THE USE OF REVIEW OF SYSTEM ASSESSMENT GUIDE ON THE NURSING STUDENTS’ SELF-REPORTED COMPETENCE, SELF-REPORTED CONFIDENCE AND DIRECTLY-OBSERVED COMPETENCE ON HEALTH ASSESSMENT

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Health assessment is an essential skill performed by all nurses in clinical practice. Review of system assessment is a vital skill emphasized at every level of nursing and is an essential element of education and a key aspect of the student experience. Current trends in nursing schools in the Philippine setting showed little evidence establishing the effect of a health assessment guide on the assessment competence of nursing students. The central objective of this study was to determine the effect of using a “Review of System Assessment Guide” on the self-reported competence, self-reported confidence and directly-observed competence on health assessment among nursing students. The study primarily utilized quasi-experimental design. The respondents included junior and senior nursing students from a comprehensive university in the Philippines. Researcher-made tools were used in the study namely: “Written Competence Evaluation Questionnaire” and an “Objective Structured Clinical Examination Marker Sheet: Review of System Assessment”. Reliability and validity testing of said tools were established prior to actual study. Inter-rater reliability for the Objective Structured Clinical Examination (OSCE) was also ascertained. The findings yielded the following conclusion that the “Student’s Review of System Assessment Guide” increased the self-reported competence, self-reported confidence, directly-observed competence and knowledge level on health assessment among the nursing students.

Keywords: Review of system Assessment guide, Self-reported competence, Self-reported confidence, Directly-observed competence, Health assessment.

1. Problem Rationale

Health assessment is unquestionably a fundamental skill performed by all nurses in clinical practice (Giddens & Eddy, 2009; Giddens, 2007; Secrest, Norwood & DuMont, 2005). Nurses, upon initial contact with the patient, employ the process of patient’s “head to toe” or “review of system” assessment. Data, derived from patient assessment, provide the foundation on which nurses base their decisions, interventions and evaluations (Giddens & Eddy, 2009). It is through patient’s review of system assessment that the nurse establishes patient’s plan of care, health teachings, discharge planning, and patient’s overall health care delivery. Additionally, patient assessment is vital in the recognition of deterioration based on close monitoring of patient’s physiologic status (Zambas, 2010; Carroll, 2007).

Health assessment is central to nursing education (Secrest et al., 2005) and practice; yet, studies have shown that a relatively limited number of review of system assessment techniques are actually
applied in clinical practice, and rarely visible in every practice (Zambas, 2010; Giddens & Eddy, 2009). Nurses are not conducting thorough sufficient assessments on their patients, due to either lack of time or lack of perceived need (Giddens & Eddy, 2009). This inconsistency in the patient assessment by the nurses is an important variable associated with patient’s sentinel event such as death (Giddens & Eddy, 2009). This is one of the main reasons why assessment skill must be kept concrete and never allowed to be replaced with assumptions (Girard, 2008).

Nursing is the largest sector of the healthcare workforce and is mandated by health care organizations to provide safe, competent care to the public (Dyson, Hedgecock, Tomkins & Cooke, 2009). In the hospital setting, nurses are mostly the ones who are consistently at the bedside monitoring and taking care of the patients all the time, while doctors spend only few minutes assessing the patient. Furthermore, nurses act as surveillance systems for the early detection of complications, and are in the best position to initiate actions that minimize negative outcomes (Murphy, Conway, McGrath, O’Leary & Powel, 2009). Surveillance involves frequent patient assessment and recognizing subtle and overt cues (Giddens & Eddy, 2009; Zambas, 2010). Nurses are supposedly experts in patient assessments (Girard, 2008) due to the assumed increased frequency of application of such skill in clinical practice. Moreover, nurses must provide quality assessment based on evaluation of the individual patient, ongoing monitoring of the patient’s condition and appropriate responses as indicated (Hentschke, 2009; Lindpainter, Bischofberger, Brenner, Knuppel, Scherer, Schmied, Schafer, Stoll, Stoiz-Baskette, Weyermann-Setter & Hengartner-Knopp, 2009).

Health assessment is a basic skill taught and emphasized at every level of nursing (Girard, 2008), and is an essential component of education and a key element of the student experience (Joy & Nickless, 2008). It is through this that students develop their nursing care plan and base their nursing documentation and overall patient care delivery like the licensed nurses. In addition, the students, by means of assessment, can gather data about a patient for purpose of determining the patient’s current and ongoing health status, predicting risks to health, and identifying health-promoting activities (D’Amico & Barbarito, 2007). Students are required to assess patients in the clinical area at the beginning of the duty, frequently and as needed depending on the patient’s condition. Undergraduate students have been repeatedly taught about the importance of patient assessment. In connection with this, the Philippine’s Commission on Higher Education (CHED) under Memorandum Order No. 14 Series of 2009, created a separate course on “Health Assessment”, solely dedicated for patient review of system assessment for the first year nursing students during summer prior to sophomore year. Nursing education is expected to prepare nursing students for different clinical settings after graduation. Educators in nursing have their own responsibility to keep abreast of teaching and learning trends in classroom teaching and clinical practice (Hsu & Hsieh, 2005).

In major hospitals in the United States, nurses use some kind of “review of system assessment” checklist that needs to be accomplished every duty. This patient assessment checklist is a very thorough head-to-toe assessment, and is included in the patient’s chart as a vital part of the nursing documentation. In the hospital, near the comprehensive university where this undertaking took place, the patient checklist is considered as a “worksheet”, and not part of the patient chart nor part of the nursing documentation. Moreover, in the nursing academe of the comprehensive university where this study was done, the students have different standardized patient assessment employed from sophomore to senior level. Currently, the junior nursing students, of the comprehensive university where this study was undertaken, are using forms called “patient care record” which entails patient health history, diagnostic examinations, nursing care plan, discharge planning, health teachings, and a very brief, not-so-complete “review of systems”. This “patient care record” is only accomplished once or twice in a five to six week stay in a specific hospital clinical area. Such patient assessment checklist is only used for completion of the “patient care record”, getting information for patient’s case presentation, case protocol or small group tutorials. Moreover, the senior nursing students, of this comprehensive university, presently use a “beside worksheet” as part of patient assessment implementation in the hospital setting. This sheet is the same form that hospital licensed nurses are using as basis for patient assessment. The current form being used deals more with checking presence and descriptions of different contraptions, precautions, laboratory/
diagnostic examinations, major treatments, diet, hygiene, and very short checklist on patient review of
system assessment dealing only with “level of consciousness” and positioning. Currently, this “beside
worksheet” form is not considered as a legal part of the patient’s chart. Taking everything into
consideration, nursing students currently do not have a systematic tool and have different standardized
tools in assessing the patient comprehensively during clinical duty (Giddens & Eddy, 2009). The existing
practice on patient review of system assessment is very limited in content, lacking in organization (Curtis,
Murphy, Hoy & Lewis, 2009), not so thorough, and inconsistent in the manner and frequency of usage
(Secrest et al., 2005; Giddens, 2007; Giddens & Eddy, 2009). Hence, the need for creating such guide is
strongly warranted.

The use of a comprehensive “head-to-toe” review of system assessment checklist will facilitate
patient assessment by the nursing students. Having such a ready-made, user-friendly tool will guide
systematically the nursing students on every hospital duty in assessing the patient properly and
completely, and not leave out any essential detail. Nursing assessment skills will be developed,
strengthened, integrated and improved through daily interventions or consistent repeated exposures to
such interventions such as a review of system assessment guide (McEwen & Willis, 2007). Consistent
continuous application of such guide is vital in assessment skill building and retention (Roberts, Vignato,
Moore & Madden, 2009).

As stated by B. F. Skinner (1957), for a skill to be developed and perfected, one must practice that
skill frequently and consistently (McEwen & Willis, 2007). If skills learned in the past are not
consistently used, they tend to decline in the process. Students must have opportunities to perform skills
routinely in clinical settings as well as in the campus skill laboratory to avoid skill decline (Roberts et al.,
2009). Clinical skills such as patient assessment require progression through experiential taxonomy,
leading to eventual mastery or internalization over period of time and through repeated practice (Joy &
Nickless, 2008). Using an assessment guide will facilitate such skill development.

Having an assessment guide as a daily tool will facilitate in the building and retaining of the
students’ patient assessment skills. Additionally, improved assessment skills will lead to improved patient
care delivery and positive patient outcomes. The research objective of this paper is to study the effect of
using a “Student’s Review of System Assessment Guide” on the nursing students’ self-reported
competence, self-reported confidence and directly-observed competence in carrying out a thorough
patient assessment. This study also analyzed data related to the outcome of such tool usage on the nursing
student’s knowledge of health assessment.

2. Research Questions

2.1 Review of Literature

2.1.1 “Student’s Review of System Assessment Guide”

Health assessment is an essential component of education and a key element of the student experience
(Joy & Nickless, 2008; Giddens & Eddy, 2009; Giddens, 2007; Secrest et al., 2005; Leung, Mok &
Wong, 2008). It forms the basis of patient’s overall plan of care and succeeding nursing interventions
(Giddens & Eddy, 2009) by the student. Nurses are most often the first ones to detect changes in the
patient’s condition, and the nurse’s ability to think critically and interpret the meaning of patient
behaviors and presenting physiological changes is vital (Potter & Perry, 2005; Zambas, 2010; Carroll,
2007). Health assessment is a hands-on examination which includes survey and examination of systems
(D’Amico & Barbarito, 2007; Potter & Perry, 2005). It entails methods of inspection, palpation,
percussion and auscultation (D’Amico & Barbarito, 2007; Potter & Perry, 2005).

Previously, much has been said about the development of various nursing assessment tools that cover
the nutritional, skin, pain, competence, communication, documentation and medication administration
aspects of the study (Banning, 2004; Mitchell et al., 2009; Cowan, Wilson-Barnett & Norman, 2007b;
Cowan, Wilson-Barnett, Norman & Murrells, 2008; Lees & Hughes, 2009; Hanley & Higgins, 2005; Hentschke, 2009). However, there have been few studies done on the “Review of System Assessment Guide” that nursing students can use in the clinical areas. Additionally, much has been written about patient assessment’s content, validity and techniques (Giddens & Eddy, 2009; Foster & Hawkins, 2004; Norman, Watson, Murrells, Calman & Redfern, 2002). The research undertaken by Giddens and Eddy (2007) analyzed the patient assessment content taught in undergraduate nursing programs. Foster and Hawkins (2004) reviewed the way assessment in nurse education is undertaken. Further, Norman et al. (2002) reported findings from a study about clinical competence assessment tools for reliability and validity. However, there is limited number of empirical studies ascertaining the effect of constant usage of a “Student’s Review of System Assessment Guide” on the health assessment competence of nursing students.

Health assessment is an integral part of the learning process in nursing (Leung et al., 2008; Joy & Nickless, 2008; Giddens & Eddy, 2009; Giddens, 2007; Secrest et al., 2005). Assessment data provide the foundation on which nurses base their decisions, interventions and evaluations (Giddens & Eddy, 2007). Development of skill relies on knowledge of the basic elements of the task, development of memory and association of the skills, repetition and, eventually the development of new ways of thinking and, thus, carrying out the skill (Fotheringham, 2010) such as health assessment. Nurses commonly spend the greatest amount of time in direct patient contact (Vadlamudi, Adams, Hogan, Wu & Wahid, 2008), and act as surveillance systems for the early detection of complications (Murphy et al., 2009). A study undertaken by Giddens and Eddy (2009) indicated that nurses use less than 25% of assessment skills regularly in clinical practice, regardless of their educational preparation. Moreover, a limited number of “review of system assessment” techniques are actually applied in clinical practice, and are rarely visible in every practice (Zambas, 2010). This lack of practice of thorough patient assessment by the nurse is usually associated with patient sentinel event which might cause serious injury or death (Giddens & Eddy, 2009). Hence, this highly warrants an intervention such as a “Student’s Review of System Assessment Guide” that may influence nurse assessment skills.

Research evidence suggests that patients who experience acute illness outside critical care areas and receive enhanced levels of intervention from appropriately trained nurses prevent the need for admission to high dependency and intensive care beds, and such interventions can lead to reduced mortality and morbidity (Steen & Costello, 2008). Enhanced assessment skills enable practitioners to safely and competently assess critically ill patients out of the intensive care environment (Coombs & Moore, 2002). Through systematic patient review, patient management plans can be agreed and ward based practitioners can be supported in the on-going treatment of sick patients (Coombs & Moore, 2002). Nurses are perceived as surveillance system for early detection of adverse occurrences (Fontaine 2001, cited in Coombs & Moore, 2002), and physical assessment skills enable a more accurate appraisal of patient change (Bear 1995, cited in Coombs & Moore, 2002) and at the same time improve the patient experience during their critical illness. Coombs and Moore (2002) enforced the need for timely and accurate performance of ward observations, and the importance of action on abnormal recordings. Moreover, a study by Steen and Costello (2008) indicated that mortality and physical crisis in hospital can be prevented through accurate assessment and early intervention by the nurse.

A large number of studies have clearly acknowledged the need to improve nurse assessment skills (Zambas, 2010; Lees & Hughes, 2009; Lacasse & Beck, 2007; Secrest et al., 2009; Baid, Bartlett, Gilhooly, Illingworth & Winder 2009). For instance, Zambas (2010) explored the systematic physical assessment through the lens of the philosophical paradigms of positivism and interpretivism. Lees and Hughes (2009), for their part, developed acute assessment skills of nurses through implementation of new assessment framework using (ABCDEG) airway, breathing, circulation, disability, exposure and glucose. Baid et al. (2009) described an initiative to support its district nurses in developing and using physical examination skills as part of patient assessment. Lacasse and Beck (2007) reviewed the principles of symptom cluster assessment, choosing appropriate symptom measures and methods to identify symptom clusters. Moreover, Lacasse and Beck (2007) explored the various challenges to symptom cluster assessment and considered approaches using a variety of measurement tools and
methodologies. Secrest et al. (2009) investigated physical assessment skills taught in undergraduate baccalaureate nursing programs and the physical assessment skills used by nurses. Moreover, Fotheringham (2010) reviewed the use and usefulness of the methodological strategy of triangulation in the assessment of skill in nursing curricula. The study by Fotheringham (2010) defined the concept of skill as a quality of the practitioner, questioned the reliability and validity of assessment tools for skill assessment and challenged the notion of triangulation in the assessment of skill assessment tool. Summarily, there is limited evidence in previous researches regarding the effect of “Student’s Review of System Assessment Guide” usage on the assessment skills of nurses.

$H_1$ – There is no significant difference on the Self-Reported Competence level on health assessment among nursing students before and after using the “Student’s Review of System Assessment Guide”

2.1.2 Self-Reported Competence

Competence in nursing practice is defined in a multitude of ways and its relationship to nursing practice is inherently understood by those within the nursing profession (Klein & Fowles, 2009). Woodruffe (1993), cited in Cowan et al. (2007a), defines competence as the aspect of a job that an individual could perform, while competency is the behavior underpinning such performance. Benner (1982), cited in Cowan et al. (2007a), defines nursing competency as the ability to perform a task with desirable outcomes under the varied circumstances of the real world. Jarvis (1995), cited in Jackson (2007), defines competence as possession and demonstration of knowledge, skills and abilities to meet the occupational standards of a profession. Nursing competence is described as intangible construct, not always conducive with direct observation and is often reflected by the characteristics required to act effectively in the nursing setting (Cowan et al., 2007b). Student perception of their own competence is a self-judgment of skills, knowledge and attitudes. Many methods of assessing or measuring competency in nursing exist, including establishing and maintaining a professional development portfolio, self-report measures, knowledge-based tests, assessment within a simulated nursing environment, and assessment through clinical “bedside” observation (Cashin, Chiarella, Waters & Potter, 2008). The National Council of State Boards of Nursing (NCSBN, 1996), cited in Klein and Fowles (2009) defines competence as “the application of knowledge and the interpersonal, decision-making and psychomotor skills expected for the practice role, within the context of public health, safety and welfare”. Assessment of undergraduate clinical performance provides a key level of quality control which ensures that standards of clinical practice are maintained in the healthcare professions as a whole (Joy & Nickless, 2008). Nurses are expected to be competent as they deliver care to patients in a safe manner (Klein & Fowles, 2009).

A great number of studies have been written about tools in assessing and improving competence in nursing assessment skills (Joy & Nickless, 2008; Norman et al., 2002; Walters & Adams, 2002; Cowan et al., 2007; Kubin & Foggs, 2010; Klein & Fowles, 2009; Whelan, 2006). Joy and Nickless (2008) presented an innovative approach used within a skills environment to assess summatively nursing students at the end of their first year and cultivated clinical competency through a process of self-appraisal and appreciation of evidence-based literature. Norman et al. (2002) reported findings from a study funded by the National Board for Nursing, Midwifery and Health Visiting for Scotland which tested selected nursing and midwifery clinical competence assessment tools for reliability and validity. Kubin and Foggs (2010) described an innovative themed program that incorporates communication, teamwork and fun into competency assessment. Moreover, Klein and Fowles (2009) measured the construct of competence as perceived by nursing students in different programs of study using Astin's (1991) input–environment–outputs (outcomes) model. Additionally, Walters and Adams (2002) focused on the use of professional role players to simulate user involvement in the assessment of competence. However, few research findings can be found regarding the effect of consistent, repeated usage of “Student’s Review of System Assessment Guide” on self-reported competence of nursing students’ health assessment skills.
H2 – There is no significant difference on the Self-Reported Confidence level on health assessment among nursing students before and after using the “Student’s Review of System Assessment Guide”

2.1.3 Self-Reported Confidence

Professional confidence as defined by Brown et al. (2003) involves feeling, knowing, believing, accepting, doing, looking, becoming and evolving. The development of professional confidence in students is an important role in nursing education (Brown, O’Mara, Hunsberger, Love, Black, Carpio, Crooks & Noesgaard, 2003). Students learn various fundamental skills in patient care delivery such as health assessment skills (Giddens, 2007; Giddens & Eddy, 2009). Clinical skills were viewed especially by students to be instrumental in developing confidence (Brown et al., 2003). Implementing these skills with self confidence is highly warranted by the nursing profession and general public (Brown et al., 2003). Moreover, Harrell, Kearl, Reed, Grigsby and Caudill (1993), cited in Bisiacchi (2010) acknowledged confidence in skills as a “subjective indicator” of clinical competence. Additionally, Ferguson (1996), cited in Brown et al. (2003) states that enhancement of student confidence is a desired outcome “because confident students are more likely to be more effective nurses and more innovative ones.” Thus, as stated by Brown et al. (2003), the nursing profession demands that nursing care be delivered with confidence, and that, likewise, nursing students should be encouraged to achieve a level of confidence in their professional role.

Students expressed concerns about a lack of confidence in performing clinical skills, yet acknowledging that these could be learned with practice (Brown et al., 2003). Likewise, Bambini, Washburn and Perkins (2009), cited in Halkett, McKay and Shaw (2010) averred that nursing students’ confidence levels improved when they had the opportunity to practice (in a simulated setting) assessing patients. Additionally, Charnley (1999), Evans (2001), Last and Fulbrook (2003), cited in Farrand, McMullan, Jowett and Humphreys (2006) state that students felt that they lack the confidence and experience to make clinical decisions and implement care effectively. Taking all into consideration, the current situation necessitates a need to develop a tool such as the “Student’s Review of System Assessment Guide” to direct the practice of the nursing students, and at the same time, develop their self-confidence.

Previous studies identified increased confidence as one of the factors leading to improved skills (Halkett, McKay & Shaw, 2010; Bisiacchi, 2010; Andrew, Salamonson & Halcomb, 2009; Tiffen, Graf & Corbridge, 2009; Brown et al., 2003; Cray, 2008; Vadlamudi, Adams, Hogan, Wu & Wahid, 2008). Bisiacchi (2010) surveyed students at early stages of a chiropractic college’s clinical curriculum for collecting data regarding perceived levels of confidence in their spinal analysis and adjusting (manipulation) skills, with considerably more than half of the respondents were confident enough with their skills to feel comfortable beginning the clinical experience. Halkett et al. (2010) tested whether the introduction of additional education on communication and history taking improved students’ confidence in communication skills and concluded that the use of communication skills workshops involving actor/patients is an effective method of assisting students to develop their communication and history taking skills. The aforementioned undertaking of Halkett et al. (2010) yielded that the use of communication skills workshops involving actor/patients is an effective method of assisting students to develop their communication and history taking skills. Andrew et al. (2009) examined the psychometric properties of the newly-developed nursing self-efficacy for mathematics, and nursing students’ confidence in medication calculations. The results of the latter concluded that the newly-developed “nurse self-efficacy for math” (NSE-Math) instrument demonstrated predictive validity with second year nursing students’ medication calculation examination results leading to improving their confidence and subsequent performance in calculating medication dosages.

Additionally, Tiffen et al. (2009) determined whether student confidence with heart and lung assessment would increase following a simulation experience. Said undertaking of Tiffen et al. (2009) found that a human patient simulation experience improved confidence in health assessment skills for a group of advanced practice nursing students. Brown et al. (2003) explored the meaning and influences on professional confidence as perceived by nursing students enrolled in a four year generic baccalaureate
nursing program. The findings of Brown et al. (2003), suggested that nursing students perceived the meaning of professional confidence as an internal process comprised of a set of components that evolves across the four years. Cray (2008) examined the theory behind the patient assessment and care, resulting in the identification of a problem requiring a nursing care and plan of care developed to meet the specified nursing aims. Roberts, Vignato, Moore and Madden (2009) addressed concerns of both skill and confidence attainment and deterioration. Although the correlation of self-confidence and improved skills have been widely acknowledged in literature, few research attempts mentioned the use of a “Review of System Assessment Guide” as having an effect on self-reported confidence of nursing students when it comes to assessment skills; hence, this argument.

\[ H_1 – There \ is \ no \ significant \ difference \ on \ the \ Directly-Observed \ Competence \ level \ on \ health assessment among nursing students before and after using the “Student’s Review of System Assessment Guide”. \]

2.1.4 Directly-Observed Competence

Self-report and report-of-others’ data are useful measures but should always be combined with other measurements to provide a complete description of the instructional impact of a simulation experience (Prion, 2008). Additionally, Prion (2008) stated that self-report and report-of-others’ data are indirect measurements of a variable because the technique does not require observation of the change, only that there is a testimony that a change has occurred. This study used as one of its evaluation tools, a tool with similar principles being used in objective structured clinical examination (OSCE). Rushforth (2007), Major (2005), and Mitchell et al. (2009) cited Harden, R.M., Stevenson, M., Downie, W.W. and Wilson, G.M. (1975), were the first to describe OSCE as a tool designed to assess the clinical skills and competence of final year medical students in which the components of competence are assessed in a well-planned or structured way with attention being paid to objectivity.

Objective Structured Clinical Examination (OSCE) is widely used in nursing and many other fields to evaluate and validate skill competence (Rushforth, 2007; Major, 2005; Jones, Pegram & Fordham-Clarke, 2010; Mitchell et al., 2009; Walters & Adams, 2002; Brosnan, Evans, Brosnan & Brown, 2006; Furlong, Fox, Lavin & Collins, 2005, Fotheringham, 2010). Kurz, Mahoney, Martin-Plank and Lidicker (2009) cited Ross et al. (1988) and Wales and Skillern (1997) mentioned that OSCE is a valid and reliable method of assessing clinical competence objectively in a variety of settings. Mitchell et al. (2009) concluded that OSCEs can be used most effectively in nurse undergraduate curricula to assess safe practice in terms of performance of psychomotor skills, as well as the declarative and schematic knowledge associated with their application. The study of Walters and Adams (2002) focused on the use of professional role players to simulate user involvement in the assessment of competence. Additionally, they described the development of objective checklists for each scenario within the OSCE, which contributed to the overall reliability of the marking process, as well as being a step-by-step guide to administering an OSCE. Fotheringham (2010) considered OSCEs as common means of assessing skill of health care professionals and in some situations have become an expected part of the curriculum. Nevertheless, few researches found specifically linking impact of consistent usage of a review of system assessment guide on directly-observed competence of nursing students on health assessment.

According to a study done by London (2008), assessment of clinical practice needs to help educate students in the art of developing the appropriate learning styles that enable them to evolve from knowing to ‘showing’ and ‘doing’. Additionally, assessment of clinical practice also needs to be established if students are able to ‘do’ consistently (London, 2008). Day-to-day performance is more meaningful in identifying a candidate’s fitness to practice than snapshot evaluation, which may catch students on ‘good’ or ‘bad’ days (London, 2008). Orland-Barak and Wilhele (2005) cited Kagan (1992) and Berliner (2001), described nursing students as novices entering the dynamic and multifaceted setting of clinical practice with high expectations to ‘see’ the application of theory in practice, to learn the ‘tools of the trade’, and to develop procedural routines of performance.
There is no significant difference on the Knowledge level on health assessment among nursing students before and after using the “Student’s Review of System Assessment Guide”.

2.1.5 Knowledge Level in Assessment

Understanding is crucial to enable students to synthesize their nursing knowledge, and critical thinking skills which are required in the application of nursing knowledge to real clinical settings (Leung, Mok & Wong, 2008). Moreover, assessments can be instrumental in directing desired learning by creating opportunities for nursing students to demonstrate their acquisition, understanding and application of knowledge, and their utilization of critical thinking (Leung et al., 2008). Effective nurse education can influence and lead to safe clinical intervention (Steen & Costello, 2008). Likewise, health assessment is usually taught concurrently or as a prerequisite for clinical experiences; there continues to be a strong emphasis on the physical examination component (Kelley, Kopac & Roselli, 2007).

Jarvis (1992) cited by Orland-Barak and Wilhele (2005), stated that in the process of learning in nursing practice, clinical facts eventually transform into clinical principles that guide action or explain change. In tune with knowledge schema development (Romiszowski 1981, cited in Orland-Barak and Wilhele, 2005), the passage from clinical facts to clinical principles can be described as the transformation of details into conceptualizations of heuristics, processes and procedures (Merrill 1983, cited in Orland-Barak & Wilhele, 2005), yielding a higher level of clinical thinking. It is also suggested that this passage can only be discerned in the context of learning in practice (Cox, 1997, cited in Orland-Barak and Wilhele, 2005). Student nurses’ stories revealed a predominance of clinical facts over clinical principles (Orland-Barak & Wilhele, 2005).

Similarly, a large number of past studies have positively correlated improved skills with increased knowledge (Park, Wharrad, Barker & Chapple, 2010; Aari, Ritmala-Castren, Leino-Kilpi & Suominen, 2004; Chan, Chien & Tso, 2009). Park et al. (2010) investigated preceptors’ perceptions of differences in the knowledge and skills displayed by staff from a three-year Diploma programme (DNs), and four-year pre-registration Master in Nursing degree (MNs), run by one School of Nursing. Aari et al. (2004) described the basic biological and physiological knowledge and skills of graduating nursing students in Finland against the requirement of their being able to practice safely and effectively in intensive care. The study of Chan et al. (2009) evaluated an education programme on suicide prevention for nurses working in general hospitals, and with emphasis on knowledge, attitude and competency. However, there are limited studies specifically linking usage of review of system assessment guide to change in knowledge of health assessment of the nursing students.

2.2. Theoretical Framework

2.2.1 Dreyfus Model of Skill Acquisition

The Dreyfus and Dreyfus (1980) model of skill acquisition identifies five levels of skill competency that students pass through: novice, competent, proficient, expert and master (Waxman & Telles, 2009). As the student becomes skilled, he depends less on abstract principles and more on concrete experience. Any skill-training procedure must be based on some model of skill acquisition, so that it can address, at each stage of training, the appropriate issues involved in facilitating advancement (Waxman & Telles, 2009). Additionally, reliance on everyday familiarity in problem solving is a pervasive and essential feature of human intelligent behavior, and repeated concrete experiences play a vital role in skill acquisition (Tomey & Alligood, 2002). Benner (1984), for her part, applied this model to nursing practice and identified the stages as novice, advanced beginner, competent, proficient and expert (Waxman & Telles, 2009). Moreover, Waxman and Telles (2009) described Benner’s 1984 “Novice to Expert” theory as follows: 1) Novice Stage: basic skills are taught, and teaching is task oriented, 2) Advanced Beginner: still needs to follow lists or directions but begins to ask simplistic questions, 3) Competent Stage: characterized by beginning to prioritize actions and an understanding of the impact of measures that contribute to long-
term goals for the patient, 4) **Proficiency Stage**: experience guides decisions, intuition develops, and the nurse begins to anticipate occurrences, 5) **Expert**: in Benner’s model can easily appraise the situation, make intuitive decisions and act accordingly. In the interpretation of the five levels of practice, Benner provided suggestions for matching skills level to nursing practice demands and for the development of each stage on the basis of experience (Tomey & Alligood, 2002).

Extensive studies on Benner’s “Novice-to-Expert” theory attempted to correlate skills, competence, assessment, and nursing practice evaluation (Waxman & Telles, 2009; Hanley & Higgins, 2005; Major, 2005; McCarthy & Murphy, 2008; Dyson, Hedgecock, Tomkins & Cooke, 2009; Cowan, Norman & Coopamah, 2007a; Gobet & Philippe, 2008). Waxman and Telles (2009) described the training of faculty instructors in using high-fidelity simulators (Bay Area Simulation Collaborative Model) using the Benner model of “Novice-to-Expert” as framework. Hanley and Higgins (2005), for their part, explored students’ perceptions and experiences of the clinical competency assessment tool, and used Benner’s (1984) levels of skill acquisition as a framework in measuring the students’ level of progression. Dyson, Hedgecock, Tomkins and Cooke (2009) surveyed the learning needs of clinically-based registered nurses within an acute care setting, using Benner’s model as basis. Major (2005) described the changes and different versions of the Objective Structured Clinical Examination (OSCE) since its conceptualization by Harden 1975, and used Benner’s taxonomy from Novice to Expert as basis. This research dealt with the effect of continuous and consistent usage of a review of system assessment tool in assessing nursing students’ skills. Hence, the aforementioned theory provides a strong basis for such interventional tool used in the study involving the novice nursing students’ health assessment competence and progress.

### 2.2.2 Miller’s Pyramid of Assessment of Clinical Competence

Miller’s pyramid (1990) encompasses the following: 'Knows' (knowledge) is at the lowest level of the pyramid followed by 'knows how' (competence), 'shows how' (performance), and 'does' (action). The “knows how” involves factual recall (multiple choice questions, essay type, oral tests), “shows how” involves context based assessment (multiple choice questions, essay type, oral tests), “shows how” consists of assessment of competence (simulations, OSCEs), and “does” consists of assessment of performance (observation in real setting) (Mitchell, Henderson, Groves, Dalton & Nulty, 2009).

Miller’s pyramid has been extensively used in the field of nursing and other disciplines in assessing and validating clinical skill assessment (Mitchell et al., 2009; Rushforth, 2007; Prion, 2008; Fletcher, 2008; van der Vleuten, Schuwirth, Scheele, Driessen, Hodges, Currie & Currie, 2010). Prion (2008) presented a framework in assessing the impact of clinical simulation experiences using Astin’s (1991) input-environment-outcome assessment model, and used the Miller pyramid as one of the bases for such tool. Rushforth (2007) presented a narrative review regarding some of the key issues affecting the utilization of objective structured clinical examination (OSCE) within the assessment of nursing students, and highlighted the Miller Pyramid (1990) as a valuable model in assessing the strengths and limitations of the assessment tool. Mitchell et al. (2009) explored the use of OSCE in the undergraduate nursing education using the Miller Pyramid as framework. The study done by van der Vleuten et al. (2010) presented lessons learned from experiences with assessment of professional competence, and used Miller’s pyramid as a convenient framework to organize this review of assessment. This research study utilized a “**Student’s Review of System Assessment Guide**” to effect change in health assessment competence, confidence and knowledge level of nursing students. Hence, the Miller Pyramid outlines the students’ progress in lieu of the usage of the “**Student’s Review of System Assessment Guide**”, and forms the basis of the instruments used in the study to evaluate the different variables involved.

### 2.2.3 Bandura’s Social Learning Theory

Bandura’s Social Learning Theory (1977), as cited by Bahn 2001, emphasized the importance of observational learning and modeling others by stating: ‘Learning would be exceedingly laborious, not to
mention hazardous, if people had to rely solely on the effects of their own actions to inform them of what to do. Additionally, Bandura’s Social Learning Theory posits that people learn from one another, via observation, imitation, and modeling (Gyurko, 2010). Furthermore, Bandura on 1977, as cited in Bahn 2001, stated that most human behavior is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action’. Moreover, Bandura 1997, as cited by Bahn (2001), stated that beliefs of collective powerlessness can create psychological barriers more debilitating than external impediments. This highlights the importance of nurse teachers promoting the concept of self-empowerment on pre-registered students, emphasizing the fact that they can acquire the skills and knowledge to enable them to critically analyze long-established practices, valuate their effectiveness and, constructively, be instruments in disseminating the findings (Bahn, 2001).

Bandura’s Social Learning Theory is extensively used in the field of nursing (Bahn, 2001; Gyurko, 2010; Spath, 2007; Andrew, Salamonson & Halcomb, 2009; Everett, Salamonson & Davidson, 2009). Bahn’s undertaking in 2001, looked at Social Learning Theory critically analyzing its principles, which are based on observational learning and modeling, and considering its value and application in the context of nurse education. Additionally, Bahn’s 2001 study considered the component processes that will determine the outcome of observed behavior, other than reinforcement, as identified by Bandura, namely: attention, retention, motor reproduction, and motivation. Bahn’s (2001) study concluded that cognitive theories are fundamental to enable problem solving and the ability to understand and apply principles in a variety of situations, and advantage of social learning theory in nurse education is its focus on the social aspect of learning appropriate to education, which takes place in a social environment, acknowledging the complexity of the environment and the person.

Moreover, Gyurko (2010) demonstrated a synthesis of Vroom's model with other educational theories and its application to nursing education, specifically the prediction of motivation to advance one's nursing education. The aforementioned study used Bandura’s Social Learning theory as one of its supporting theories. Gyurko (2010)’s undertaking concluded that that the simple use of Vroom's expectancy theory (VET) linked with other motivational conceptual frameworks can help to assess how people's goals and their prospect of getting them can be achieved. Spath (2007) reviewed the literature on studies addressing children facing a family member’s acute illness, critiqued research methods, described clinical outcomes, and made recommendations for future research efforts. Spath (2007) used, as an example in his review of literature, Bandura’s social cognitive theory as a theoretical basis in the HIV study done by Rotheram-Borus and colleagues (2004). Spath (2007) stated the following conclusions in his study: a) positive outcomes were reported for all of the interventional strategies used in the studies; b) reviewed studies generally lacked a theoretical framework and a control group, were generally composed of small convenience samples, and primarily used non-tested investigator instruments; c) they were diverse in terms of intervention length and intensity, and measured short-term outcomes related to participant program satisfaction, rather than participant cognitive and behavioral change paucity of interventional studies and lack of systematic empirical precision to evaluate intervention effectiveness necessitates future studies that are methodologically rigorous. Andrew et al. (2009) examined the psychometric properties, including predictive validity, of the newly-developed nursing self-efficacy for mathematics (NSE-Math) and used Bandura’s Social Learning Theory as basis for its theoretical framework. Andrew et al. (2009) arrived at the conclusion that nursing self-efficacy for mathematics (NSE-Math) is a valid measure of mathematics self-efficacy of second year nursing students.

This study involved using “Student’s Review of System Assessment Guide” by the nursing students to effect change in their self-reported competence, self-reported confidence, directly-observed competence and knowledge level in health assessment. In this undertaking, the nursing students in the experimental group were shown or demonstrated and instructed on how to properly apply the “Student’s Review of System Assessment Guide”. Furthermore, in this study, the nursing students were demonstrated and instructed on how to properly assess patients using the “Student’s Review of System Assessment Guide”. Thus, Bandura’s Social Learning Theory provided strong basis for the application of the “Student’s Review of System Assessment Guide” on the output performance of the nursing students when
it comes to their self-reported competence, self-reported confidence, directly-observed competence and knowledge level in health assessment.

2.3 Conceptual Paradigm

This undertaking involved five variables namely: “Review of System Assessment Guide”, Self-Reported Competence, Self-Reported Confidence, Directly-Observed Competence and Knowledge Level in Health Assessment. The “Review of System Assessment Guide”, being the exogenous variable in this study, was used by the nursing students in the experimental group in this undertaking to determine any change in their self-reported competence, self-reported confidence, directly-observed competence and knowledge level in health assessment. The control group, in this undertaking, did not use the interventional guide but rather, used the routine practice being used in the area.

![Figure 1. Research Paradigm](image)

2.4 Hypotheses

$H_1$ – There is no significant difference on the Self-Reported Competence level on health assessment among nursing students before and after using the “Student’s Review of System Assessment Guide”

$H_2$ – There is no significant difference on the Self-Reported Confidence level on health assessment among nursing students before and after using the “Student’s Review of System Assessment Guide”

$H_3$ – There is no significant difference on the Directly-Observed Competence level on health assessment among nursing students before and after using the “Student’s Review of System Assessment Guide”

$H_4$ – There is no significant difference on the Knowledge level on health assessment among nursing students before and after using the “Student’s Review of System Assessment Guide”
2.5 Research Questions

The following are the formulated research questions of the study. Research question one was presented solely for descriptive purposes regarding respondents’ demographic profile and is not a part of the variables presented in the study.

Research Question 1:

What is the demographic profile of the respondents in the study in terms of:

a. Gender?
b. Age?
c. Year Level?
d. Number of times assigned in Medical-Surgical units?

Research Question 2:

Is there a significant difference between the control and experimental groups’ pre-test results before the implementation of the “Student’s Review of System Assessment Guide” in terms of:

a. Self-Reported Competence?
b. Self-Reported Confidence?
c. Directly-Observed Competence?
d. Knowledge Level in Assessment?

Research Question 3:

Is there a significant difference between the control and experimental groups’ post-test results after the implementation of the “Student’s Review of System Assessment Guide” in terms of:

a. Self-Reported Competence?
b. Self-Reported Confidence?
c. Directly-Observed Competence?
d. Knowledge Level in Assessment?

Research Question 4:

Is there a significant difference between the pre-test and post-test results of the experimental group in terms of:

a. Self-Reported Competence?
b. Self-Reported Confidence?
c. Directly-Observed Competence?
d. Knowledge Level in Assessment?

Research Question 5:

Is there a significant difference between the pre-test and post-test results of the control group in terms of:

a. Self-Reported Competence?
b. Self-Reported Confidence?
c. Directly-Observed Competence?
d. Knowledge Level in Assessment?
3. Research Methods

3.1 Research Design

This study utilized a quasi-experimental design with pre- and post-testing. Quasi-experiments are research designs in which the researcher initiates an experimental treatment but some characteristics of a true experiment are lacking (LoBiondo-Wood & Haber, 2006). The properties of a true experiment involves: manipulation, control, randomization and validity (Tan, 2006). In this undertaking, the subjects were selected and assigned to control and experimental groups via simple random sampling. The experimental group was treated with the interventional guide and the control group was not given the interventional guide but instead, used the routine practice of patient assessment employed in the area. This study involved subjects from two different levels: junior and senior nursing students. Objective Structured Clinical Examination (OSCE) was used in this undertaking with two different raters observing one student. The overall intent of this investigation was to study the effect of using a thorough “Student’s Review of System Assessment Guide” on the nursing students’ self-reported competence, self-reported confidence and directly-observed competence in carrying out a thorough patient assessment. This study also analyzed data related to the outcome of such tool usage on the student’s knowledge level of assessment. Taking all these into consideration, the quantitative quasi-experiment was the most appropriate for this kind of undertaking.

3.2 Study Site

This research was undertaken in a comprehensive university in the Philippines and the first in the country to offer the basic collegiate baccalaureate programme in Nursing, which was initially offered in February 1946 and follows a 4-year competency based academic program (de Guzman, Pablo, Prieto, Purificacion, Que & Quia, 2008; de Guzman, Perlas, Palacios & Peralta, 2007). The aforementioned comprehensive university was chosen for this study because of its proximity to a teaching hospital where students can apply the interventional guide used in this undertaking, and it sufficed the aforementioned conflicts noted in current trends of patient assessment. Nursing students of this university have their related learning experiences on the university’s affiliated hospitals under the supervision and guidance of qualified clinical instructors (de Guzman et al., 2007).

3.3 Subjects

The target population was randomly selected using simple random sampling. The subjects’ inclusion criteria are as follows: a) junior and senior nursing students, b) students whose clinical assignments are in Medical-Surgical (MS) units in the hospital where they are affiliated. Likewise, the subjects’ exclusion criteria include the following: a) freshmen and sophomore nursing students, b) students whose clinical assignments are not Medical–Surgical (MS) units.

The junior and senior nursing students were selected for this undertaking as it is recognized that at the end of their two to three years of education, the students would all in probability have been exposed to a range of clinical conditions of patients in different clinical assignments. Even though the junior students had undergone a separate course in patient assessment entitled “Health Assessment” in their freshman year, the senior students also had health assessment integrated in their current curriculum. The students in the first and sophomore levels were not included in this study for they have not been exposed to various Medical-Surgical clinical conditions. Medical-Surgical unit was chosen as the area of application of the “Student’s Review of System Assessment Guide”, for it involves a wide variety of patient conditions and diagnosis as compared to other units. Both the experimental and control groups were composed of 24 students each. The experimental group has 12 students from senior level and 12 students from junior level. The control group was composed of 12 students from senior level and 12 students from junior level.
The sample size that is larger than 30 and less than 500 is appropriate for most research according to the criterion set by Roscoe’s rule of thumb (Sekaran, 2003 as cited in Omar & Ali, 2010). As aforementioned, the subjects in the study received basic training and knowledge in patient assessment in their lower years of nursing education as part of their curriculum.

3.4 Data Measures

This study utilized three kinds of instruments to gather data and information relevant to the questions raised. These instruments included the “Student’s Review of System Assessment Guide”, “Written Competence Evaluation Questionnaire” and Objective Structured Clinical examination (OSCE) with the use of “OSCE Examiner Marker Sheet: Review of System Assessment”.

All the instruments used in this investigation were developed by the researcher of this study. The bases of the development of these tools are discussed in detail under each tool heading in the following paragraphs. As in other researcher-made tools in past journal articles, the instruments specifically the “Self-Reported Competence”, “Self-Reported Confidence” and “OSCE Marker Sheet: Review of System Assessment” were tested for reliability to determine homogeneity by calculating the Cronbach’s Alpha Coefficient (Chien & Chan, 2010; LoBiondo-Woods & Haber, 2006). Accuracy and validity were established to determine content domain of all tools used (content validity and face validity) by four validators which included nursing faculty members who are experts in the field (lecturers of the said field and very much involved in patient assessment). The validators are described as follows: 1) a nurse educator for more than 30 years specializing in Medical-Surgical Nursing and a faculty member of College of Nursing and Graduate School, teaching Medical-Surgical Nursing, Nursing Research, Related Learning Experiences (RLE) in Medical-Surgical units, 2) a nurse-doctor specializing in nephrology for more than 10 years and a faculty of College of Nursing and Faculty of Medicine and Surgery, teaching the following courses: Medical–Surgical Nursing, Health Assessment, Anatomy-Physiology and Related Learning Experiences (RLE) in Medical-Surgical units, 3) a nurse-doctor specializing in Pulmonary Medicine for more than 20 years and is a faculty of College of Nursing and Faculty of Medicine and Surgery, teaching the following courses: Medical-Surgical Nursing, Anatomy-Physiology and Nursing Pharmacology, and 4) a nurse-doctor who is a faculty of College of Nursing for more than 10 years, teaching the following courses: Medical-Surgical Nursing, Nursing Pharmacology, Health Assessment, Pediatric Nursing and Related Learning Experiences (RLE) in both Medical-Surgical and Pediatric units.

3.4.1 Research Instruments

“Student’s Review of System Assessment Guide”. The tool is an adult checklist of different systems of the body. The “Student’s Review of System Assessment Guide”, as referred to in Appendix III, includes the following: Vital Signs, Positioning, Psychosocial, Neurology, Eyes and Ears, Respiratory, Cardiovascular, Gastrointestinal (GI), GenitoUrinary & Gynecologic (GYN), Musculoskeletal and Integumentary. The items included in the tool were composed of nursing assessment skills frequently and commonly used by nurses in the clinical practice (Giddens, 2007; Giddens & Eddy, 2009; Secrest et al., 2005). Additionally, skill items were also derived from current nursing textbooks, best practice guidelines and expert input from faculty members and nurse practitioners who are specialists on the field of assessment. Directions in using the tool involve answering or placing checkmarks on items that correspond to answers to a given statement. A comment section is placed after each system for writing additional information not found on the checklist and for elaborating system findings not explained on the checklist. The first section of the tool entails patient’s demographics: patient’s initials, chief complaint, diagnosis, gender and age. Functional assessment or the activity assistance level was included in the musculoskeletal system. A picture of a human body was placed at the last part of the tool for the student to use for placing additional data regarding integumentary system. This instrument was used by the nursing students in assessing the adult patients in the Medical-Surgical (MS) unit. The duration of time
spent in using the tool in an actual patient was taken into consideration by the researcher when constructing this said instrument, which is approximately 25-30 minutes on a new patient and approximately 20 minutes on a previously handled patient. Content and face validity of this guide were established prior to actual study using aforementioned field experts.

Pre- and Post-Evaluation Tools. This involved “Written Competence Evaluation Questionnaire” and a direct-observational competence examination through the use of “OSCE Examiner Marker Sheet: Review of System Assessment”. Both evaluation tools are described briefly as follows:

“Written Competence Evaluation Questionnaire”

The “Written Competence Evaluation Questionnaire”, as accomplished by the nursing students, included the following parts: Self-Reported Competence, Self-Reported Confidence, Review of System Assessment Test and the Respondent’s Robotfoto.

The first part, “Self-Reported Competence”, included statements regarding the student’s assessment of their competence in applying assessment skills. The 54 items included were based on the assessment skills used in the “Student’s Review of System Assessment Guide”. Each item in the questionnaire uses an 8-point scale where the two end points range from $8=\text{Agree to a much extent}$ to $1=\text{Disagree to a much extent}$. The 8-point scale was used to avoid neutrality and central tendency (Rubin & Badea, 2010; Chomeya, 2010) and provide variance in options to the respondents (Chomeya, 2010). The students rated their competence using the 8-point scale in which $8=\text{highest perception of competence}$ and $1=\text{lowest perception of competence}$. The Cronbach’s Alpha Coefficient of the “Self-Reported Competence” questionnaire yielded 0.972, which means that it is very reliable and because the alpha coefficient was above 0.70, connotes sufficient evidence for supporting the internal consistency of the instrument (LoBiondo-Wood & Haber, 2006).

The second part, “Self-Reported Confidence”, included statements concerning student’s perception of their confidence in applying their assessment competence. This part involved 54 items based on the assessment skills used in the “Student’s Review of System Assessment Guide”. The students rated their confidence in assessment skills using scale of 1 to 8 in which $8=\text{most confident}$ and $1=\text{least confident}$. The aforementioned rationale for the usage of an 8-point scale was also used on this part. The Cronbach’s Alpha Coefficient of the “Self-Reported Confidence” questionnaire yielded 0.960 which means that the said questionnaire is very reliable (LoBiondo-Wood & Haber, 2006).

The third part, “Review of System Assessment Test”, included multiple-choice type questions assessing the student’s knowledge about review of system assessment. The 35 items in the test were based on the items included in the “Student’s Review of System Assessment Guide”. The student was asked to choose the best possible answer from the given choices by writing the letter answer on the blanks provided before each item. Blue print of the allocation of number of test item under each system was done by this researcher prior to test item construction using Bloom’s Taxonomy of Cognitive Domain. A test blueprint created by the researcher shows the table of specifications regarding the allocation of test items of this examination. Majority of the test items falls under application, analysis, synthesis and evaluation. The test result used criterion reference grading system with 35 correct items = 100% as highest possible score and 23 correct items = 76% as passing score. The passing score of 23 correct items = 76% was used because 22 correct items = 73% basing on criterion reference calculation. Reliability of the “Review of System Assessment Test” was established to determine stability through Test-Retest reliability which yielded 0.896 ($\text{sig.2\text{-\text{tailed}=0.000}}$) correlation coefficient $r$ prior to actual study, which connotes no significant difference in the pre- and post-test results. The level of significance is at level $\leq0.01$ (LoBiondo-Wood & Haber, 2006). The “Review of System Assessment Test” was administered, 2 weeks apart under same conditions, to the same subjects which composed of 10 nursing students (5 students from junior level and another 5 students from senior level) who were not involved in the pilot study and actual study.
The fourth part of the written questionnaire is the “Respondent’s Robotfoto”. Kelchtermans and Ballet (2002), cited in de Guzman et al. (2007) and de Guzman et al., (2008) described Robotfoto, a Dutch term, as the cartographic sketch of the subject or the photo-like picture drawn by police from a witness’s description of a suspect in a criminal investigation; i.e. a preliminary identity sketch. The robotfoto made use of a check box and spaces to be filled in with specific information needed. This part of the questionnaire was necessary to indicate the baseline characteristics of respondents including age, gender and year level (de Guzman et al., 2007; de Guzman et al., 2008). The whole questionnaire was answered by the students for approximately 30 to 40 minutes.

Directly-Observed Competence through Objective Structured Clinical Examination (OSCE) -

The direct observational competence of the students was measured through the use of Objective Structured Clinical Examination (OSCE). The principles of the OSCE that were used in this study were based on previous studies (Rushforth, 2007; Major, 2005; Jones, Pegram & Fordham-Clarke, 2010; Mitchell at al., 2009; Walters & Adams, 2002; Brosnan, Evans, Brosnan & Brown, 2006; Furlong, Fox, Lavin & Collins, 2005; Fotheringham, 2010) with some modifications to accommodate the nature and the purpose of this undertaking. The Objective Structured Clinical Examination (OSCE) was used in this undertaking for the primary reason that not all possible patient case scenarios can be found on one patient. Furthermore, with the use of OSCE, the student can apply health assessment skills in a stress-free environment and mistakes or errors by the nursing students entail no serious repercussions on the simulated patient (Roberts, Vignato, Madden & Moore, 2009). In the study undertaken by Roberts et al. (2009), students reported improved performance and confidence with hands-on application in a non-threatening environment like in a simulated environment. The OSCE, in this undertaking, was composed of one station with two different assessors or raters rating one student. The student was asked to demonstrate assessment competence applied and practiced with the use of the “Student’s Review of System Assessment Guide” on a simulated patient. The simulated patient consisted of a licensed nurse, who was trained and instructed to present different chief complaints and conditions per student’s return demonstration. Other patient abnormalities were presented to the student to assess via a computer screen and audiovisual aids. The patient abnormalities, presented via computer screen and audiovisual aids, are all the same for all students. The same simulated patient was used all throughout the OSCE for the pre-and post-testing. The OSCE station was done in a room separate from the room where the other students, not done with the return demonstration, are waiting for their turn to be evaluated. The student being assessed is the only one allowed to enter inside the OSCE station. The students were instructed not to divulge what transpired during the OSCE to others especially to those involved in the study.

The assessors were composed of experienced faculty members and Clinical Instructors of Health Assessment and very much involved in patient assessment. The assessors involved were the following: a) a nurse faculty member with 16 years of clinical experience and 6 years of teaching nursing which included Medical-Surgical Nursing, Nursing Pharmacology, Health Assessment and Related Learning Experiences (RLE) in Medical-Surgical units, b) a nurse faculty member with 3 years of clinical experience and 8 years of teaching nursing including courses in Health Assessment, Skills Laboratory and Related Learning Experiences (RLE) in Medical-Surgical units, c) a nurse faculty member with 3 years of clinical experience and 4 years of teaching nursing including courses in Health Assessment, Skills Laboratory, Theoretical Foundation of Nursing and Related Learning Experiences in Medical-Surgical units, d) a nurse faculty member with 3 years of clinical experience and 4 years of teaching nursing including courses in Health Assessment, Skills Laboratory, Nursing Elective and Related Learning Experiences (RLE) in Medical-Surgical units, and e) a nurse faculty member with 2 years of clinical experience and 4 years of teaching nursing including courses in Health Assessment, Theoretical Foundation of Nursing and Related Learning Experiences (RLE) in Medical-Surgical units.

To prevent rater’s bias, halo effect and to ascertain consistency and reliability, Inter-rater reliability was established to determine equivalence at $p$-value of 0.257 using $r_{wg}$ index. The $p$-value is with significant difference at level $\leq 0.05$ (LoBiondo-Wood & Haber, 2006). The resultant inter-rater reliability
A $p$-value obtained indicated no significant difference in the rating of the student’s performance by two different raters in the OSCE. The $r_{wg}$ index (James, Demaree & Wolf, 1984, 1993) is a measure of agreement used when multiple raters evaluate a single target on a single item or dimension (Pasiz & Hurtz, 2009). Only 5-6 students were evaluated per day to prevent rater’s fatigue. To decrease Hawthorne effect or reactivity and experimenter effect, the student was frequently reminded that his/her output performance will not in any way affect his/her academic standing. Likewise, the assessors in the OSCE were instructed, oriented and properly trained regarding mechanics of the OSCE station and how to use the “Objective Structured Clinical Examination (OSCE) Examiner Marker Sheet: Review of System Assessment”. The assessors used an evaluation form called “OSCE Marker Sheet: Review of System Assessment” to evaluate the performance of the student.

The examination marker sheet was composed of two parts: Performance Rating and the Student’s Robotfoto. The first part, “Performance Rating”, included guidelines in evaluating the performance of the student’s review of system assessment competence. The “performance rating” part included 57 statements based on the items used in the “Student’s Review of System Assessment Guide”. The assessors rated the student’s performance by writing the number from the criterion rating under the section quality of performance. The numerical criterion rating was composed of: 5=Outstanding, 4=Exceeds Standards, 3=Meets Standards, 2=Does not meet Standards, 1=Unsatisfactory (see Appendix V). Each numerical rating has a sentence description to further guide the assessor (see Appendix V). The assessors’ comment, if there was any, regarding student’s performance was written under “comment section”. The second part of the “OSCE Marker Sheet: Review of System Assessment” was the Student’s Robotfoto. The assessors asked the student to fill this part. The Robotfoto used was the same format as the one used in the “Written Competence Evaluation Questionnaire”. Reliability was established to determine homogeneity of the “OSCE Marker Sheet: Review of System Assessment”, prior to actual study, with Cronbach’s Alpha Coefficient of 0.936 which means very reliable (LoBiondo-Woods & Haber, 2006). The OSCE station lasted approximately 25-50 minutes per student plus 5-10 minutes feedback by the assessors regarding the student’s performance. The student was instructed not to divulge any information to other students regarding what transpired during the OSCE demonstration and was requested to sign a form entitled, “Plagiarism Form”, regarding the latter (Walters & Adams, 2002). This was employed to maintain the integrity of the OSCE, and it was noted during the pilot study that students tend to comply with rules when asked to sign an agreement form.

Since the assessors were measuring clinical practice (the apogee of student development) they were to consider content (appropriately sampled), face (what we wanted students to be able to do, and that this appropriately reflected day-to-day clinical practice), predictive (delineating consistency of performance), construct (relating to values, qualities that students are expected to demonstrate in clinical practice) and concurrent (correlation of performance between one assessment and another in a similar area) if they were to ensure that they truly tested accurately (London, 2008). Additionally, this paper recognized the presence of latent variables which cannot be measured in its entirety of the phenomenon such as Hawthorne effect or reactivity. This involved distortion created when those who were being observed changed their behavior because they knew that they were being observed (LoBiondo-Wood & Haber, 2006). Hawthorne effect was minimized during the OSCE by frequently reminding students that their performance in the return demonstration will not affect their academic standing.

3.5 Data Collection Procedure

Prior to actual study, pilot test of all the tools was done using one Related Learning Experience (RLE) group composed of 12 nursing students not included in the actual study (six students from junior level and another six students from senior level). As soon as validity and reliability indices of all tools have been established, the actual study commenced. Instructions were given to the experimental group, including the Clinical Instructors overseeing the group, regarding contents and usage of the “Student’s Review of System Assessment Guide”. Feedback from the students and Clinical Instructors were entertained during this time for any clarifications and questions. The subjects were not informed if they are assigned to
control or experimental group. The control group was not given the new review of system assessment guide nor given instructions on how to use it, rather, the control group used the current routine patient assessment in place in their clinical area. The pre-evaluation tools, namely: “Written Competence Evaluation Questionnaire” and direct observational competence through use of OSCE, were administered to both control and experimental groups prior to usage application of the “Student’s Review of System Assessment Guide”. So as not to contaminate results of the post-test and to prevent reactive effect of the pre-test, no feedback was given to the subject groups regarding results or answers to the said tools after the pretest. After 2 weeks of using the “Student’s Review of System Assessment Guide” by the experimental group, post-test of the same aforementioned instruments were given to the selected groups (control and experimental). Feedbacks regarding examination results were given to both groups. The students were constantly reminded before, during and after the study that their output and results from the study will not affect their academic standing in the university.

3.6 Ethical Consideration

Prior to data gathering, a letter of permission, along with a sample questionnaire, was sent to the Dean of the College of Nursing for purposes of approval and endorsement (de Guzman et al., 2007). Informed consent was obtained from the participants to ensure their willingness to participate in the study. All students were fully informed about the purpose of the research and were assured of their anonymity and privacy. Issues relating to confidentiality, voluntary participation and the option of withdrawing from the process at any time without incurring sanctions were made clear to all subjects of the study. No incentives were used to encourage attendance (Halkett et al., 2010) of the subjects of the study. Cover letters ensuring students’ responses confidentiality and anonymity were provided without any influence on their academic standing in the program (Klein & Knowles, 2009).

3.7 Data Analysis

The data gathered in this study were treated using inferential statistical and descriptive statistics analysis. On one hand, Endacott and Botti (2005) define inferential statistics as means to test the probability that a sample mean is representative of the target population or to test experimental hypotheses. On the other hand, descriptive statistics include the principles for organizing and summarizing raw data (Endacott & Botti, 2005). The “Student’s Review of System Assessment Guide”, playing a vital role in this study, was subjected to psychometric procedures (reliability and validity testing). Likewise, the “Written Competence Evaluation Questionnaire” and “OSCE Marker Sheet: Review of System Assessment” were also checked in terms of its reliability and validity. Descriptive statistics was used in analyzing the respondents’ robotfoto. This study used $t$ test to measure the differences in the scores of control and experimental groups.

4. Results and Discussion

The central objective of this study was to determine the effect of using a “Student’s Review of System Assessment Guide” on the nursing students’ self-reported competence, self-reported confidence, directly-observed competence and knowledge level on health assessment.

The following are the results of the study as it answers the aforementioned research questions:

1) What is the demographic profile of the respondents in the study in terms of:
   a. Gender?
   b. Age?
   c. Year Level?
   d. Number of times assigned in Medical-Surgical units?
Table 1. Respondents' Robotfoto(n=48).

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<th>Experimental</th>
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</tr>
<tr>
<td>21</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>Year Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3</td>
<td>12</td>
<td>12</td>
<td>24</td>
<td>50%</td>
</tr>
<tr>
<td>Level 4</td>
<td>12</td>
<td>12</td>
<td>24</td>
<td>50%</td>
</tr>
<tr>
<td># of times assigned in Medical-Surgical (MS) Units</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 2</td>
<td>9</td>
<td>0</td>
<td>9</td>
<td>19%</td>
</tr>
<tr>
<td>3 to 4</td>
<td>3</td>
<td>12</td>
<td>15</td>
<td>31%</td>
</tr>
<tr>
<td>more than 5x</td>
<td>12</td>
<td>12</td>
<td>24</td>
<td>50%</td>
</tr>
</tbody>
</table>

As Table 1 implicates, out of the 48 respondents, there is a predominance of female nursing students (29 subjects or 61%) over their male counterparts (19 subjects or 39%); majority are of 19 years of age (21 subjects or 41%) and greater part of the respondents have been widely exposed to Medical-Surgical (MS) units (24 subjects or 50%). There is an equal distribution in number of students from both junior level (24 subjects or 50%) and senior level (24 subjects or 50%), which connotes homogeneity of respondents involved in the study.

2) Is there a significant difference between the control and experimental groups’ pre-test results before the implementation of the “Student’s Review of System Assessment Guide” in terms of:

a. Self-Reported Competence?
b. Self-Reported Confidence?
c. Directly-Observed Competence?
d. Knowledge Level in Assessment?

Table 2. Pre-Test Results of Control and Experimental Groups

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Control</th>
<th></th>
<th>Experimental</th>
<th></th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Reported Competence</td>
<td>5.93</td>
<td>0.89</td>
<td>6.15</td>
<td>0.77</td>
<td>0.37</td>
</tr>
<tr>
<td>Self-Reported Confidence</td>
<td>6.21</td>
<td>1.05</td>
<td>6.16</td>
<td>0.77</td>
<td>0.84</td>
</tr>
<tr>
<td>Directly-Observed Competence</td>
<td>2.35</td>
<td>0.32</td>
<td>2.15</td>
<td>0.25</td>
<td>0.02**</td>
</tr>
<tr>
<td>Knowledge Level Score</td>
<td>24.08</td>
<td>2.55</td>
<td>22.50</td>
<td>3.39</td>
<td>0.07</td>
</tr>
</tbody>
</table>

**significant @ Alpha ≤0.05
As indicated in Table 2, out of the 8-point Likert scale, the level of self-reported competence (control group’s mean score=5.93 and experimental group’s mean score=6.15) and self-reported confidence (control group’s mean score=6.21 and experimental group’s mean score=6.16) on both groups were noted to be more than the level of 5 out of 8, as noted in the Mean scores. Contrastingly, in the directly-observed competence (control group’s mean score=2.35 and experimental group’s mean score=2.15) on both groups yielded a criterion rating of 2 which means “does not meet standards”. Both control and experimental groups performed below 80% in the knowledge test with barely passing grade of 76% to 78% (control group’s mean score=24.08 with equivalent percentage of 78% and experimental group’s mean score=22.50 with equivalent percentage of 76%). On one hand, taking into consideration the \( p \)-value of the results in Table 2, there is no significant difference in pretest results of the control and experimental groups in terms of self-reported competence, self-reported confidence and knowledge level on health assessment. On the other hand, there is a significant difference in the pretest results of the control (Mean score=2.35) and experimental (Mean score=2.15) in terms of directly-observed competence. The criterion rating of 2 which means “does not meet standards”.

The nursing students’ beliefs of their self-reported competence and self-reported confidence in this study were more than the level of 5 out of 8 in an 8-point Likert scale because they were exposed to the concepts and theories of patient assessment in the classrooms during lecture hours, but not much with hands-on application of patient assessment in the clinical areas where they are assigned. This was substantiated in the output performance of the group in the return demonstration via OSCE. Furthermore, as shown in Table 2, nursing students’ self-perception of competence and confidence is more than 50% (5 out of 8) of the 8-point Likert scale, but their directly-observed competence performance is low (criterion 2 = “does not meet standards”).

According to Prion (2008), self-report and report-of-others data are indirect measurements of a variable because the technique does not require observation of the change, only that there is a testimony that a change has occurred, that is why it should always be combined with other measurements such an OSCE to provide a complete description of the instructional impact of a simulation experience. This runs true with the study of Girard (2008) which mentioned that review of system assessment is a basic skill taught and emphasized at every level of nursing, and is an essential component of education and a key element of the student experience (Joy & Nickless, 2008). Yet studies have shown that a relatively limited number of assessment techniques are actually applied in clinical practice, and rarely visible in every practice (Zambas, 2010; Giddens & Eddy, 2009). This was further confirmed by Girard’s study in 2008 wherein it was noted that nurses are not conducting complete patient assessments, due to either lack of time or lack of perceived need (Girard, 2008). Similarly, the invisibility of patient assessment in everyday nursing practice suggests a mismatch between the theory of physical assessment in nursing and its actual practice (Zambas, 2010). This lack of practice of thorough patient assessment by the nursing students is usually associated with decline or false perception of assessment competence (Giddens & Eddy, 2009) as shown in Table 2. Hence, this highly warranted an intervention such as a “Student’s Review of System Assessment Guide” that influenced nursing students’ assessment competence.

The pre-test knowledge level scores of both control and experimental groups of this study were below 80% mark (76% to 78%) but passed the 75% mark. The subjects’ practice of patient assessment, during the pretesting period of the study, were inconsistent in manner and frequency of application due to lack of standardized guide such as the “Student’s Review of System Assessment Guide”. Knowledge level tends to decline when not coupled with application (Madden, 2005). This study is similar to the national mail survey study of Glajchen and Bookbinder (2001), which involved assessment of pain-related knowledge and subjective competence of a random sample of home care nurses across the United States; wherein the latter group overestimated their competence but scored low on pain management knowledge. Understanding is crucial to enable students to synthesize their nursing knowledge, and critical thinking skills which are required in the application of nursing knowledge to real clinical settings (Leung, Mok & Wong, 2008). This study is with some similarities to what Joy and Nickless presented in 2008, wherein an innovative approach was used within a skills environment to assess summatively nursing students at the end of their first year and cultivated clinical competency through a process of self-appraisal and
appreciation of evidence-based literature. Similarly, this study is comparable with the study of Leung et al., (2008) which examined the impact of high quality multiple-choice tests on the learning approaches of nursing students enrolled in a mental health nursing course as measured by the revised two-factor study process questionnaire. Additionally, Madden (2005) investigated the extent to which Irish nursing students acquire and retain CPR cognitive knowledge and psychomotor skills following CPR training. However, there are few studies specifically linking usage of review of system assessment guide to change in knowledge of assessment competence among nursing students.

There is a significant difference in the pretest results in directly-observed competence \( (p\)-value 0.02) between the control and experimental groups. The control group \( (\text{Mean score}= 2.35) \) performed significantly higher than the experimental group \( (\text{Mean score}= 2.15) \) during the return demonstration (OSCE). Overall, the pretest performances of both the control and experimental groups in return demonstration (OSCE) have an equivalent criterion rating description as “does not meet standards”. The nursing students’ pretest OSCE performance reflected the major flaws of the current trends of patient assessment which are the following: a) no standardized tool in assessing the patient comprehensively during clinical duty (Giddens & Eddy, 2009), b) existing practice on patient review of system assessment is very limited in content, lacking in organization (Curtis, Murphy, Hoy & Lewis, 2009), c) not so thorough, and inconsistent in the manner and frequency of usage (Secrest et al., 2005; Giddens, 2007; Giddens & Eddy, 2009). Hence, the need for creating such guide was strongly warranted.

3) Is there a significant difference between the control and experimental groups’ post-test results after implementation of the “Student’s Review of System Assessment Guide” in terms of:
   a. Self-Reported Competence?
   b. Self-Reported Confidence?
   c. Directly-Observed Competence?
   d. Knowledge Level in Assessment?

<table>
<thead>
<tr>
<th>Table 3. Post-test Results of Control and Experimental Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Post-Test</strong></td>
</tr>
<tr>
<td><strong>Key Aspects</strong></td>
</tr>
<tr>
<td><strong>Control</strong></td>
</tr>
<tr>
<td>Self-Reported Competence</td>
</tr>
<tr>
<td>Self-Reported Confidence</td>
</tr>
<tr>
<td>Directly-Observed Competence</td>
</tr>
<tr>
<td>Knowledge Level Score</td>
</tr>
</tbody>
</table>

**significant @ Alpha \( \leq 0.05 \)**

Table 3 demonstrates the post-test results of the control and experimental groups after the implementation of the “Student’s Review of System Assessment Guide”. As Table 3 indicates, the mean scores of the experimental group increased in all four key aspects (self-reported competence, self-reported confidence, directly-observed competence and knowledge level in assessment); and the mean scores of the control group increased in two areas (self-reported competence and knowledge level) with noted decrease in self-reported confidence and directly-observed competence. Taking into consideration the \( p\)-values of the results in Table 3, there is a significant difference in the post-test results of control and experimental groups in all key aspects: self-reported competence \( (p\)-value 0.02), self-reported confidence
The Use of Review of System Assessment Guide on the Nursing Students’ …

The experimental group significantly increased in all key aspects: with the self reported part as over the level of 6 out of 8 in the 8-point Likert scale (self-reported competence: Mean score = 6.74; self-reported confidence: Mean score 6.95); directly-observed competence (Mean score = 4.12) with performance equivalence of “exceeds standard”; and the knowledge level score (Mean score = 26.71) with percentage equivalent of 84%. The experimental group had been daily exposed to the interventional usage of the “Student’s Review of System Assessment Guide” in carrying out patient assessments during their clinical duty. Because of the said guide, the student’s assessment skill developed and could be perfected. This is validated by B. F Skinner (1957) as cited in McEwen & Willis (2007), that one must practice that skill frequently and consistently in order to be developed and perfected. The “Student’s Review of System Assessment Guide” provided a thorough, organized, non-fragmented and consistent manner of doing patient assessment among nursing students. According to the study of Joy and Nickless (2008), repeated practice of clinical skills will lead to eventual mastery or internalization over period of time. The “Student’s Review of System Assessment Guide” as a daily interventional tool facilitated in the building and retaining of the students’ patient assessment competence. This is similar to what the undertakings of Murphy et al.,(2009) and Zambas (2010), that nurses act as surveillance systems to prevent patient complications that will lead to improved patient care delivery and positive patient outcomes (Murphy et al., 2009). The interventional guide strongly enhanced that “surveillance system” effect among nursing students.

Contrastingly, the control group’s self-reported competence (Mean score = 6.18) and Knowledge level score (Mean score = 24.38 with percentage equivalent of 78%) slightly increased but not significantly. The rationale for the slight increase was that the control group, even though did not have the interventional guide, was still being exposed to patient assessments in the clinical area. As Table 3 implicates, there is a noted decline in the control group’s self-reported confidence (Mean score = 6.04) and directly-observed competence (Mean score = 2.30 with equivalent rating of “does not meet standards”). The control group, not having the “Student’s Review of System Assessment Guide”, experienced an inconsistent- not-so-thorough patient assessment which greatly affects their actual performance of said competence. This study confirmed with the study of Roberts et al. in 2009, wherein he stated that if skills learned in the past are not consistently used, they tend to decline in the process. Furthermore, Roberts et al. (2009) affirmed that students must have opportunities to perform skills routinely in clinical settings as well as in the campus skill laboratory to avoid skill decline.

The control group having no daily organized guide to use such as the “Student’s Review of System Assessment Guide” predisposed the students to lose confidence in their assessment competence and performed poorly at the return demonstration (OSCE). The study of Brown et al. in 2003, affirmed that application of clinical skills were viewed especially by students to be instrumental in developing confidence. Implementing these skills with self-confidence is highly warranted by the nursing profession and general public (Brown et al., 2003). Taking all into consideration, the aforementioned four hypotheses (H₁ to H₄) in this undertaking are thereby rejected.

4) Is there a significant difference in the pre- and post-test results of the experimental group?

As shown in Table 4, the experimental group was noted to be with increased mean scores of all key aspects in the post-test results: self-reported competence (Mean score = 6.74), self-reported confidence (Mean score = 6.95), directly-observed competence (Mean 4.12 which means “exceeds standards”) and knowledge level score (Mean score = 26.71 with percentage equivalent of 84%). All the p-values of the results in Table 4 are below 0.05, which denotes that there is a significant difference in the pre-test and post-test results of the experimental group. This indicates that the daily interventional usage of “Student’s Review of System Assessment Guide” by the nursing students has a positive significant effect on their self-reported competence, self-reported confidence, directly-observed competence and knowledge level in assessment; thereby rejecting all aforementioned hypotheses (H₁ to H₄) in this study.
Table 4. Pre-Test and Post-Test Results of the Experimental Group.

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Experimental</td>
<td></td>
</tr>
<tr>
<td><strong>Self-Reported Competence</strong></td>
<td>Mean: 6.15</td>
<td>Mean: 6.74</td>
<td>0.02**</td>
</tr>
<tr>
<td></td>
<td>SD: 0.77</td>
<td>SD: 0.69</td>
<td></td>
</tr>
<tr>
<td><strong>Self-Reported Confidence</strong></td>
<td>Mean: 6.16</td>
<td>Mean: 6.95</td>
<td>0.00**</td>
</tr>
<tr>
<td></td>
<td>SD: 0.77</td>
<td>SD: 0.55</td>
<td></td>
</tr>
<tr>
<td><strong>Directly-Observed Competence</strong></td>
<td>Mean: 2.15</td>
<td>Mean: 4.12</td>
<td>0.00**</td>
</tr>
<tr>
<td></td>
<td>SD: 0.25</td>
<td>SD: 0.28</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge Level Score</strong></td>
<td>Mean: 22.5</td>
<td>Mean: 26.71</td>
<td>0.00**</td>
</tr>
<tr>
<td></td>
<td>SD: 3.39</td>
<td>SD: 2.03</td>
<td></td>
</tr>
</tbody>
</table>

**significant @ Alpha ≤ 0.05

Competence is the possession and demonstration of knowledge, skills and abilities to meet the occupational standards of a profession (Jarvis, 1995 cited in Jackson (2007). The “Student’s Review of System Assessment Guide” helped in the retention of possession of competence and refinement of demonstration of knowledge, skills and attitudes as indicated by the results in Table 4. Furthermore, this study affirmed with that of Leung et al. (2008) which state that assessments can be instrumental in directing desired learning by creating opportunities for nursing students to demonstrate their acquisition, understanding and application of knowledge, and their utilization of critical thinking. Similarly, Lees and Hughes (2009), for their part, developed acute assessment skills of nurses through implementation of new assessment framework using (ABCDEG) airway, breathing circulation, disability, exposure and glucose.

The “Student’s Review of System Assessment Guide” used in the study provided opportunities for nursing students to perform skills routinely in clinical settings, runs similar with that of Roberts et al. (2009) that emphasizes repetition of application of skills to avoid decline.

5) Is there a significant difference in the pre- and post-test results of the experimental group?

Table 5. Pre- and Post-Test Result of the Control Group

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self-Reported Competence</strong></td>
<td>Mean: 5.93</td>
<td>Mean: 6.18</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>SD: 0.89</td>
<td>SD: 0.82</td>
<td></td>
</tr>
<tr>
<td><strong>Self-Reported Confidence</strong></td>
<td>Mean: 6.09</td>
<td>Mean: 6.04</td>
<td>0.81</td>
</tr>
<tr>
<td></td>
<td>SD: 0.99</td>
<td>SD: 1.00</td>
<td></td>
</tr>
<tr>
<td><strong>Directly-Observed Competence</strong></td>
<td>Mean: 2.33</td>
<td>Mean: 2.30</td>
<td>0.41</td>
</tr>
<tr>
<td></td>
<td>SD: 0.32</td>
<td>SD: 0.18</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge Level Score</strong></td>
<td>Mean: 24.08</td>
<td>Mean: 24.38</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>SD: 2.55</td>
<td>SD: 2.76</td>
<td></td>
</tr>
</tbody>
</table>

**significant @ Alpha ≤ 0.05

As Table 5 implies, there is a slight insignificant increase in the post –test results of the self-reported competence (Mean score = 6.18) and knowledge level (Mean score = 24.38 which is equivalent to 78%). There is a noted decline in the post-test results of the self-reported confidence (Mean score = 6.04) and directly-observed competence (Mean score = 2.30 which has a criterion value of “does not
The Use of Review of System Assessment Guide on the Nursing Students’ ... meetstandards”). All the p-values of the results in Table 5 are above 0.05, which denotes that there is no significant difference in the pre-test and post-test results of the control group. The slight insignificant increase in the self-reported competence and knowledge level will be attributed to the fact that control group, despite not having the interventional guide, was still being exposed to patient assessment in the clinical area. Without the daily guidance of the interventional tool usage in their clinical practice, the nursing students experienced a decline in self-reported confidence and directly-observed competence. These findings confirmed with the study of Roberts et al. in 2009, wherein he stated that if skills learned in the past are not consistently used, they tend to decline in the process.

5. Conclusion

5.1 Summary of Findings

In this undertaking, as noted in Table 1, there is a predominance of female (29 subjects or 61%) over their male (19 subjects or 39%) counterparts; majority are 19 years of age (21 subjects or 41%), with an age range of 17 to 21 years old; twenty-four subjects (50%) are from junior level and the other twenty-four subjects (50%) are from senior level and majority had been assigned to Medical-Surgical (MS) units more than 5 times.

As illustrated in Table 2, there is no significant difference in the pre-testing results between the control and experimental groups before the implementation of the “Student’s Review of System Assessment Guide” in terms of self-reported competence, self-reported confidence and knowledge level in health assessment. But there is a significant difference in the directly-observed competence in the pre-testing results between the control and experimental groups. The control group yielded a higher pre-test mean score of 2.53 over the experimental group pre-test mean score of 2.15, in terms of directly-observed competence as noted in Table 2. Both control and experimental groups’ pre-test results in the directly-observed competence, yielded criterion rating of 2 which means “does not meet standards”.

There is a significant difference in the post-testing results between the control and experimental groups in terms of all the key variables involved in this study: self-reported competence, self-reported confidence, directly-observed competence and knowledge level in health assessment (see Table 3). In the post-test results, the experimental group is with significantly higher results compared to control group as noted in Table 3. The interventional guide “Student’s Review of System Assessment Guide” used solely by the experimental group played a key role in significantly increasing the aforementioned variables in the study.

There is significant difference in the pre- and post-test results of the experimental group in terms of self-reported competence, self-reported confidence, directly-observed competence and knowledge level in health assessment (see Table 4). There is no significant difference in the pre- and post-test results of the control group as noted in Table 5. The presence of the “Student’s Review of System Assessment Guide” in the experimental group and the its absence in the control group played a significant role in creating a significant difference in their post-test results.

5.2 Conclusion

This study aimed to determine the effect of using a “Student’s Review of System Assessment Guide” on the nursing student’s self-reported competence, self-reported confidence, directly-observed competence and knowledge level in health assessment. The findings resulted to the conclusion that the “Student’s Review of System Assessment Guide” increased the self-reported competence, self-confidence, directly-observed competence and knowledge level in assessment among nursing students. Roberts et al. (2009) stated that students must have opportunities to perform skills routinely in clinical settings as well as in the campus skill laboratory to avoid skill decline. Brown et al. in 2003 concluded that application of clinical skills was viewed especially by students to be instrumental in developing confidence. Leung et al. (2008)
stated that assessments can be instrumental in directing desired learning by creating opportunities for nursing students to demonstrate their acquisition, understanding and application of knowledge, and their utilization of critical thinking. The “Student’s Review of System Assessment Guide” provided daily opportunities for the nursing students to apply their nursing assessment competence in their clinical duty, and provided means to develop their self-confidence in patient assessment. Moreover, the “Student’s Review of System Assessment Guide” was effectual in the nursing students’ acquisition, understanding and application of their knowledge in assessment. Additionally, the interventional guide was valuable in the application and development of the nursing students’ analytical thinking in patient assessment.

5.3 Recommendations

5.3.1 Nursing Students

The “Student’s Review of System Assessment Guide” will properly guide and facilitate the nursing students in doing patient assessment in their clinical duty. Moreover, this researcher-made tool will smooth the progress of patient assessment by the nursing students. Having such a ready-made, user-friendly tool will direct systematically the nursing students on every hospital duty in assessing the patient accurately and completely, and not leave out any vital detail. The study contributes greatly to effect change in the way patient assessment is being done by the nursing students with the aid of the “Student’s Review of System Assessment Guide” in the nursing academe in the comprehensive university where the study was done. Nursing assessment skills will be developed, strengthened, integrated and improved through daily interventions or consistent repeated exposures (McEwen & Willis, 2007) to such interventions such as the “Student’s Review of System Assessment Guide”. This effective and safe practice of patient assessment, with the use such of interventional guide, will lead to a more improved holistic patient nursing care plan, doable and helpful patient health teachings and discharge planning, lesser patient sentinel events, and improved well developed overall patient health care delivery.

This study has successfully accounted for the phenomenon of how nursing students in a comprehensive university effectively improved their assessment competence with the use of a “Student’s Review of System Assessment Guide”. Although this study has limited duration of time for the intervention usage (2 weeks), it has effectively achieved its overall objective. The findings of this study will help in the improvement of current practice of patient assessment by the registered nurses which will lead also to advancement of overall health patient care and reduction in patient sentinel events.

5.3.2 Nursing Education

The “Student’s Review of System Assessment Guide”, being an effective tool, was adopted for usage or application by the comprehensive university where the study was done. It will be used as a standard assessment tool from sophomore to senior nursing students starting this school year 2011-2012. The interventional guide will help place greater importance on health assessment by the nursing students. The nursing students with the use of this guide will lead to their increased levels of self-reported competence, self-reported confidence, directly-observed competence and knowledge in health assessment.

A study similar to this undertaking can be conducted, but instead of using a simulated environment like an Objective Structured Clinical Examination for the return demonstration, the latter can be done at the bedside in the clinical area during Related Learning Experiences (RLE) to minimize the reactivity or Hawthorne effect.

This study further strengthened the theory of Dreyfus Skill Acquisition (1980) as applied by Patricia Benner in nursing (1984). The novice nursing student with the aid of the “Student’s Review of System Assessment Guide” made a positive significant effect in their assessment competence and knowledge level. This study further validated the theory of Miller’s Pyramid Assessment of Clinical Competence (1990). The different researcher-made tools (“Student’s Review of System Assessment Guide”, “Written
The Use of Review of System Assessment Guide on the Nursing Students’ Competence Evaluation Questionnaire’ and the “OSCE Marker Sheet: Review of System Assessment Marker Sheet” were necessary at the different levels of Miller’s Pyramid to validate the nursing student’s assessment of clinical competence. The findings of this undertaking confirmed Bandura’s Social Learning Theory wherein the nursing students, upon observing the proper way of doing patient health assessment with the aid of the “Student’s Review of System Assessment Guide”, led to significant increased in their self-reported competence, self-reported confidence, directly-observed competence and knowledge level on health assessment.

5.3.3 Nursing Research

The results of this undertaking can be used as evidenced-based practice rationale in effecting positive change in nursing students’ self-reported competence, self-reported confidence, directly-observed competence and knowledge level on health assessment. Furthermore, the validated tools in this study can be used in other fields of research related to competence, confidence and knowledge level. The findings of this study can be used as basis for opening of different avenues for other researchers involved in patient assessment to create more creative innovative assessment guides such as the “Student’s Review of System Assessment Guide”.

A study maybe conducted on practicing Registered Nurses (RNs) in the different hospital “area specializations” with a more detailed “area- specific” assessment guide such as in intensive care units (ICUs), emergency rooms (ERs), oncology, rehabilitation. Additionally, the impact of this guide on the benefits on the patient health status should be looked into.

An undertaking maybe carried out regarding the different phases involved in the creation of all the different researcher-made tools, with great emphasis of the construction and validation phases. Lastly, an undertaking maybe conducted, using the same data from this study, to determine the effect of the inclusion of the course ”Health Assessment” to the nursing assessment competence among nursing students.

5.3.4 Nursing Administration

The interventional guide can serve as a basis for the nursing administration in creating more “area specific” health assessment guide in different areas of nursing practice. The researcher of this undertaking recommend that the findings generated in this study be used as foundation in delivering improved overall patient health care delivery through usage of the “Student’s Review of System Assessment Guide”. Its implementation will be advantageous to both health care providers and patients to its efficacy in increasing nursing students self-reported competence, self-reported confidence, directly-observed competence and knowledge level in health assessment as evidenced in this undertaking.

References


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