$. Though this is not a very large $F$ statistic, it is significant. This finding also satisfied step 1 of mediation requirements that the independent variable significantly predicts the dependent variable (Kenny, 2011). The seven dimensions of the learning organization accounted for approximately 22% of observed variance in normative commitment. Observed variance is the proportion or relative amount of normative organizational commitment, represented by scores on the TCFM that is explained by the combination of the seven dimensions of the learning organization. A Pearson R of .22
suggests a small effect size (Cohen, 1992). Effect size indicates the degree of a relationship between two or more variables (Cohen, 1992). This means that the seven dimensions of the learning organization have a small effect on normative organizational commitment and explain a relatively small proportion, 22%, of the normative organizational commitment experienced by nurses in the present study.

The nursing literature has primarily focused on affective organizational commitment as being desirable and has not specifically mentioned normative organizational commitment therefore it is difficult to discern if the findings for hypothesis two are aligned with previous research. For example, the literature that was consulted for the present study used the Mowday, et al. (1979) affective organizational commitment scale or Allen & Meyer’s (1990) affective organizational commitment scale only rather than both affective and normative commitment scales. Therefore the findings from this study are important because they contribute to a gap in the literature regarding the influence that the learning organization has on normative organizational commitment for nurses. They also provide more insight into the antecedents for normative commitment in the nursing population.

Normative organizational commitment is defined in the three component model of organizational commitment as obligatory commitment, or staying with an organization out of a perceived obligation to it (Allen & Meyer, 1990). It was initially thought to stem from values instilled outside of work, for example, by taking pride in a family tradition of working for the same employer over time, or by a view that changing jobs or “job-hopping” is negative. More recent organizational commitment research suggests that there is an additive effect of the three components of organizational commitment, which includes affective,
normative and continuance commitment, and that employees who experience a combination of high affective organizational commitment and high normative organizational commitment may experience normative organizational commitment as a moral imperative to commit to an organization or a particular course of action while those who experience a combination high normative and high continuance commitment may experience normative organizational commitment as indebted obligation (Meyer & Parfyonova, 2010; Meyer, et al., 2012; Somers, 2009). A study conducted on the commitment profiles of healthcare workers found that individuals who had a high AC and NC combination felt a strong connection to the relationships they had formed within the organization (Somers, 2009).

It was once thought that normative commitment could be increased or strengthened by “those experiences within the organization that make employees feel that their employer is providing them with more than they can easily reciprocate” (Allen & Meyer, 1990, p.9). But in light of the latest research it may be possible to strengthen normative organizational commitment by also strengthening affective organizational commitment. In the case of the aforementioned findings for hypothesis 2, the efforts of the organization represented by the combination of the seven dimensions of the learning organization in which five of the seven dimensions significantly contributed to affective organizational commitment, may also have been enough to make the nurses who completed the study experience either type of normative organizational commitment, moral imperative or indebted obligation, depending upon their levels of affective or continuance commitment. The scope of this study did not include examination of commitment profiles, which would have shed more light on these findings. It is important to note that the seven dimensions only accounted for 22% of the
variance in normative organizational commitment, which is a small percentage and a small effect size (Cohen, 1992) while the seven dimensions explained much more of the variance in affective organizational commitment, 53%.

**Significant Predictors Normative Commitment**

A review of beta weights specified that two of the seven variables, empowerment and system connection significantly contributed to the model. This suggests that these two dimensions are the most important and statistically significant predictors of normative organizational commitment. These two dimensions were also identified as significant predictors of affective organizational commitment in the present study. As previously noted the literature provides very little to no insight into the reasons that these were significant predictors of normative organizational commitment, other than recent research regarding the additive effects of the components of organizational commitment. It is possible that the combination of different types of organizational commitment, or commitment profile types, may have made it difficult for nurses in this study to differentiate their feelings of obligation to stay, or normative commitment, and their feelings of wanting to stay, or affective organizational commitment.

Statistical analysis may also provide an explanation for findings for significant predictors of normative commitment that have not been previously identified in the literature. Validation studies of the Three Component Model of Organizational Commitment have suggested that normative and affective organizational commitment were highly correlated (Allen & Meyer, 1990). Normative and affective organizational commitment were moderately and significantly correlated in the present study, $R=.64, p < .01$, which suggests
that the normative and affective scales are measuring some of the same factors. Thus the same dimensions of the learning organization that had an effect on affective organizational commitment have the same or similar effect on normative organizational commitment because affective and normative commitment are strongly related to and influence each other and are therefore influenced by some of the same variables.

As noted in the discussion for hypothesis 1, empowerment is defined as employee empowerment to not only give input to the vision but to think strategically about it and to have ownership in it (Marsick & Watkins, 2003). It is congruent with the concept of empowerment in nursing, which has been focused on power that is derived from structures and programs within the workplace (Aiken, et al., 1997; Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong 1999; Manojlovich, 2007) that allow nurses to have the ability to “exert control over the practice setting” (Aiken, et al., 1997, p.17) and to have authority to make decisions related to nursing practices sans hospital bureaucracy (Nelson, 2002). The empowerment dimension had the largest beta weight of the two significant predictors of normative organizational commitment, $\beta=.26$ ($p < .001$), which indicated that this was the most important to increasing normative commitment for the nurses who participated in the present study. Empowerment has not been linked in the nursing literature to normative organizational commitment but it has been identified as a significant predictor of affective organizational commitment (McDermott, et al., 1997; Liou, 2008).

Marsick and Watkins (2003) describe the system connection dimension as learning that allows the ability of the organization’s members to connect internally, which gives way to interrelatedness. They also highlight the importance of connecting the organization to the
external or surrounding community in this dimension. The surrounding community includes
people living in the area who are potential, existing and former patients, their families as well
as physicians and other healthcare providers that are indirectly associated with the
organization but with whom the organization may share patients or knowledge. As
previously noted, collaborative working (Kaye, et al., 2000; Young, et al., 1998) and
workgroup cohesion and collaboration (Tourangeau & Cranley, 2006) have been identified as
having a positive influence on nurses’ affective organizational commitment but not
specifically linked to normative organizational commitment. However it is plausible that the
participants for the present study had high affective high AC/NC profiles. Due to this they
may experience normative organizational commitment as a moral imperative rather than
indebted obligation, which is expressed as commitments to their relationships with co-
workers, patients and their families, and with the external community their employer serves,
similar to the nurses in Somers (2009).

Hypothesis Three

$H_3$: The linear combination of the seven dimensions of the learning organization
will predict basic psychological needs, which is comprised of competence,
autonomy and relatedness. $H_3$: $y = a + b_1x_1 + b_2x_2 + ... + b_7x_7$

$H_0$: The linear combination of the seven dimensions of the learning organization
will not predict basic psychological needs, which is comprised of competence,
autonomy and relatedness. $H_0$: $y \neq a + b_1x_1 + b_2x_2 + ... + b_7x_7$
The null hypothesis was rejected because the linear combination of the seven dimensions of the learning organization significantly predicted competence, $F = 40.62$ (7), $p < .001$, autonomy, $F = 155.42$ (7), $p < .001$, and relatedness, $F = 50.57$ (7), $p < .001$. These findings also satisfied step 2 of mediation requirements that the independent variable significantly predicts the mediator variable when the mediator variable is treated like an outcome variable (Kenny, 2011). The seven dimensions of the learning organization accounted for approximately 27% of observed variance in competence, 59% of observed variance in autonomy, and 32% of observed variance in relatedness. Observed variance is the proportion or relative amount of competence, autonomy, and relatedness, represented by scores on the BPNS-W that is explained by the combination of the seven dimensions of the learning organization. The Pearson R values suggest moderate effect sizes for competence and relatedness, $R = .27$ and $R = .32$ respectively, and a large effect size for autonomy, $R = .59$ (Cohen, 1992). Effect size indicates the degree of a relationship between two or more variables (Cohen, 1992). This means that the seven dimensions of the learning organization had a medium effect on and explained a moderate or medium proportion of competence and relatedness and a large effect on and explained a large proportion of the autonomy experienced by nurses.

These findings are aligned with self-determination theory research, which posits that the employment setting may mediate job-related outcomes such as performance, satisfaction and commitment to the organization by fulfilling employees’ basic psychological needs for competence, autonomy and relatedness (Deci & Ryan, 2000). The Magnet Recognition Program provides a concrete example of how environmental factors that meet or thwart the
need for competence, autonomy and relatedness affect nursing turnover and patient outcomes. Magnet hospitals have been found to have lower nurse turnover rates, lower mortality rates, fewer medical complications and shorter lengths-of-stay compared to non-Magnet hospitals (Gelinas & Bohlen, 2002). The Magnet principles of Structural Empowerment, Exemplary Professional Practice and New Knowledge, Innovation and Improvements uses learning and staff development, nurse empowerment on the job, having a shared vision, as well as strong relationships as a means to achieve work related goals (ANCC, 2008).

**Significant Predictors Competence, Autonomy, and Relatedness**

Each of the seven dimensions of the learning organization was positively and significantly correlated with competence, autonomy and relatedness, which indicated that there was a relationship between all of these variables and that when the dimensions of the learning organization were perceived by nurses to be stronger, as indicated by DLOQ-A scores, that basic psychological needs at work were perceived as being more satisfied. A review of beta weights specified that inquiry and dialogue and system connection significantly predicted competence, autonomy, and relatedness while two additional dimensions, empowerment and embedded system also significantly predicted autonomy, though the effect of embedded system on autonomy was negative.

Inquiry and dialogue is defined as the opportunity to engage in discussion and feedback with others (Marsick & Watkins, 2003). Through the discourse that takes place within the inquiry and dialogue dimension, nurses can question existing nursing practices and create new knowledge (Bradbury-Jones, et al., 2008) thereby meeting the need for
competence. Assuming that this discourse takes place with others in the workplace and without being directed by authority figures or institutional guidelines, inquiry and dialogue also meets the need for relatedness and autonomy. The system connection dimension refers to the opportunity to connect internally and with the external environment and to scan the environment for alternative solutions to work problems (Marsick & Watkins, 2003). Thus it provides the opportunity to be successful at challenging tasks and obtain desired outcomes while exercising choice to meet the need for competence and autonomy (Baard, et al., 2004) and through interrelatedness meets the need for relatedness. The finding that autonomy mediated the effect of empowerment on affective organizational commitment is congruent with previous research that linked management receptiveness to employee suggestions, and the opportunity to give input regarding one’s job with increased affective organizational commitment (Allen & Meyer, 1990).

The embedded system dimension was a significant yet negative predictor of autonomy with a small effect size, .22 (Cohen, 1992). As previously noted, a negative predictor can be interpreted similarly to negative correlation (Cohen, 1992); the less there is of the predictor variable the greater the outcome variable. Thus this finding can be interpreted as the fewer processes, procedures and tools used to collect and disseminate learning (Marsick & Watkins, 2003), which may be represented in the organization as checklists, quality measures and ratings, performance rating tools, and other systemic checks and balances, the more that the need for autonomy is being met. Tools and measures such as these are not unusual in a regulated environment, such as a healthcare setting, due to licensure and accreditation requirements for both the organization and health care providers.
While these tools may be necessary, particularly in a healthcare setting, they may also have been interpreted by nurses in the present study as being institutional barriers to meeting their need for or to demonstrate autonomy, hence the negative direction of the predictor.

Hypothesis Four

H4: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment. \( H_4: (X\times M) + X + M = 0, z\text{-value} = \frac{a*b}{\text{SQRT}(b^2*s_a^2 + a^2*s_b^2 + s_a^2*s_b^2)}, p < .05 \)

H0: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on affective organizational commitment.

\( H_0: (X\times M) + X + M \neq 0 \)

The null hypothesis was rejected because the predictive effect of the seven dimensions of the learning organization on affective organizational commitment was reduced in regression equations when the mediator variables, autonomy and relatedness were introduced and the mediated effects were statistically significant per Sobel tests (Kenny, 2011). These findings show that the predictive effects of the seven dimensions of the learning organization on affective organizational commitment were partially mediated by basic psychological needs.

Hypotheses one and three revealed that the seven dimensions of the learning organization predicted affective organizational commitment as well as competence,
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autonomy and relatedness, which was a necessary to proceed with meditation analysis. The highlight of hypothesis 4 was discovering that the reason the seven dimensions of the learning organization have an effect on affective organizational commitment was because they met the basic psychological needs of nurses at work. Findings are discussed by individual mediating variable, competence, autonomy, and relatedness then summarized by a comparison of the mediated model and non-mediated model.

*Competence*

Individual regression equations showed that inquiry and dialogue and system connection predicted competence and that competence mediated the effects of these same two dimensions in an equation that examined it as the only mediator variable. However, when competence was examined in conjunction with all mediators and independent variables, it did not mediate the effects of any of the independent variables on affective organizational commitment. This doesn’t suggest that competence is not an important basic psychological need that contributes to organizational commitment as previous research has shown that a challenging job and goal difficulty contribute to employees’ experience of competence in their work-role and feeling competent in the work role has been significantly and positively correlated with affective organizational commitment (Allen & Meyer, 1990). However, learning in the organizational context and/or the learning organization have not been empirically examined as predictors of competence. Additionally, learning at work is defined differently than “a challenging job” or “goal difficulty” as the latter two refers to completing tasks associated with the job. Thus it is the relationship between learning and organizational commitment that is not mediated by competence, not the effect of or the
design of the actual job, which was not examined in this study. These findings suggest that competence may be a more suitable outcome variable to learning or the learning organization rather than a mediating variable between it and organizational commitment.

*Autonomy*

Autonomy was the primary determinant of affective organizational commitment in the model that included all mediators and in the model that examined it as the only mediator. It also mediated the effects of four of the seven dimensions of the learning organization on affective organizational commitment. The empowerment dimension was the primary predictor of autonomy in the model that examined autonomy as the only mediator and when combined with autonomy in the full-mediated model, had a large total effect on affective organizational commitment. Thus the empowerment dimension meets the need for autonomy at work, which in turn increases affective organizational commitment. These findings are congruent with nursing literature that has identified empowerment as an important determinant of organizational commitment (Aiken, et al., 1997; Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong 1999; Manojlovich, 2007; Nelson, 2002) and with organizational psychology research that has shown that management receptiveness to employee suggestions and the ability to make decisions regarding one’s own job significantly is positively correlated with affective organizational commitment (Allen & Meyer, 1990).

Autonomy also mediated the effect of inquiry and dialogue. Inquiry and dialogue, defined as the opportunity to engage and learn through questioning and feedback, is an individual level of learning found within the people component of the Dimensions of the
Learning Organization (Marsick & Watkins, 2003). When this dimension is present in the workplace, nurses connect with and learn while engaging in discussion with others thereby meeting their needs for autonomy and relatedness and increasing their affective organizational commitment.

The embedded system dimension had the largest effect on autonomy in both the mediated and non-mediated models, the largest total effect on affective organizational commitment when combined with autonomy in the full-mediated model, and a large, significant effect on affective organizational commitment in the non-mediated model though it was in the negative direction for all models. Embedded system is an organizational level learning dimension found within the structural component of the Dimensions of the Learning Organization. It is defined as processes, procedures and tools to collect and disseminate learning (Marsick & Watkins, 2003). These may be represented in the organization as checklists, quality measures and ratings, performance rating tools, and other systemic checks and balances, which Fiol and Lyles (1985) call organizational learning mechanisms. Tools and measures such as these are ubiquitous in a regulated environment, such as a healthcare setting, due to the safety and privacy protocols instituted to support and protect patients and their families and for the purpose of obtaining or maintaining individual and organizational licensure and accreditation.

While these tools may be necessary, they may also have been interpreted by nurses in the present study as being institutional barriers to their ability to demonstrate autonomy, which lessens their affective organizational commitment, hence the negative direction of the predictor. The nursing literature has examined workplace elements that contribute to
affective organizational commitment rather than those that don’t contribute to it. Likewise, Allen and Meyer’s (1990) research into the antecedents of affective organizational commitment focused on workplace elements that contributed to rather than hindered organizational commitment. Thus the literature doesn’t provide much insight to the reasons for these findings. However, Deci and Ryan (2000) suggest that external controls impeded the ability for employees to meet their need for competence, autonomy and relatedness at work. Additionally the nursing literature has described nurses’ view of hospitals as large, bureaucratic organizations with “their own set of rules and obligations” (Almost & Laschinger, 2002, p. 411) that are not associated with nurses’ needs. Thus findings for the present study exemplify that the more tracking devices, processes and procedures imposed on employees in the workplace, particularly those to which employees have given little to no input, detract from meeting basic psychological needs, particularly the need for autonomy, which in turn decreases affective organizational commitment.

**Relatedness**

Relatedness mediated the effect of the system connection dimension in the model that examined it as the only mediator as well as the model that included all mediator variables. The system connection dimension is an organizational level of learning found within the structural component of the Dimensions of the Learning Organization that refers to providing the opportunity for an organization’s members to connect internally and to the external environment (Marsick & Watkins, 2003). Senge (1990) described this as systems thinking, or structures and systems that cause the organization and its members to connect internally, within its structural boundaries, giving way to interrelatedness, as well as to the external
environment, which for nurses may include the community they serve, their patients and patients’ families as well other medical specialists. Meeting the need for relatedness to influence affective organizational commitment is aligned with findings in the nursing literature that identified workgroup cohesion and collaboration (Tourangeau & Cranley, 2006) and collaborative working (Kaye, et al., 2000; Young, et al., 1998) as positively influencing nurses’ affective organizational commitment and also with findings from a study that examined the antecedents to affective organizational commitment in which peer relatedness/cohesion and organizational dependability significantly, positively correlated with affective organizational commitment (Allen & Meyer, 1990).

*Continuous Learning as a Non-mediated Predictor Variable*

The continuous learning dimension was included in the model that examined autonomy as the only mediator and the model that included all independent variables and mediating variables because it remained a significant predictor of affective organizational commitment in all models when the other variables were introduced. However, its effects were not mediated by any of the basic psychological needs. This means that providing opportunities for continuous learning in the organization does not predict affective organizational commitment because it’s meeting the need for competence, autonomy or relatedness but rather that it’s just important to affective organizational commitment on its own.

While continuous learning is important to affective organizational commitment, it had the smallest direct effect on it when compared to the total effects of all of the other dimensions of the learning organization combined with the mediator variables in the full-
mediated model. It also had the smallest direct effect in the model that examined autonomy as the only mediator and the smallest direct effect on affective organizational commitment in the non-mediated model. This can be interpreted to mean that it was important to affective commitment because it was a significant predictor however it was not as important as empowerment, system connection, having the opportunity to engage in inquiry and dialogue or even the absence of systems to capture learning represented by the embedded system dimension. The finding that continuous learning is a significant predictor of affective organizational commitment aligns with the nursing literature, which has noted that the opportunity to learn and work in a learning environment (McDermott, et al., 1997; McNeese-Smith, 2001; Naude & McCabe, 2005) and to develop oneself professionally (McDermott, et al., 1997) have a positive impact on the organizational commitment of nurses.

Organizational psychology research has not examined or identified it as an antecedent to affective organizational commitment (Allen & Meyer, 1990).

*Mediated Model and Non-Mediated Model Comparison*

The beta weights representing the total effects of each of the dimensions of the learning organization on affective organizational commitment when mediated by/combined with basic psychological needs were slightly smaller, though still significant, than the beta weights representing the direct effects of the dimensions of the learning organization on affective organizational commitment in a model that did not include mediating variables. This is important to note because it suggests that while the dimensions of the learning organization do have an effect on affective organizational commitment by meeting the need for competence, autonomy and relatedness, they have an even larger effect, albeit just
slightly larger, when they are measured in a non-mediated model. This can be interpreted to mean that the dimensions of the learning organization are important to affective organizational commitment and that meeting basic psychological needs at work is an added bonus.

Goodness-of-fit indices indicated that the non-mediated model and the model that included autonomy as the only mediator were better fits for the data than the other models. The significance of the difference in fit between the non-mediated model and the model mediated by autonomy indicated that removal of autonomy did not significantly reduce the fit of the model to the data. Therefore there is no significant difference in fit between the model that included autonomy compared to the model without any mediating variables.

The $\chi^2$/df ratio for the non-mediated model was slightly larger, 4.1, than that of the autonomy mediated model, which had a $\chi^2$/df ratio of 3.65. If the ratio between $X^2$ and degrees of freedom is less than two, the model is a good fit (Ullman 1996). Using the $\chi^2$/df ratio only would suggest that neither of the models was a good fit, hence the need to view other fit indices such as RMSEA, GFI, and GCFI, all of which indicated that the model that included five dimensions of the learning organization: continuous learning, inquiry and dialogue, system connection, empowerment and embedded system, the latter four of which also met the need for and were mediated by autonomy, is the best explanation for and way to increase the affective organizational commitment of nurses. This model also met the need for relatedness with the system connection and empowerment dimensions.
Hypothesis Five

H5: Basic psychological needs, comprised of the variables competence, autonomy and relatedness will partially mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment.  

\[ H_5: (X \times M) + X + M = 0, \]

\[ z\text{-value} = \frac{a \times b}{\sqrt{a^2 \times s_a^2 + b^2 \times s_b^2 + s_a^2 \times s_b^2}}, \quad p < .05 \]

H0: Basic psychological needs, comprised of competence, autonomy and relatedness will not mediate the predictive ability of the seven dimensions of the learning organization on normative organizational commitment.

\[ H_0: (X \times M) + X + M \neq 0 \]

The null hypothesis was rejected because the predictive effect of the seven dimensions of the learning organization on normative organizational commitment was reduced in regression equations when the mediator variables, autonomy and relatedness were introduced and the mediated effects were statistically significant per Sobel tests (Kenny, 2011). These findings show that the predictive effects of the seven dimensions of the learning organization on normative organizational commitment were partially mediated by basic psychological needs at work.

Hypotheses 2 and 3 revealed that the seven dimensions of the learning organization predicted normative organizational commitment as well as competence, autonomy and relatedness. These findings were necessary to proceed with mediation analysis. The highlight of hypothesis 5, much like that of hypothesis 4, was discovering that the reason the
seven dimensions of the learning organization had an effect on normative organizational commitment was because they met the basic psychological needs of nurses at work.

**Competence**

Structural equation modeling revealed that competence did not mediate the effect of any of the seven dimensions of the learning organization in any model. This finding is consistent with previous research that suggested that normative organizational commitment stems from values instilled outside of the employment setting regarding loyalty to a particular employer or that changing jobs is negative (Allen & Meyer, 1990). However it is not consistent with more recent studies that have found that the three components of organizational commitment have interactive effects and that employees who have combined high AC and NC are also more likely to experience greater needs satisfaction (Somers, 2009), which would include competence.

**Autonomy**

Similar to the findings for hypothesis four, autonomy was the primary determinant of normative organizational commitment in the model that included all mediating and independent variables and the model that examined it as the only mediator. Also, like the findings for hypothesis four, the reason for this may be due to similar definitions for autonomy in the basic psychological need literature as compared to the description of empowerment in the nursing literature.

While empowerment has been identified as having a positive effect on the affective organizational commitment of nurses (Aiken, et al., 1997; Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong 1999; Manojlovich, 2007; Nelson, 2002)
it has not been examined for its effects on normative organizational commitment. However, as previously noted, high AC/NC profiles experience normative organizational commitment differently than high NC/CC profiles. Therefore the empowerment that nurses feel on the job may contribute to meeting their basic psychological need for autonomy, which in turn increases their organization commitment, both affective and normative, the latter of which is experienced as a moral imperative to stay with their employer. Findings for the present study suggest that the normative organizational commitment of nurses increased when they were able to take control of the practice setting, exercise choice, initiate their own actions on the job and were provided opportunities to connect internally as well as with the external environment. Autonomy also mediated the effects of system connection, which is discussed in conjunction with relatedness as a mediator in the following section.

Relatedness

Relatedness mediated the effect of system connection variable on normative commitment in the model that examined it as the only mediator and in the model that included autonomy as a mediator. System connection was the primary determinant of both relatedness and autonomy in the model that included them and all significant independent variables. System connection also had the largest total effect on normative organizational commitment when combined with the autonomy mediator.

The system connection and empowerment dimensions are organizational levels of learning found within the structural component of the Dimensions of the Learning Organization. System connection refers to providing the opportunity for an organization’s members to connect internally and to the external environment. Collaborative working
(Kaye, et al., 2000; Young, et al., 1998) and workgroup cohesion and collaboration (Tourangeau & Cranley, 2006) have been identified as having a positive influence on nurses’ affective organizational commitment but have not been identified as important to normative organizational commitment in previous research. It is possible that the nurses that participated in the present study have high AC/NC commitment profiles and therefore feel a moral obligation to their patients and co-workers based on the relationships they have formed, which extends to their employer, similar to the nurses in Somers (2009). Examining commitment profiles was not within the scope of the present study so this is unknown. However it is interesting to note that the revised, abbreviated normative organizational commitment measurement scale used for the present study asked a question about work relationships, “I would not leave my organization right now because I have a sense of obligation to the people in it” (Meyer & Allen, 2004). The way this question is worded and the findings for the present study suggest that the nurses who participated did feel a sense of obligation to their employer due to the relationships they have with people at work, which could be because they experience normative organizational commitment differently due to interactive effects of affective organizational commitment. It also suggests that their need for relatedness was being met through the system connection dimension, which increased both their affective and normative organizational commitment.

To date, nursing research has not explicitly examined antecedents or correlates of normative organizational commitment. Organizational psychology research has noted that workgroup cohesion and collaboration significantly and positively correlate with affective organizational commitment but has not examined normative organizational commitment
(Allen & Meyer, 1990). Therefore the finding presented by this study regarding significant predictors of normative organizational commitment in nursing is new information.

**Mediated Model and Non-Mediated Model Comparison**

Goodness of fit indices indicated that models that contained the mediator variables autonomy and relatedness had similar fit indices for the data and the model that contained autonomy as the only mediator had the best fit of all the models presented, which was moderately good. Removing relatedness and autonomy from the model respectively, in separate steps, did not significantly reduce the fit of the model to the data.

The \( \chi^2/df \) ratio for the model that contained no mediators was larger, at 8.58, than the ratio for the autonomy mediated model, which had a \( \chi^2/df \) ratio of 5.8. Neither of these ratios indicated a good fit (Ullman, 1996) though other goodness of fit indices, such as RMSEA, indicated a moderately good fit of the data to the model that contained autonomy as the only mediator variable, which was very close to the models that contained relatedness as the only mediator variable and both mediator variables together. This suggests that the model that includes system connection and empowerment is the best explanation for and way to increase the normative organizational commitment of nurses. This model also met the need for relatedness with the system connection and empowerment dimensions as well as affective organizational commitment.

**Conclusions**

The purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness on the relationship between the Dimensions of the Learning Organization and affective and
normative organizational commitment in the United States nursing population. This required several steps, including determining if the dimensions of the learning organization were significant predictors of affective and normative organizational commitment as well as basic psychological needs comprised of competence, autonomy and relatedness, before mediation analysis could be conducted (Kenny, 2011). Each of the mediation steps were written in separate hypotheses so that they could be clearly analyzed and discussed independently from the other steps. This section provides conclusions based on findings for affective organizational commitment and normative organizational commitment respectively followed by overall conclusions for the entire study.

**Affective Organizational Commitment**

The four steps of mediation requirements (Kenny, 2011) for affective organizational commitment were met in hypotheses one, three and four. Step one was met in hypothesis one when the independent variable, represented by the dimensions of the learning organization, significantly predicted the outcome variable, affective organizational commitment. Step two was met in hypothesis three when the independent variable, the dimensions of the learning organization significantly predicted the mediator variables, basic psychological needs, comprised of competence, autonomy and relatedness when they were treated like outcome variables. Steps three and four were met in hypothesis four when basic psychological needs comprised of autonomy and relatedness, partially mediated the effects of the dimensions of the learning organization on affective organizational commitment as evidenced by regression equation analysis and statistically significant Sobel tests (Kenny, 2011).
A review of the beta weights found that five of the dimensions of the learning organization significantly predicted affective organizational commitment and that the effects of four of those five dimensions were mediated by autonomy and one of the five was mediated by relatedness. This is consistent with the nursing literature, which has identified empowerment and autonomy (Aiken, et al., 1997; Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong 1999; Manojlovich, 2007; Nelson, 2002), collaborative working (Kaye, et al., 2000; Young, et al., 1998) workgroup cohesion and collaboration (Tourangeau & Cranley, 2006) learning and continuing education (Scanlon, et al., 1999), the opportunity to learn and work in a learning environment (McDermott, et al., 1997; McNeese-Smith, 2001; Naude & McCabe, 2005) the opportunity to develop oneself professionally (McDermott, et al., 1997) as positively contributing to the affective organizational commitment of nurses. Limiting external controls such as those described by the embedded system dimension, which was a negative predictor of both affective organizational commitment, autonomy and relatedness in the present study, has been found to facilitate needs satisfaction (Ryan & Deci, 2000).

These findings are also aligned with self-determination theory research, which has found that the employment setting mediates job-related outcomes such as performance, satisfaction and commitment to the organization by fulfilling employees’ basic psychological needs for competence, autonomy and relatedness (Deci & Ryan, 2000; Gregarus & Diefendorff, 2009). These findings are also consistent with organizational psychology research, which has found that positive experiences in work environment were positively and significantly correlated with affective organizational commitment (Meyer, et al., 2004). The
organizational psychology literature has also revealed that management receptiveness to employee suggestions, employees’ opportunity to give input regarding their jobs, feelings of autonomy, as well as peer relatedness and cohesion contributes to feeling comfortable in an organization and has been positively and significantly correlated with affective organizational commitment (Allen & Meyer, 1990).

One finding that was not aligned with previous research which was that competence did not mediate the effects of any of the dimensions of the learning organization on affective organizational commitment. As noted in the findings section, a challenging job and goal difficulty has been shown to contribute to employees’ experience of competence in their work-role, which has been positively correlated with affective organizational commitment (Allen & Meyer, 1990). Given this the expectation was that competence would mediate the effect of the dimensions of the learning organization that supported competence such as continuous learning, inquiry and dialogue, and/or system connection. While inquiry and dialogue and system connection did predict competence in an equation that included it as the only mediator variable, the mediation effect was no longer present when the other independent variables and mediating variables were introduced into the equation. This does not mean that competence is not an important basic psychological need that should be supported by the work environment to influence intrinsic motivate. However it does suggest that affective organizational commitment is not influenced by the learning organization because it meets the need for competence. Learning in the organizational context is defined differently from a challenging job or goal difficulty therefore competence may be better
suited as an outcome variable or as a mediating variable to a different type of independent variable.

Goodness of fit indices indicated that the model that included autonomy as the only mediator had the best fit to the data, just slightly better than the model that had no mediating variables. This suggests that the dimensions of the learning organization significantly predicted affective organizational commitment and the dimensions that had mediated effects were inquiry and dialogue, empowerment, system connection, and embedded systems. Providing the opportunity for continuous learning also had a significant effect on nurses’ affective organizational commitment but this effect was not mediated by any of the basic psychological needs at work.

*Normative Organizational Commitment*

The four steps of mediation requirements (Kenny, 2011) for normative organizational commitment were met in hypotheses two, three and five. Step one was met in hypothesis two when the independent variable, represented by the dimensions of the learning organization, significantly predicted the outcome variable, normative organizational commitment. Step two was met in hypothesis three when the independent variable, the dimensions of the learning organization significantly predicted the mediating variables, competence, autonomy and relatedness when they were treated like outcome variables. Steps three and four were met in hypothesis five when basic psychological needs comprised of autonomy and relatedness, partially mediated the effects of the dimensions of the learning organization on normative organizational commitment as evidenced by regression equation analysis and statistically significant Sobel tests (Kenny, 2011).
A review of beta weights for hypothesis two indicated that two of the seven dimensions of the learning organization, empowerment, and system connection significantly predicted normative organizational commitment. Autonomy mediated the effects of and was significantly predicted by both these dimensions while relatedness mediated the effects of and was significantly predicted by system connection. System connection also significantly predicted competence and competence mediated the effects of system connection on normative organizational commitment in an equation that examined it as the only mediator variable. However, when competence was examined in conjunction with all mediator and independent variables, it did not mediate the effects of any of the independent variables on normative organizational commitment.

The nursing literature has not investigated factors that contribute to normative organizational commitment. Previous research in the organizational psychology field defined normative organizational commitment as indebted obligation to stay with an employer, which is much different that the definition of affective organizational commitment, which is focused on emotional commitment to a course of action or organization (Allen & Meyer, 1990). The antecedents to normative organizational commitment were also different from affective organizational commitment and were posited to have been derived from values instilled outside of the organization (Meyer, et al., 2004).

More recent research now suggests that the three components of organizational commitment are not separate from each other but rather interact with each other producing additive effects. These additive effects cause normative organizational commitment to be experienced differently, depending upon how an individual experiences affective or
continuance commitment. For example, normative commitment is experienced as a moral obligation by employees who have high affective and normative organizational commitment combinations and as indebted obligation by employees who have high normative and continuance commitment combinations (Meyer & Parfyovona, 2010; Meyer et al., 2012; Somers, 2009).

This is important to note because workgroup cohesion and collaboration were previously significantly and positively correlated with affective organizational commitment only (Allen & Meyer, 1990). However Somers (2009) found that healthcare workers who had high normative/affective organizational commitment profiles experienced normative organizational commitment as a moral obligation to their patients, co-workers and employer rather than an indebted obligation to them. Thus findings that the system connection dimension of the learning organization significantly predicted normative organizational commitment and was mediated by autonomy and relatedness in the present study are consistent with Somers (2009) research and also suggest that a majority of the sample for the present study may have high AC/NC or AC/NC/CC profiles, both of which are considered highly committed. As previously noted, the revised, abbreviated normative organizational commitment measurement scale used for the present study asked a question about work relationships, “I would not leave my organization right now because I have a sense of obligation to the people in it” (Meyer & Allen, 2004) thereby linking normative organizational commitment to relationships. These findings provide new information on the antecedents to normative organizational commitment in the nursing population.
Empowerment and autonomy have also not been linked to normative organizational commitment in the literature (Allen & Meyer, 1990) though empowerment has been widely discussed in relation to nurses’ affective organizational commitment (Aiken, et al., 1997; Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong 1999; Manojlovich, 2007; Nelson, 2002). In light of the previously referenced research on the interactive effects of the three components of organizational commitment it is possible that nurses who experience empowerment at work are highly committed to the organization overall. They may also experience normative organizational commitment as a moral obligation to their patients and coworkers because they also have high affective organizational commitment. It is also possible that the interactive effects of affective and normative organizational commitment that it was difficult for nurses in the present study to discern between feeling obligated to stay and feeling an emotional connection to stay.

Goodness of fit indices indicated that the model that included autonomy as the only mediator had the best fit when compared to all of the models however the fit was only moderately good. Additionally, this model explained only 22% of the variance in normative organizational commitment with a small effect size (Cohen, 1992). This suggests that while the dimensions of the learning organization significantly predict normative organizational commitment and account for a small proportion of its variance, there are other variables that explain normative organizational commitment that have yet to be identified. However, when trying to strengthen normative organizational commitment using the dimensions of the learning organization the focus should be on system connection and empowerment because
these meet the needs for both autonomy and relatedness. These two dimensions also significantly predicted affective organizational commitment.

**Overall Summary of Findings**

The Dimensions of the Learning Organization incorporates people and structural components in a multi-level model that posits that learning occurs at individual, group and organization levels (Marsick & Watkins, 2003). The individual and group levels of learning reside within the people component of the model and include the continuous learning, inquiry and dialogue and team learning/collaboration dimensions. The organizational level of learning resides within the structural component of the model and includes the empowerment, embedded system, system connection and strategic leadership dimensions. It is interesting to note that only one of the individual learning dimensions, inquiry and dialogue, was mediated by the basic psychological needs and that mediator was autonomy. The other individual dimension, continuous learning was a significant predictor of affective organizational commitment but had a small effect in the overall model and was not mediated by any of the basic psychological needs. Continuous learning was not a significant predictor of normative organizational commitment.

Three of the dimensions found in the structural component and organizational level of learning were significant predictors of affective organizational commitment with moderate to large effect sizes and were also mediated by both autonomy and relatedness. These were system connection and empowerment, which had a positive effect, and embedded system, or the use of systems to capture learning, which had a significant, large, but negative effect.
Team learning and collaboration, which is part of the group level of learning within the dimensions of the learning organization, was not a significant predictor of any of the basic psychological needs, affective or normative organizational commitment however it may be argued that the system connection dimension and/or the inquiry and dialogue dimension provides opportunities for team learning and collaboration through relationships within and outside of the organization. The other dimension of the learning organization that did not significantly predict any of the basic psychological needs or affective or normative organizational commitment was strategic leadership. It is possible that strategic leadership was not revealed as a significant predictor because the nurses who completed the survey were not aware of the efforts directed by leaders that support the learning organization. Though strategic leadership was not identified as a significant predictor of affective or organizational commitment on its own, it did contribute to the overall model of the seven dimensions, which significantly predicted both affective and normative organization commitment in a regression equation. Therefore strategic leadership should be referenced when considering methods to improve organizational commitment as leaders will still need to remove barriers to learning, provide resources and encourage experimentation at work (Goh, 1998; Marsick & Watkins, 2003).

Overall, these findings indicated that while the individual level of learning is important, it is the structures, systems, processes and climate created by the organization that allows learning to occur at the organizational level that has the greatest impact on meeting the basic psychological needs of nurses, which increases and significantly predicts their affective and normative organizational commitment. This is consistent with organizational
psychology research, which found three of the four antecedent categories for affective commitment in the work setting, specifically job characteristics, work experiences and structural characteristics (Allen & Meyer, 1990; Mowday et al., 1979). Of these three antecedent categories, Allen and Meyer (1990) found that “the strongest evidence has been provided for work experience antecedents, most notably those experiences that fulfill employees' psychological needs to feel comfortable within the organization and competent in the work-role” (p.9). Additionally, person-environment fit, which fits or matches the environment to the needs of employees, was found to be a better predictor of employee turnover than job performance, which suggests that employees whose values and goals don’t match those of the organization were more likely to seek employment elsewhere (Arthur, et al., 2006).

In summary, it is concluded that nurses’ affective and normative organizational commitment increased when the dimensions of the learning of the organization were present in the work environment. Additionally, opportunities to experience continuous learning, inquiry and dialogue, to be empowered toward a shared vision, connect with others internally and externally, and the minimal use of systems to capture learning are important dimensions on which to focus to meet the basic psychological needs for autonomy and relatedness, and to strengthen affective and normative organizational commitment. These conclusions align with existing literature regarding affective organizational commitment and provide valuable insight into the antecedents of normative organizational commitment that have not previously been examined in nursing.
Implications of the Study

The purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness on the relationship between the Dimensions of the Learning Organization and affective and normative organizational commitment in the United States nursing population. Findings revealed that the dimensions of the learning of the organization significantly predicted affective and normative organizational commitment and that their effects were mediated by the basic psychological needs of autonomy and relatedness. These findings provide implications for future research, HRD practice, and healthcare organizations that employ nurses regarding assessing and strengthening the affective and normative organizational commitment of nurses.

Recommendations

The present study was limited to registered nurses working in the United States therefore the ability to generalize findings to other nursing and healthcare occupations, healthcare settings, industries and countries is limited. Future research should expand to nurses outside of the United States and compare results to determine the best fit given the national context of the study. Countries such as Canada and some in Europe have healthcare systems funded by taxpayer dollars that are administered by the government whereas the United States does not. This could make a difference regarding legislation that specifies RN-to-patient ratios in hospitals for the purpose of a comparative study. Certain states in the U.S., such as California, have already begun to regulate RN-to-patient ratios (Aiken, et al., 2010). This study could also be expanded to other healthcare workers, of which there is also
a shortage in the United States, and to other industries.

This study focused on the predictive effect of the learning organization on the organizational commitment of registered nurses as mediated by the fulfillment of basic psychological needs at work. Given recent research in the organizational psychology field that has found evidence supporting the interactive effects of the three components of organizational commitment (Meyer & Parfyonova, 2010; Meyer et al., 2012; Somers, 2009) future research could include examining commitment profiles rather than individual affective or normative organizational commitment scores. This would require inclusion of the Continuance Commitment scale, which was not used in the present study.

Prior to the present study, the learning organization, self-determination theory/basic psychological needs at work and organizational commitment were examined separately but not as predictive of or related to the others in one model and not in the United States nursing industry. Only one other examined the effect of the learning organization on organizational effectiveness in nursing, where organizational effectiveness was defined as organizational commitment (Jeong, et al., 2007). However, the Jeong et al. (2007) study did not use the exact same constructs or instruments as those that were used in the present study and it was not conducted in the United States. Only one study to date has examined the mediating effect of competence, autonomy and relatedness on affective organizational commitment and it was not conducted in nursing or in the United States (Gregarus & Diefendorff, 2009). Thus this study implies that future research should focus on the link between the dimensions of the learning organization, organizational commitment and meeting basic psychological needs at work.
Though models in this study explained over 50% of the variance in affective organizational commitment and approximately 22% of the variance in normative organizational commitment, future research could include other variables in an attempt to find a model that explains 100% of the variance in each component of commitment or in combined commitment profiles. These independent variables might include job satisfaction, occupational commitment, work centrality or occupational commitment. Additionally, turnover has been seen as an important goal to stabilizing the nursing workforce (Wagner, 2007) therefore turnover could be used an outcome measure of the combination the learning organization, basic psychological needs at work and organizational commitment in a longitudinal study.

The sample for this present study was derived from a canvas of the membership rosters of seven state-based professional nursing associations located in the southeast, west, midwest and northeast regions of the United States. The state-based, professional nursing organizations were selected via purposeful sampling because they were the only nursing organizations that would agree to send the survey to their membership on behalf of the researcher. Non-random sampling techniques, such as the purposeful one used in this study, may increase the probability of a “biased sample; one that is not representative of the population” (Sproull, 2002, p. 118) therefore Sproull suggests using random sampling methods if possible and if not, to use methods such as sample to population comparison to minimize sampling error. Random sampling was not possible in this study however the characteristics of the sample were compared to the population using results from the 2008 NSSRN. Findings for this study would be further supported by future research that used a
random sample to which its results could be compared.

Recommendations for Practice

Findings from this study have practical implications because the United States healthcare industry has been facing a nursing shortage for the past decade that has contributed to higher RN-to-patient ratios and increased nurse turnover, both of which have a detrimental effect on the health outcomes of patients and the morale and organizational commitment of nurses (Aiken, et al., 1997; Gelinas & Bohlen, 2002; Needleman, et al., 2002; Pronovost, et al., 1999; Sovie & Jawad, 2001). Additionally, the aging U.S. population will present the country with an influx of healthcare consumers over the age of 65 living with multiple conditions over the next decade (AHA, 2007; The Gerontological Society of America, 2008). The sheer volume of people who will need care coupled with modern-day, extended life expectancies will place an increased demand on the healthcare delivery system, which will not only need to recruit more nurses and other healthcare professionals, but will also need to retain those already employed in the field (AHA, 2007; GSA, 2008).

This study implies that HRD practitioners and healthcare organizations need to establish programs that provide opportunities for continuous learning, inquiry and dialogue, empowerment toward a shared vision, connecting employees to each other internally and to their external communities, and decreasing the amount of system checks and processes instituted by the organization. HRD practitioners and healthcare organizations may have different roles and responsibilities when implementing dimensions of learning organization therefore practical recommendations are addressed separately for each.
Recommendations for Healthcare Organizations

Pursuing Magnet Hospital accreditation is one way to address implementing programs to support the dimensions of the learning organization and strengthen organizational commitment. The Magnet Recognition Program is based on five core principles that address some of the practical recommendations listed above. These five core principles include: 1) Transformational Leadership; 2) Structural Empowerment; 3) Exemplary Professional Practice 4) New Knowledge, Innovations and Improvements, and 5) Empirical Quality Results (ANCC, 2008). Transformational leadership refers to the ability to be visionary and to lead people where they need to go (ANCC, 2008) and align with the recommendation to establish leadership behaviors that foster competence, relatedness and autonomy on the job. Structural empowerment is defined as bringing the organizational mission, vision, and values to life to achieve outcomes through strong relationships and partnerships, staff development and empowerment (ANCC, 2008). The latter core principle is very broad but encompasses the learning dimensions of providing continuous learning and inquiry and dialogue through staff development, empowerment toward the vision and connecting employees internally and externally. Exemplary professional practice refers to understanding and application of the role of nursing with constituencies such as patients, families and the interdisciplinary treatment team as well as applying new knowledge (ANCC, 2008). This core principle addresses the system connection dimension, which is focused on creating internal and external networks. Magnet organizations are encouraged to submit quality indicators on an ongoing basis to maintain Magnet accreditation (ANCC, 2008).
While Magnet accreditation is one way to influence organizational commitment, it is not the answer for everything or every healthcare organization. Accreditation requirements and procedures are very stringent and although hospitals are the primary employer of nurses, they are not the sole employer of nurses. Organizations that are not hospitals cannot apply for Magnet accreditation, but can address the dimensions of the learning organization in other ways, for example, by providing opportunities for continuous learning or education, both on and off the job site.

Continuing education is ubiquitous in the nursing profession because nursing is regulated by a credentialing process that requires a license to practice in the United States. Nursing licenses are issued and monitored by each state nursing Board. Each Board sets its own requirements for continuing professional education that must be met for nurses to renew their licenses. Organizations that employ nurses are aware that nursing licenses must be kept active through continuing professional education and though it is beyond the scope of this study to comment on the provisions for professional education made by organizational size and type, most large or teaching hospitals, particularly those associated with a university that includes a nursing school, offer continuing professional education for nurses, as well as other medical personnel, on site. State nursing boards require specific documentation to support educational activities and typically the easiest way to meet these requirements is to attend what might be considered a traditional training class on a topic that might be of interest to nurses. That is not to say that this is the best way to meet the need for continuous learning but it is one way to do so and also one way to help nurses meet license renewal requirements by their state Boards.
For all organizations that employ nurses, not just the ones that are large enough to support in-house programs for nursing continuing professional education, providing a certain amount of money and time-off to attend such courses also supports continuous learning may be considered supportive. Going one step beyond providing time and money would be to provide the opportunity to use the skills and knowledge taught on in the class on the job and/or to share this information with others, particularly other nurses. Other traditional methods for providing continuous learning include tuition reimbursement plans that offer some assistance to nurses who wish to pursue advanced degrees or additional certification. Flexible scheduling or time off of work to attend courses or training is also necessary to make such programs successful.

Preceptor programs, which are usually a way for new graduate nurses to be oriented to the job and mentored by experienced nurses, are also means by which nurses can learn from each other and grow professionally. Preceptors not only function in a nursing role when they begin working with a new graduate nurse, they must also learn to teach, coach and mentor. Preceptorships are common in hospital settings, particularly large hospitals however the concepts of job shadowing, orienting new employees and mentoring can be applied in other medical settings and can be found in other industries.

Nursing Grand Rounds (NGRs), which have their foundation in medical grand rounds, are another way to provide regularly scheduled professional development for staff nurses (Armola, Brandenburg, & Tucker, 2010) and to support the continuous learning, inquiry and dialogue as well as the system connection dimensions. Nursing grand rounds provide an opportunity for nurses to teach other nurses, as well as other staff, in the hospital
NGRs also involve patients and their families as they are typically based on a case study in which a nurse or group of nurses provide a background of the case, discuss the nursing interventions that were applied, and the outcomes of those interventions (Armola, et al., 2010). The patient must give permission for their medical information to be shared and is invited to attend the presentation and to say a few words (Armola, et al., 2010).

While NGRs are more commonly found in and better suited for hospitals, similar programs may be adapted for other settings, such as long-term care facilities. Academic settings may use faculty development programs and staff and faculty meetings wherein clinical skills and instructional techniques can be shared. Finally, any nurse, regardless of the setting in which they work, can get involved in a professional nursing organization, which can function as a community of practice, particularly for those nurses that work in small organizations that do not offer on-site professional development sessions (Almost & Laschinger, 2002). While the individual nurse must take the initiative to join and become involved in external professional organizations, employers can facilitate this process by reimbursing membership fees, providing time to attend functions, and encouraging participation as a matter of professional growth and practice.

Organizations can also address continuous learning, support the basic psychological need for forming relationships at work, and to connect within the system and empower nurses toward the organizational vision by providing nurses with the opportunity to participate in cross-functional or interdisciplinary teams to accomplish specific tasks, provide patient care or conduct treatment planning, and/or to work on system-wide initiatives (Almost & Laschinger, 2002). While system-wide initiative involvement might be more
difficult to undertake in smaller settings, such as physicians’ offices, collaborative working across disciplines may be easier in these environments and may be more advantageous for empowering nurses and helping them develop relationships and networks because they are often structurally flatter, unlike hospitals, which have been noted as large, complex bureaucracies by nurses (Almost & Laschinger, 2002). These smaller and flatter systems might be better able to facilitate meeting the needs for competence, autonomy and relatedness at work due to fewer organizational layers, procedures, and processes (Almost & Laschinger, 2002).

Procedures and tools are not only associated with large, complex systems, they are also some of the terms used to define the embedded system dimension, described as tools and processes used to collect and disseminate learning (Marsick & Watkins, 2003). The embedded system was a significant but negative predictor of both autonomy and affective organizational commitment in the present study. The questions in the DLOQ-A that pertained to the embedded system asked about the organization creating systems to measure gaps in performance, measuring resources provided for training and making lessons learned available across the organization. The assumption with finding that the embedded system dimension was a negative predictor is that the nurses who participated in the present study viewed these measures and programs as a hindrance to their autonomy, which lowered their affective organizational commitment.

To address this, organizations should focus on diminishing or limiting, to the degree possible, the use of these processes and measures or to restructure how they are used or administered. This may be difficult to do in the healthcare environment, particularly in larger
settings where different accrediting and licensing entities have input into what must be tracked and how it is tracked. For example, continuing professional education programs and courses must be accredited by the state nursing Board using certain systems and methods and state nursing Boards have their own internal methods for tracking continuing professional education. However, organizations can customize systems that meet organizational needs while also minimizing forms, procedures, checklists and general tracking just for the sake of tracking. This might be done through a nursing shared-governance model, which requires that managers ensure that resources and support are made available to help nurses do their job but that staff nurses, regardless of the setting, set the standard for acceptable nursing practice (Almost & Laschinger, 2002; Laschinger & Finegan, 2005; Laschinger & Wong, 1999). In this way nurses create their own performance management system and staff nurses can and should address nursing practice issues rather than wait for management to take the initiative to suggest changes or training.

Shared governance systems are common in academic institutions where there are faculty councils or faculty governance bodies that address faculty and instructional issues rather than waiting for someone higher on the hierarchical ladder to become involved. Nursing shared governance models not only diminish or shift control for embedded systems to nursing where nursing issues are concerned, they also address the empowerment dimension by giving nurses control over the practice setting. The empowerment dimension may also be addressed by providing nurses with the opportunity to make point-of-care decisions on a course of action where patient care is concerned without going through multiple levels of management (Laschinger & Wong, 1999). Implementing point-of-care
decisions, where applicable according to licensure, also helps meet the basic psychological need of autonomy.

**Recommendations for Managers of Nurses**

Finally, though the strategic leadership dimension was not a significant predictor of affective or normative organizational commitment or any of the basic psychological needs in the present study, other than when combined with all the dimensions, the literature suggests that management behaviors and practices have an influence on the organizational commitment of nurses and facilitating employees’ ability to meet their basic psychological needs at work (Deci et al., 1989; Laschinger & Finegan 2005; Parfyonova, 2009). The literature suggests that managers include involving nurses, and other employees, in organizational decisions or explain the rationale behind decisions when they are not included (Laschinger & Finegan, 2005). Managers should also be open to employee suggestions regarding their own work (Allen & Meyer, 1990), less controlling and more accepting of employee perspectives (Deci, et al., 1989) and display care and concern for their employees. They should also provide them with greater sense of control over work-life, discuss expectations and provide feedback (Parfyonova, 2009) and allow employees to engage in horizontal and vertical job shaping (Gagne & Deci, 2005).

**Recommendations for HRD Practitioners**

Human resource development professionals can play a pivotal role in facilitating the process of establishing programs to support the aforementioned dimensions of the learning organization through strategic partnerships with business leaders (Case, 1998; Yorks, 2005) and by using their expertise to coach line managers and other in areas such as adult learning,
organizational development, change management, and training (Yorks). For example, obtaining Magnet accreditation is one way to address implementing programs to support the dimensions of the learning organization and strengthen organizational commitment. HRD professionals can provide input into components of the Magnet program, such as training and leadership development, and may even help facilitate the accreditation process via project management and change management.

When it comes to providing opportunities for continuous learning, HRD professionals can lend their expertise by conducting needs analysis, instructional design, and training evaluations to inform, focus, and change course offerings. HRD practitioners as well as HR generalists can also become involved in supporting continuous learning by providing input to organizational policies and procedures that affect training and learning both on and off the job site. They can also coach managers and nurses in the application of adult learning principles in all developmental activities, including preceptorships and nursing grand rounds.

HRD professionals can facilitate the implementation of new programs and initiatives via organizational development and change management techniques. They can also use their expertise in performance management systems and performance improvement to partner with nurses, nursing leadership and managers to customize systems that meet organizational needs while also minimizing forms, procedures, checklists and tracking just for the sake of tracking. Thus HRD professionals can apply their expertise in many different ways to establish and maintain the dimensions of the learning organization and through collaborative partnerships and individual leadership they can support both the needs of the organization and the nurses it employs.
Summary of Conclusions

In summary, the purpose of this study was to determine the mediating effects of the Basic Psychological Needs at Work, comprised of competence, autonomy and relatedness on the relationship between the Dimensions of the Learning Organization and affective and normative organizational commitment in the United States nursing population. Findings contributed to the literature with validity and reliability for the DLOQ-A (Marsick & Watkins, 2003), BPNS-W (Ryan & Deci, 1998) and TCMQ-A (Meyer & Allen, 2004) for use with nurses in the United States and identified the specific Dimensions of the Learning Organization that significantly predicted competence, autonomy, relatedness, as well as affective and normative organizational commitment. Practical contributions include implications for HRD practitioners and employers of nurses focused on developing programs that will support the Dimensions of the Learning Organization to increase organizational commitment with the intention of stabilizing the healthcare workforce to be better able to care for patients.
References


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APPENDICES
Appendix A

Present Study: Learning Organization Dimension Question Alignment

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<tr>
<th>Dimension</th>
<th>Questions</th>
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<td>2. Inquiry and Dialogue</td>
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<td>3. Team Learning</td>
<td>Section 2, Questions 8-10</td>
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<td>4. Empowerment</td>
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<td>6. System connection</td>
<td>Section 2, Questions 17-19*</td>
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<td>7. Strategic Leadership</td>
<td>Section 2, Questions 20*-24</td>
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(Marsick & Watkins, 2003)  *denotes added to the DLOQ-A from the DLOQ
Appendix B
Dimensions of the Learning Organization Questionnaire-Abbreviated

Learning Organization (Copyright Marsick and Watkins, (2003) used with permission)

Listed below is a series of statements that represent feelings that individuals might have about the company or organization for which they work. With respect to your own feelings about your primary employment setting, primary employment setting refers to the place where you spend most of your time working during the regular work year, please indicate the degree to which your employer supports and uses learning at an individual, team, and organizational level on a scale that ranges from 1 to 6 where 1 indicates almost never and 6 indicates almost always. Click the circle next to the number that best represents your rating

1. In my organization, people help each other learn.
2. In my organization, people can get money and other resources to support their learning.
3. In my organization, people are given time to support learning.
4. In my organization, people are rewarded for learning.
5. In my organization, people give open and honest feedback to each other.
6. In my organization, when people state their view, they also ask what others think.
7. In my organization, people spend time building trust with each other.
8. In my organization, teams/groups have the freedom to adapt their goals as needed.
9. In my organization, teams/groups revise their thinking as a result of group discussions or information collected.
10. In my organization, teams/groups are confident that the organization will act on their recommendations.
11. My organization creates systems to measure gaps between current and expected performance.
12. My organization makes its lessons learned available to all employees.
13. My organization measures the results of the time and resources spent on training.
15. My organization invites people to contribute to the organization's vision.

16. My organization gives people control over the resources they need to accomplish their work.

17. My organization helps people balance work and family.

18. My organization encourages everyone to bring the customer's (patient's/family's) views into the decision making process.

19. My organization works together with the outside community to meet mutual needs.

20. My employer encourages people to get answers from across the organization when solving problems.

21. In my organization, leaders generally support requests for learning opportunities and training.

22. In my organization, leaders mentor and coach those they lead.

23. In my organization, leaders continually look for opportunities to learn.

24. In my organization, leaders ensure that the organization's actions are consistent with its values.
Appendix C

Organizational Commitment Question Alignment

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<td>2. Continuous Commitment</td>
<td>Section 3, Questions 7-12</td>
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<tr>
<td>3. Normative Commitment</td>
<td>Section 3, Questions 13-18</td>
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(Meyer & Allen, 2004)
Appendix D

Three Component Model of Organizational Commitment Questionnaire-Abbreviated

Commitment to the Organization (Copyright Meyer and Allen, (2004) used with permission)

Listed below is a series of statements that represent feelings that individuals might have about the company or organization for which they work. With respect to your own feelings about your primary employment setting, primary employment setting refers to the place where you spend most of your time working during the regular work year, please indicate the degree of your agreement or disagreement with each statement by selecting a number from 1 to 5, where 1 indicates that you strongly agree and 5 indicates that you strongly disagree. Click the circle next to the number that best represents your rating.

1. I would be very happy to spend the rest of my career with my organization.

2. I really feel as if my organization's problems are my own.

3. My organization has a great deal of personal meaning for me.

4. I feel like a part of the family at my organization.

5. I feel emotionally attached to my organization.

6. I feel a strong sense of belonging to my organization.

7. It would be very hard for me to leave my organization right now, even if I wanted to.

8. Too much in my life would be disrupted if I decided I wanted to leave my organization now.

9. Right now, staying with my organization is a matter of necessity as much as desire.

10. I feel I have too few employment options to consider leaving my organization.

11. One of the few serious consequences of leaving my organization would be the scarcity of available employment alternatives.

12. If I had not already put so much of myself into this organization, I might consider working elsewhere.

13. I feel any obligation to remain with my current employer.
14. Even if it were to my advantage, I do not feel it would be right to leave my organization now.

15. I would feel guilty if I left my organization now.

16. I would not leave my organization now because I have a sense of obligation to the people in it.

17. I owe a great deal to my organization.

18. My organization deserves my loyalty.
Appendix E

Basic Psychological Needs Scale-Work


Please indicate how true each of the following statements are for you given your experiences at your primary employment setting over the past year. Primary employment setting is the one at which you work the most hours during your regular work year. If you have been at your primary employment setting for less than a year, this concerns the entire time you have been at your primary employment setting.

You will use a rating scale that ranges from 1 to 7. The number "1" indicates that the statement is "not true", the number "7" indicates that the statement is "very true". You may use any of the numbers from 1-7. Please click the button next to the number that best represents your rating.

1. I feel like I can contribute to deciding how my job gets done.
2. I really like the people I work with.
3. I feel very competent when I am at work.
4. People at work tell me I am good at what I do.
5. I do not feel pressured at work.
6. I get along with people at work.
7. I keep to myself at work.
8. I am free to express my ideas and opinions on the job.
9. I consider the people I work with to be my friends.
10. I have been able to learn interesting new skills on my job.
11. I have to do what I am told when I am at work.
12. Most days I feel a sense of accomplishment from working.
13. My feelings are taken into consideration at work.
14. I get a chance to show how capable I am on my job.

15. People at work care about me.

16. There are not many people at work that I am close to.

17. I feel like I can be myself at work.

18. The people I work with seem to like me.

19. I often feel very capable when I am working.

20. There is plenty of opportunity for me to decide for myself how to go about my work.

21. People at work are friendly towards me.
Appendix F

Demographics Questions

Instructions:
Please complete the blank or choose the best answer by clicking the circle next to it.

1. Are you employed or self-employed in nursing? (Employment includes: full-time, part-time or PRN employment, being on a temporary leave of absence from your nursing position; on vacation; being on sick leave; or working through a temporary employment service or practicing private duty nursing and not on a case at the moment)
   - Yes
   - No (if no, please discontinue the survey)

2. What is your primary employment setting? (primary employment setting is the one at which you work the most hours during your regular work year)

3. Is your primary employment setting a Magnet Hospital? (primary employment setting is the one at which you work the most hours during your regular work year)

4. Are you a member of a nursing labor union or represented by a nursing labor union in your primary employment setting? (primary employment setting is the one at which you work the most hours during your regular work year).

5. Is a nurses union active in your primary employment setting? (primary employment setting is the one at which you work the most hours during your regular work year)

6. What is your employment status in your primary nursing occupation? (primary nursing occupation is the one at which you work the most hours during your regular work year)

7. How many hospital beds are there in your facility?

8. Please select the choice that best describes your job title at your primary employment setting. (primary employment setting is the one at which you work the most hours during your regular work year)

9. How long have you been working as a registered nurse?

10. How long have you been working in your primary employment setting? (primary employment setting is the one at which you work the most hours during your regular work year).

11. What is your age?
12. What is your gender?

13. What is your racial background?
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<tr>
<td>8</td>
<td>Over 30 years</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AGE</th>
<th>Age in years</th>
<th>Numerical 2 digits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEND</td>
<td>Gender</td>
<td>Numerical 1 digit</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>1</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Male</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EDLVL</th>
<th>Highest degree earned</th>
<th>Numerical 1 digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diploma</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Associates degree</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bachelor’s degree</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Master’s degree</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Doctorate</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RACE</th>
<th>Racial background</th>
<th>Numerical 1 digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>American Indian/Alaska Native</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Asian/Asian American</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Hispanic/Latino</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Native Hawaiian or Pacific Islander</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Black/African American</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>White/Caucasian</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>More than one race</td>
<td></td>
</tr>
</tbody>
</table>

01 = Under 25
02 = 25-29
03 = 30-34
04 = 35-39
05 = 40-44
06 = 45-49
07 = 50-54
08 = 55-59
09 = 60-64
10 = 65 and over
DLOQ-A

The variables below will take on 1 digit numerical values, corresponding to a scale from $1 = \text{almost never}$ to $6 = \text{almost always}$. (*) added to short form from long form.

**Continuous Learning**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTLN1</td>
<td>Help each other learn</td>
</tr>
<tr>
<td>CONTLN2*</td>
<td>Get money and other resources to support their learning</td>
</tr>
<tr>
<td>CONTLN3</td>
<td>Given time to support learning</td>
</tr>
<tr>
<td>CONTLN4</td>
<td>Rewarded for learning</td>
</tr>
</tbody>
</table>

**Inquiry and Dialogue**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQD1</td>
<td>People give open and honest feedback to each other</td>
</tr>
<tr>
<td>INQD2</td>
<td>When people state their views, they also ask what others think</td>
</tr>
<tr>
<td>INQD3</td>
<td>Spend time building trust with</td>
</tr>
</tbody>
</table>

**Collaboration and Team Learning**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLBTL1</td>
<td>Teams/groups have the freedom to adapt their goals as needed</td>
</tr>
<tr>
<td>CLBTL2</td>
<td>Teams/groups revise their thinking as a result of group discussions or information collected</td>
</tr>
<tr>
<td>CLBTL3</td>
<td>Teams/groups are confident that the organization will act on their recommendations</td>
</tr>
</tbody>
</table>

**Establish Systems to Capture and Share Team Learning**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSCAP1</td>
<td>Creates systems to measure gaps between current and expected performance</td>
</tr>
<tr>
<td>SYSCAP2</td>
<td>Makes its lessons learned available to all employees</td>
</tr>
<tr>
<td>SYSCAP3</td>
<td>Measures the results of the time and resources spent on training</td>
</tr>
</tbody>
</table>
Empower People Toward Collective Vision
EMPW1 Recognizes people for taking initiative
EMPW2* Invites people to contribute to the organization’s vision
EMPW3 Control over the resources they need to accomplish work

Connect the Organization to the Environment
CONORG1 Helps people balance work and family
CONORG2* Encourages everyone to bring the customer's (patient's/family's) views into the decision making process
CONORG3 Works together with the outside community to meet mutual needs
CONORG4 Get answers from across the organization when solving problems

Provide Strategic Leadership for Learning
STLD1* Leaders generally support requests for learning opportunities and training
STLD2 Leaders mentor and coach those they lead
STLD3 Leaders continually look for opportunities to learn
STLD4 Leaders ensure that the organization's actions are consistent with its values

TCMQ-A
The variables below will take on 1 digit numerical values, corresponding to a scale from 1 = strongly disagree to 5 = strongly agree.

Affective Commitment
ACM1 Spend the rest of my career with my organization
ACM2 Organization's problems are my own
ACM3 Organization has a great deal of personal meaning for me
ACM4 Feel like a part of the family at my organization
ACM5 Feel emotionally attached to my organization
ACM6 Feel a strong sense of belonging to my organization

**Normative Commitment**
NORM1 Feel any obligation to remain with employer
NORM2 Do not feel it would be right to leave my organization
NORM3 Would feel guilty if I left my organization now
NORM4 Would not leave my organization now because I have a sense of obligation to the people in it
NORM5 Owe a great deal to my organization
NORM6 Organization deserves my loyalty

**BPNS-W**
The variables below will take on 1 digit numerical values, corresponding to a scale from 1 = *not true* to 7 = *very true* (*) Reverse scored items. Person’s response is subtracted from 8.

**Competence**
COMP1 I feel very competent when I’m at work (Q3)
COMP2 People at work tell me I’m good at what I do (Q4)
COMP3 I have been able to learn new skills on my job (Q10)
COMP4 Most days I feel a sense of accomplishment from working (Q12)
COMP5 I get a chance to show how capable I am on my job (Q14)
COMP6 I often feel capable when I’m working (Q19)

**Autonomy**
AUT1 I feel like I can contribute to deciding how my job gets done (Q1)
AUT2 I do not feel pressured at work (Q5)
AUT3 I am free to express my ideas and opinions
<table>
<thead>
<tr>
<th>AUT4*</th>
<th>I have to do what I’m told when I’m at work (Q11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT5</td>
<td>My feelings are taken into consideration at work (Q13)</td>
</tr>
<tr>
<td>AUT6</td>
<td>I feel like I can be myself at work (Q17)</td>
</tr>
<tr>
<td>AUT7</td>
<td>There is plenty of opportunity to decide how to do my work (Q20)</td>
</tr>
</tbody>
</table>

**Relatedness**

<table>
<thead>
<tr>
<th>REL1</th>
<th>I really like the people I work with (Q2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL2</td>
<td>I get along with people at work (Q6)</td>
</tr>
<tr>
<td>REL3*</td>
<td>I keep to myself at work (Q7)</td>
</tr>
<tr>
<td>REL4</td>
<td>I consider the people I work with to be my friends (Q9)</td>
</tr>
<tr>
<td>REL5</td>
<td>People at work care about me (Q15)</td>
</tr>
<tr>
<td>REL6*</td>
<td>There are not many people at work that I’m close to (Q16)</td>
</tr>
<tr>
<td>REL7</td>
<td>The people I work with seem to like me (Q18)</td>
</tr>
<tr>
<td>REL8</td>
<td>People at work are friendly towards me (Q21)</td>
</tr>
</tbody>
</table>

**Continuous Commitment**

<table>
<thead>
<tr>
<th>CNT1</th>
<th>Hard for me to leave my organization right now</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNT2</td>
<td>Too much disrupted if I decided I wanted to leave now</td>
</tr>
<tr>
<td>CNT3</td>
<td>Staying is a matter of necessity as much as desire</td>
</tr>
<tr>
<td>CNT4</td>
<td>Too few employment options to consider leaving</td>
</tr>
<tr>
<td>CNT5</td>
<td>Scarcity of available employment alternatives</td>
</tr>
<tr>
<td>CNT6</td>
<td>Put too much of myself into this organization to leave</td>
</tr>
</tbody>
</table>
Appendix H

Email Invitation to Participate in Useability Study

Hello-

For those of you who don’t know me, my name is Bonni Baird and I’m a doctoral candidate at North Carolina State University working on an Ed.D. in Adult and Higher Education. I will be conducting my dissertation, entitled “The Impact of the Learning Organization on the Organizational Commitment of Nurses” with registered nurses in the United States within the next few months. It requires completion of an on-line survey. Before I distribute the survey for the dissertation I need to conduct a useability study, during which registered nurses will review the survey for readability, understandability, completion time, accessibility via the web-link and navigation issues. I am writing to invite you to participate in the useability study.

Confidentiality

You are only being asked to review the survey for readability, understandability, accessibility and navigation. You should not answer the survey questions as you complete this review. You will not be required to put your name, your contact information or your employer’s name anywhere on the survey.

Your feedback regarding the survey will not be shared with anyone and will be discarded as soon as I have noted it.

Please let me know if you are interested in participating in the useability study.

Thank you,
Bonni Baird

Survey link and useability study instructions message

Hello-
Thank you for volunteering to participate in this useability study. Please find instructions listed below. Feel free to contact me if you have any questions.

As a reminder, you should not answer the survey questions to help me with this useability review.

1. Click the link posted below to access the survey
   a. Please note any issues accessing the survey from this link.

2. Read the survey consent and instructions page. As you are reading the survey consent and instructions page, please note:
   a. Any awkward, unclear or confusing information or instructions on the page
3. Click the “click here to begin survey” button to begin the survey
   a. Please note any issues opening survey from this page.
4. There are four sections to the survey, 1) demographics, 2) learning culture, 3) organizational commitment, 4) needs at work. Complete all sections of the survey answering all questions. As you read through the survey, please note:
   a. Awkwardly worded questions
   b. Unclear or confusing instructions
   c. Unclear or confusing questions
   d. Unclear or confusing words, phrases or terms
   e. Unclear or confusing rating scales or answer choices
   f. Terms, phrases or ideas that are not typically used in nursing or that nurses would find unclear, confusing or not applicable
   g. Any issues navigating or moving through the survey. (e.g. buttons that don’t work)
5. Summarize your feedback from the bullet points above and send to me in an e-mail message.
6. In summary, I will need to know the following
   a. What issues, if any, did you have accessing the survey from the link?
   b. Any awkwardly worded, confusing or unclear information on the survey consent and information page
   c. What issues, if any, did you have opening the survey questions from the instructions page?
   d. Awkwardly worded questions
   e. Unclear or confusing instructions
   f. Unclear or confusing questions
   g. Unclear or confusing words, phrases or terms
   h. Unclear or confusing rating scales or answer choices
   i. Terms, phrases or ideas that are not typically used in nursing or that nurses would find unclear, confusing or not applicable
   j. Any issues navigating or moving through the survey. (e.g., buttons that don’t work)
   k. Any other feedback you would like to provide regarding the survey or survey instructions.

Best,
Bonni Baird
Appendix I

Email Invitation to Participate in Survey

My name is Bonni Baird and I’m a doctoral candidate at North Carolina State University working on an Ed.D. in Adult and Higher Education. I am in the process of conducting my dissertation research, entitled “The Impact of the Learning Organization on the Organizational Commitment of Nurses” with registered nurses in the United States.

I need your input!

The purpose of my study is to determine if the learning culture in an employment setting impacts the commitment registered nurses have to that employer by meeting their needs for competence, autonomy and relatedness at work. If you would like to participate in this research please click the link below to be directed to an on-line survey.

(Survey link here)

Findings from this study may be of particular interest to the nursing profession and the United States health care industry, particularly hospitals, where patient safety and health outcomes have been linked to adequate staffing levels of registered nurses.

Feel free to contact me if you have any questions.

Best Wishes,

Bonni Baird, MA, NCC, SPHR
Appendix J

Consent to Participate in Survey (embedded in survey cover)

Description and Consent
North Carolina State University
INFORMED CONSENT for RESEARCH

Title of Study: The Impact of the Learning Organization on the Organizational Commitment of Nurses

Principal Investigator: Bonni Baird
Faculty Sponsor: Tim Hatcher

Q: What are some general things you should know about research studies?
A: You are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of a certain topic or issue. You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those that participate. If you do not understand something it is your right to ask the researcher for clarification or more information. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above.

Q: What is the purpose of this study?
A: The purpose of this study is to determine the impact the learning culture within an organization may have on the commitment registered nurses have to that organization by meeting their needs for competence, autonomy and relatedness at work. Learning culture refers to the degree to which an organization supports and uses learning at an individual, team, and organizational level. Commitment to the organization refers to feelings of commitment an individual has to an organization.

Q: What will happen if you take part in the study?
A: If you agree to participate in this study, you will be asked to complete an on-line survey, which follows in the next pages. It will take you approximately 10-20 minutes to complete the survey.

Q: What are the risks?
A: The survey questions will ask you to assess your work environment therefore there could be professional risk to you. To prevent harm to you, your identity will not be associated with your responses. You should not complete this survey while at work. If you must leave the survey before completing and submitting it, please make sure to close your web browser.
Q: What are the benefits?
A: There are no direct benefits for you however knowledge gained from this research could benefit nurses in the workplace.

Q: How will confidentiality be handled?
A: The information in the study records will be kept strictly confidential. You will not be asked to provide your name, your contact information, the name of your employer or any other identifying information that will link you to your responses. Individual responses will not be reported or discussed in any manner. No reference will be made in oral or written reports that could link any individual to the study. All results will be reported in aggregate form. The person from whom you received the survey link will not know if you opened the survey or completed it. Responses will be stored securely in an on-line database that is log-in and password protected. The principal investigator is the only person who has the log-in and password to the survey database. The principal investigator is also the only person who has access to survey responses, which are not linked to individual respondents by name or any other contact information.

Q: What is the compensation for participating in this study?
A: You will not receive any compensation for participating in this study.

Q: What if you have questions about this study?
A: If you have questions at any time about the study or the procedures, you may contact the principal investigator, Bonni Baird.

Q: What if you have questions about your rights as a research participant?
A: If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, IRB Coordinator, Box 7514, NCSU Campus (919/515-7515).

**Consent To Participate**
By submitting my responses to this survey I agree that I have read and understand the above information. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.

Click the "next" button below to begin the survey.
Appendix K

Reminder Email Letter to Participants

(this message sent by nursing associations)

Dear Members,

Please consider completing this survey if you haven't already done so. See the original message below.

Thank you!

____________________________________________________________________

Hello-

My name is Bonni Baird and I’m a doctoral candidate at North Carolina State University working on an Ed.D. in Adult and Higher Education. I am in the process of conducting my dissertation research, entitled “The Impact of the Learning Organization on the Organizational Commitment of Nurses” with registered nurses in the United States.

I need your input!

The purpose of my study is to determine if the learning culture in an employment setting impacts the commitment registered nurses have to that employer by meeting their needs for competence, autonomy and relatedness at work. If you would like to participate in this research please click the link below to be directed to an on-line survey.

(Survey link here)

Findings from this study may be of particular interest to the nursing profession and the United States health care industry, particularly hospitals, where patient safety and health outcomes have been linked to adequate staffing levels of registered nurses.

Feel free to contact me if you have any questions.

Best Wishes,

Bonni Baird, MA, NCC, SPHR
Appendix L

Permission to Use Dimensions of the Learning Organization Questionnaire

From: Karen E. Watkins <kwatkins@uga.edu>
Subject: Re: Dimensions of the Learning Organization research

Yes by all means use the short form. See the Advances in Developing Human Resources special issue on the DLOQ-- our opening chapter has the short form-- you can pick it out by the asterisks.

Great to talk to you.

Karen
Karen E. Watkins
Associate Dean for Research and External Affairs
College of Education
The University of Georgia
G10 Aderhold Hall
Athens, GA 30602
W 706-542-4558
F 706-542-8125

From: Karen Watkins <kwatkins@uga.edu>
Subject: Re: Dimensions of the Learning Organization research
Cc: "Victoria Marsick" marsick@tc.columbia.edu>
Date: Monday, February 2, 2009, 1:20 PM

Dear Ms. Baird,

We would be delighted to grant you permission to use the questionnaire for your dissertation research. You might be interested in the attached non-profit version of the DLOQ for this purpose.

Karen
Karen E. Watkins
Associate Dean for Research and External Affairs
College of Education
The University of Georgia
G10 Aderhold Hall
Running Head: LEARNING ORGANIZATION ORGANIZATIONAL COMMITMENT 316

Athens, GA 30602
W 706-542-4355
F 706-542-8125
Appendix M

Permission to Use Three Component Model of Organizational Commitment Questionnaire

From: Natalie Allen <nallen@uwo.ca>
Sent: Sun, February 1, 2009 7:04:18 PM
Subject: Re: Three Component Model of Organizational Commitment Research

Dear Bonni,

Thank you for your interest in the Three-Component Model commitment measures. You can get information about permission to use the measures from our website:

www.employeecommitment.com

Please note that the opening page will provide you with information about the use of the measures for commercial purposes, but if you look on "Stage of Development" and click on "click here" (about half way down the page) it will take you to information about the Academic Package. The student version of this, which has a very modest administrative fee, includes information about the measures, permission to use them for research purposes, a Frequently Asked Questions section, and, of course, the measures themselves.

Good luck with your thesis research!

Best wishes,
Natalie Allen
Appendix N

Permission to Use Basic Psychological Needs Scale - Work

From: Ed Deci deci@psych.rochester.edu
Cc: Richard Ryan ryan@psych.rochester.edu
Date: Sun, May 9, 2010 at 10:55 AM
Subject: Re: Basic Psychological Needs Scale work domain questionnaire

You are welcome to use the BPNS in your research. The nine items are shown on the web site in the relationships questionnaire. I don’t know of any use of 9 items in the workplace.

Ed Deci

Edward L. Deci
Professor of Psychology and
Gowen Professor in the Social Sciences
Department of Psychology
University of Rochester
Rochester, NY 14627
phone: 585-275-2461 fax: 585-273-1100
website: http://selfdeterminationtheory.org

From: Ed Deci deci@psych.rochester.edu
cc: Richard Ryan <ryan@psych.rochester.edu>
Date: Sat, Oct 23, 2010 at 2:29 PM
Subject: Re: Basic Psychological Needs Scale question

The work Motivation form for employees IS the basic psych needs scale-work. It is used in the articles that I outlined below.

The IMI is not the need satisfaction scale. It assesses intrinsic motivation and related constructs such as perceived competence.

Reference the scales as: