



RESEARCH ARTICLE

PRACTICAL LEARNING AND THEORY-PRACTICE GAP AS PERCEIVED BY NURSING STUDENTS

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**Key words:**

Practical learning,  
Theory-practice gap,  
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ABSTRACT

**Background:** Practical learning is one of the important concerns that helps the awareness of nursing students' practice in a clinical setting and it is important to link theoretical knowledge to practical skills. Nursing educators and clinical preceptors must display the knowledge and skills required to bridge the theory practice-gap.

**Aim:** This study aimed to explore the perception of nursing students related to their practical learning and theory-practice gap.

**Methods: Research design:** An explorative-descriptive design used in this study to explore and describe the perception of nursing students to their practical learning and theory-practice gap. A convenient sample of 61 nursing students engaged in this study.

**Study tool:** The utilized questionnaire consisted of five sections: included the socio-demographic data; responses on practical learning; responses on learning strategies preferences; responses on assessment and responses on theory-practice gap. Results: Majority of nursing students (88.5%) indicated that they had inadequate supervision from clinical preceptors, insufficiently prepared simulation laboratory (100%) and only 50.8% of them had opportunity to practice skills during simulation sessions. Majority of respondents (67.2%) showed that summative assessment conducted at the end of the course, but they not prepared for examination (57.4%).The gap between the theoretical knowledge and the actual clinical procedures in the wards perceived by respondents (54.1%).

**Conclusion and Recommendations:** Nursing education must reexamine current methods to practical learning and seek methods to better prepare future nurses. Conducting continuing education for the faculty in principles of teaching and learning to enhance their teaching behavior and interpersonal skills.

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INTRODUCTION

Nursing graduates expected to provide compassionate, safe, and effective care in multiple settings while keeping abreast of rapid advances in healthcare (Benner *et al.*, 2010). Nurses are accountable for delivering high quality, evidence-based, patient-centered care to diverse populations of all ages (Institute of Medicine [IOM], 2010). Nursing care is determined by the way nurses use knowledge and skills to appreciate the uniqueness of the person they are caring for (Warelow *et al.*, 2008). Learning and training is a part of the bachelor degree in nursing, although unanswered questions remain as to how students learn practical skills (Strand *et al.*, 2009). Clinical learning is one of the important ways of enhancing nursing students' function in a clinical setting and affecting the development of nursing profession. In addition, clinical learning is one of the major parts of nursing in the world (Papp *et al.*, 2003; Andrews & Roberts, 2003).The ability to apply knowledge to practice is fundamental in creating competent and highly skilled practitioners. Nurses

bring a spectrum of experiences and qualities to training which include diverse learning styles (Frankel, 2009). The relationship between theory and clinical practice, both internationally and nationally, has always been a concern in nursing education. Numerous studies have pointed out the discrepancies between theory and practice (Ehrenberg & Häggblom, 2007). Nurses use a wide range of theoretical and practical knowledge in their work. In recent years, they have needed a considerable amount of new knowledge to provide the appropriate level of care for patients. Their knowledge may be acquired by different means - some is 'hidden' in practice, but from whatever source it originates, it should be evaluated, and hopefully that which is without merit will be discarded. The key to success in such activity is to question beliefs from all sources (Hall, 2005). The literature describes the influence of factors such as role models, the sequence in which theory and practice are organized, the learning environment as well as teaching and learning strategies, while inadequate theory and practice integration still occurs; this results in the theory-practice gap (Cathrina de Swardt *et al.*, 2012). Mabuda, *et al.* (2008) confirm the theory-practice gap as being a hindrance in student nurses' learning process. Inadequate theory-practice integration reflected in areas such as medication errors and

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incompetent nursing care and nursing-care decisions (Gregory *et al.*, 2009; Jones & Treiber, 2010). Role models, such as the professional nurse as practitioner, clinical facilitator, nurse educator, mentor and preceptor, may either support or impede the learning and practice of student nurses (Clark & Holmes, 2007; Maben *et al.* 2006; Sedgwick and Yonge, 2008).

It is important to reflect on the terms theory, practice, and the gap between the two terms. Theory as defined by the dictionaries is a set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena. The term practice defined as the act or the process of doing something; performance or action. In definition, these terms appear to be at odds with each other but when considered in terms of professional setup they have to enable the application of 'applying the theory into practice' (Ajani & Moez, 2011). The literature showing the theory-practice gap in nursing is one of the major challenges, which includes the discrepancy between teaching of theory and clinical practice, when theory should integrate into practice to reduce the gap in between. Many initiatives have been taken to bridge theory-practice gap; the changes in education are redefining the role of the nurse teachers (Goodfellow, 2004). Nurse educators and practitioners should embrace theory-based practice as well as evidence-based practice (McCrae, 2012). Nursing education encompasses specific skills of teaching and learning, and the imparting of knowledge, good judgment, and wisdom. Education strives to close the gap between knowledge and practice, for the ultimate purpose of increasing quality of care for the population served. If all the nurses placed with competence in theory and practice forming the either ends of the continuum most nurses are likely to find themselves at the either ends of the continuum. There is evidence to suggest that nurses who are proficient in theory are able to write the best care plans, discuss pathophysiology, treatment rational, etc (Ajani & Moez, 2011). Educators in professional or service-related fields desire their students not only to learn theory and understand why theories are important but also to learn how to apply the theoretical frameworks in practice. Perhaps the difficulty in making the transition from theory to practice arises, at least in part, from a failure of the teacher to integrate both theory and practice into the same course in the curriculum in ways that are relevant and meaningful to the student. Such integration helps students to associate the practical value of learning theoretical concepts more closely (Wrenn & Wrenn, 2009).

Most people would agree that an individual requires a certain degree of knowledge to practice competently as a nurse. There is also the assumption that this level of knowledge directly related to the ability to provide safe and effective care. The literature suggests that the cognitive mechanisms and skills required for superior and expert level performance acquired through deliberate practice (Whyte *et al.*, 2009). The theoretic nursing science courses experienced as having limited application to the students' clinical practice, leading to the creation of a gap between theory and practice (Andersson & Edberg, 2011). The students' perception related to their clinical learning experiences is an important aspect in studying clinical teaching. In the reviewed literature, students reported a variety

of goals and emotions related to their clinical instructional experiences (O'Connor's, 2006). The researcher support the literatures that main challenge to the nursing career is to find means of unificatig theory and practice in the delivery of nursing education and patient care. The nursing educators should constantly strive to enable students to link theory and practice effectively. In addition, they should evaluate the practical learning of nursing students and identify factors that help in occurrence of theory-practice gap in nursing education, for this reason, the researcher conducted this study to explore the nursing students' perception related to practical learning and the existence of theory practice gap in their education.

### **Aim of the study**

The aim of this study is to explore the perception of nursing students related to their practical learning and theory-practice gap.

### **Research design**

An explorative and descriptive design used in this study to explore and describe the perception of nursing students to their practical learning and theory-practice gap.

### **Sample**

In this study, the sample included 61 nursing students enrolled at College of Nursing, at Najran University included third year students (level five and level six) and fourth year students (level seven and level eight) as a convenience sample.

### **Inclusion criteria**

All nursing students who were willing to participate in the study and were doing third and fourth year because courses with clinical practice included in the curriculum of these academic years.

### **Exclusion criteria**

Nursing students who were doing first year and second year because courses with clinical practice were not included in the curriculum of the mentioned academic years.

### **Setting**

This study conducted in College of Nursing at Najran University.

### **Data collection**

In this study, data gathered by means of questionnaire from nursing students who enrolled at College of Nursing, Najran University and met the criteria for inclusion. The questionnaire that utilized in this study adapted from Nxumalo (2011). The questionnaire contained questions that focused on student responses toward practical learning and aspects inducing the theory practice gap. It divided into five sections as the following: Section (1): Responses on demographic profile which contained socio-demographic data of nursing students included their age, social status, previous nursing qualifications

and level of study. Section (2): Responses on practical learning which comprised information that reflecting perception of nursing students to practical learning, clinical practice experience, and availability of sufficient resources during clinical practice. It is a likert like scale with two options of yes (2 marks) or no (1 mark). Section (3): Responses on learning strategies preferences, which consisted of perception of nursing students toward their preferred learning strategies. It is a likert like scale with five options; all the time (4) marks, sometimes (3) marks, don't know (2) marks, least time (1) mark and never (0) mark. Section (4): Responses on assessment, which screened perception of nursing students toward formative and summative assessments as well as barriers, encountered during assessment. It is also a likert like scale with two options of yes (2 marks) or no (1 mark). Section (5): Responses on theory-practice gap which covered perception of nursing students to aspects inducing theory-practice gap as differences between the simulated skills and the actual clinical procedures in the wards, teaching strategies used by the nurse educator and discussion between nursing students and nursing educator and preceptor about the application of theoretical subjects on the practical training. It is a likert like scale with two options of yes (2 marks) or no (1 mark).

### Tool validity

The developed instrument tested for its content validity through five experts from medical surgical nursing department.

### The pilot study

A pilot study conducted in 10% of the study sample to test the clarity and validity of the study tool contents; and members involved in the pilot study excluded from the study sample.

### Administrative and ethical consideration

Ethical considerations that taken into account included human rights, that is, the right to self-determination, privacy, anonymity, confidentiality and fair treatment. Approval to conduct the study obtained from Dean of Health Colleges, Najran University, which served as an ethics approval body at the stage that the study conducted. Participation was voluntary and each participant signed an informed consent before participation in the study. Thereafter, the study potential participants approached and an explanation of the study nature, purpose and procedure provided to them. They further handed with the study instrument and a full explanation provided on how to fill the instrument.

### Statistical analysis

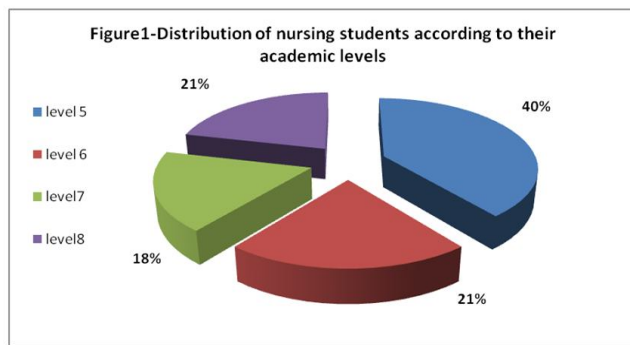
The collected data were organized, tabulated and statistically analyzed using SPSS software statistical computer package version 15. frequency, percentage, for difference between frequencies chi-square test were calculated. Cramer's V test calculated for correlation. Significance was adopted at  $p < 0.05$  for interpretation of results of tests of significance.

## RESULTS

Subjects included in this study were 61 nursing students that were single, had no previous nursing qualifications and from the same age group (20-24 years old). Figure (1) showed the distribution of nursing students according to their academic levels. Level (5) contained 24 student (40%), level (6) included 13 student (21%), level (7) involved 11 student (18%) and level (8) comprised 13 student (21%). Regarding responses on clinical experience, the majority of the students (98.4%) indicated that they have been oriented to the clinical practice prior to clinical placement by their clinical preceptors as well

Table 1. Responses of nursing students on clinical practice experience (n=61)

| Items  |          | yes  | no   | mean   | SD     | $\chi^2$ | sig      |
|--|----------|------|------|--------|--------|----------|----------|
| Orientation to the clinical practice prior to placement in the wards.          | No.      | 60   | 1    | 1.9836 | .12804 | 57.06557 | 4.22E-14 |
|  | Percent. | 98.4 | 1.6  |        |        |          |          |
| Orientation by senior professional nurse in the ward                           | No.      | 8    | 53   | 1.1311 | .34036 | 33.19672 | 8.33E-09 |
|  | Percent. | 13.1 | 86.9 |        |        |          |          |
| Orientation by clinical preceptor  | No.      | 59   | 2    | 1.9672 | .17956 | 53.2623  | 2.92E-13 |
|  | Percent. | 96.7 | 3.3  |        |        |          |          |
| Orientation by nursing educator  | No.      | 26   | 35   | 1.4262 | .49863 | 1.327869 | 0.249185 |
|  | Percent. | 42.6 | 57.4 |        |        |          |          |
| Availability of lists of planned activities on arrival in the clinical setting | No.      | 18   | 43   | 1.2951 | .45986 | 10.2459  | 0.00137  |
|  | Percent. | 29.5 | 70.5 |        |        |          |          |
| Supervised by clinical preceptor   | No.      | 47   | 14   | 1.7705 | .42401 | 17.85246 | 2.39E-05 |
|  | Percent. | 77   | 23   |        |        |          |          |
| Supervised by nursing educator   | No.      | 36   | 25   | 1.5902 | .49588 | 1.983607 | 0.159011 |
|  | Percent. | 59   | 41   |        |        |          |          |
| Supervised by a 'Senior professional nurses in the ward'                       | No.      | 38   | 23   | 1.6230 | .48867 | 3.688525 | 0.054788 |
|  | Percent. | 62.3 | 37.7 |        |        |          |          |
| Supervision occurs all the time  | No.      | 7    | 54   | 1.1148 | .32137 | 36.21311 | 1.77E-09 |
|  | Percent. | 11.5 | 88.5 |        |        |          |          |
| Clinical instruction helping me to master skills                               | No.      | 41   | 20   | 1.6721 | .47333 | 7.229508 | 0.007171 |
|  | Percent. | 67.2 | 32.8 |        |        |          |          |



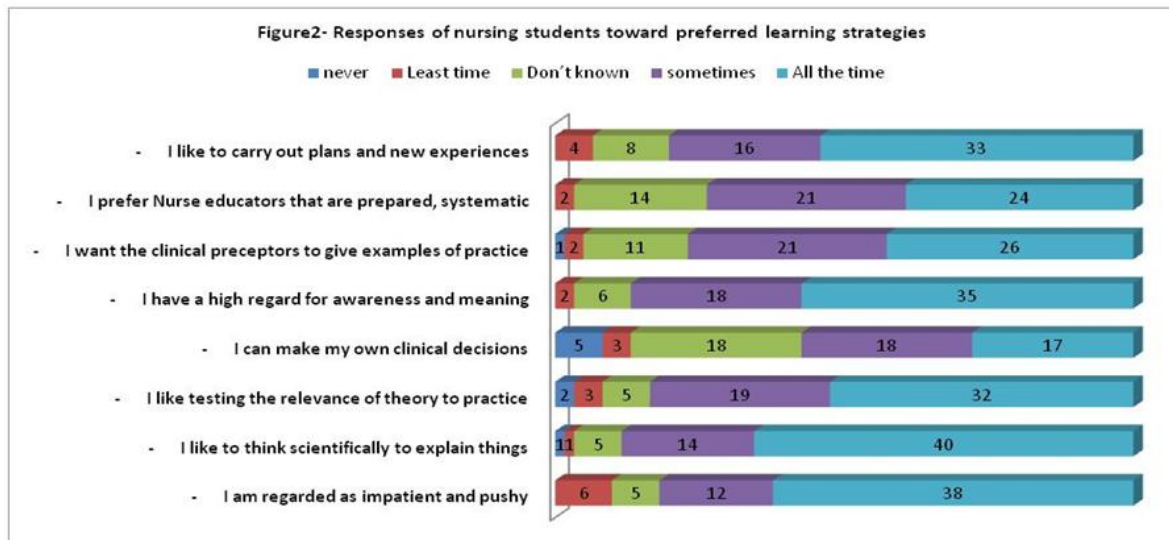
as supervised by them (77%). The bulk of respondents (70.5%) specified that there was no list of planned activities available on their arrival in the clinical setting and they had inadequate supervision from clinical preceptors (88.5%), while Clinical instruction helping them to master skills (67.25). Table (1). Responses of the nursing students on availability of resources during clinical practice showed deficiency of resources (95.1%) as well as insufficient provision of clinical preceptors and nursing educators. While all of them viewed the simulation laboratory as inadequately prepared. Table (2).

Table 2. Responses of nursing students on availability of resources during clinical practice (n=61)

| Items  |          | Yes  | no   | mean   | SD     | $\chi^2$ | sig      |
|--|----------|------|------|--------|--------|----------|----------|
| Availability of adequately prepared simulation laboratory                              | No.      | 0    | 61   | 2.0000 | .00000 |          |          |
|  | Percent. | 0    | 100  |        |        |          |          |
| Models for simulated learning experiences  | No.      | 29   | 32   | 1.4754 | .50354 | 0.147541 | 0.700896 |
|  | Percent. | 47.5 | 52.5 |        |        |          |          |
| Monitors   | No.      | 31   | 30   | 1.5082 | .50408 | 0.016393 | 0.89812  |
|  | Percent. | 50.8 | 49.2 |        |        |          |          |
| Availability of instruments or written procedures to follow during simulation sessions | No.      | 31   | 30   | 1.5082 | .50408 | 0.016393 | 0.89812  |
|  | Percent. | 57.4 | 42.6 |        |        |          |          |
| "Other" resources  | No.      | 3    | 58   | 1.0492 | .21804 | 49.59016 | 1.89E-12 |
|  | Percent. | 4.9  | 95.1 |        |        |          |          |
| Insufficient provision of nursing educators  | No.      | 44   | 17   | 1.7213 | .45207 | 11.95082 | 0.000546 |
|  | Percent. | 72.1 | 27.9 |        |        |          |          |
| Insufficient provision of clinical preceptors  | No.      | 23   | 38   | 1.3770 | .48867 | 3.688525 | 0.054788 |
|  | Percent. | 37.7 | 62.3 |        |        |          |          |
| Other" human resources were insufficient or absent.                                    | No.      | 33   | 28   | 1.5410 | .50245 | 0.409836 | 0.522053 |
|  | Percent. | 54.1 | 45.9 |        |        |          |          |

Table 3. Response of nursing students on practical learning (n=61)

| Items   |          | Yes  | No   | mean   | SD     | $\chi^2$ | sig      |
|---|----------|------|------|--------|--------|----------|----------|
| Simulation laboratory found at the nursing college                                | No.      | 59   | 2    | 1.9672 | .17956 | 53.2623  | 2.92E-13 |
|   | Percent. | 96.7 | 3.3  |        |        |          |          |
| Availability of access to the simulation laboratory                               | No.      | 54   | 7    | 1.8852 | .32137 | 36.21311 | 1.77E-09 |
|   | Percent. | 88.5 | 11.5 |        |        |          |          |
| Nurse educator  | No.      | 28   | 33   | 1.4590 | .50245 | 0.409836 | 0.522053 |
|   | Percent. | 45.9 | 54.1 |        |        |          |          |
| Clinical preceptor  | No.      | 43   | 18   | 1.7049 | .45986 | 10.2459  | 0.00137  |
|   | Percent. | 70.5 | 29.5 |        |        |          |          |
| <i>Teaching strategies used by clinical preceptors:</i>                           |          |      |      |        |        |          |          |
| Lectures  | No.      | 39   | 22   | 1.6393 | .48418 | 4.737705 | 0.029508 |
|   | Percent. | 63.9 | 36.1 |        |        |          |          |
| Group discussions   | No.      | 37   | 24   | 1.6066 | .49257 | 2.770492 | 0.096017 |
|   | Percent. | 60.7 | 39.3 |        |        |          |          |
| Demonstration   | No.      | 39   | 22   | 1.6393 | .48418 | 4.737705 | 0.029508 |
|   | Percent. | 63.9 | 36.1 |        |        |          |          |
| Demonstration of skills by the supervisor   | No.      | 44   | 17   | 1.7213 | .45207 | 11.95082 | 0.000546 |
|   | Percent. | 72.1 | 27.9 |        |        |          |          |
| Availability of opportunity to practice skills during simulation sessions         | No.      | 31   | 30   | 1.5082 | .50408 | 0.016393 | 0.89812  |
|   | Percent. | 50.8 | 49.2 |        |        |          |          |
| Availability of feedback on performance after the simulation sessions             | No.      | 41   | 20   | 1.6721 | .47333 | 7.229508 | 0.007171 |
|   | Percent. | 67.2 | 32.8 |        |        |          |          |
| I gained more confidence to perform a skill                                       | No.      | 24   | 37   | 1.3934 | .49257 | 2.770492 | 0.096017 |
|   | Percent. | 39.3 | 60.7 |        |        |          |          |
| Clinical accompaniment is beneficial to my professional growth                    | No.      | 23   | 38   | 1.3770 | .48867 | 3.688525 | 0.054788 |
|   | Percent. | 37.7 | 62.3 |        |        |          |          |
| By demonstrating skills, the supervisor took away my fear of performing it myself | No.      | 26   | 35   | 1.4262 | .49863 | 1.327869 | 0.249185 |
|   | Percent. | 42.6 | 57.4 |        |        |          |          |



**Table 4. Responses of nursing students on formative and summative assessment (n=61)**

| Items   |          | yes  | no   | mean   | SD     | $\chi^2$ | sig      |
|---|----------|------|------|--------|--------|----------|----------|
| The use of formative assessments                            | No.      | 57   | 4    | 1.9344 | .24959 | 46.04918 | 1.15E-11 |
|   | Percent. | 93.4 | 6.6  |        |        |          |          |
| In formative assessments, skills demonstrated on patients   | No.      | 48   | 13   | 1.7869 | .41291 | 20.08197 | 7.42E-06 |
|   | Percent. | 78.7 | 21.3 |        |        |          |          |
| In formative assessments, skills demonstrated by simulation | No.      | 37   | 24   | 1.6066 | .49257 | 2.770492 | 0.096017 |
|   | Percent. | 60.7 | 39.3 |        |        |          |          |
| It provided feedback on my progress                         | No.      | 31   | 30   | 1.5082 | .50408 | 0.016393 | 0.89812  |
|   | Percent. | 50.8 | 49.2 |        |        |          |          |
| It re-enforced my learning                                  | No.      | 36   | 25   | 1.5902 | .49588 | 1.983607 | 0.159011 |
|   | Percent. | 59   | 41   |        |        |          |          |
| I did not know what to expect                               | No.      | 32   | 29   | 1.5246 | .50354 | 0.147541 | 0.700896 |
|   | Percent. | 52.5 | 47.5 |        |        |          |          |
| I experienced a lot of stress during assessments            | No.      | 41   | 20   | 1.6721 | .47333 | 7.229508 | 0.007171 |
|   | Percent. | 67.2 | 32.8 |        |        |          |          |
| At the end of a course                                      | No.      | 41   | 20   | 1.6721 | .47333 | 7.229508 | 0.007171 |
|   | Percent. | 67.2 | 32.8 |        |        |          |          |
| To test my comprehension of the subject field               | No.      | 30   | 31   | 1.4918 | .50408 | 0.016393 | 0.89812  |
|   | Percent. | 49.2 | 50.8 |        |        |          |          |
| I was prepared for the examination                          | No.      | 26   | 35   | 1.4262 | .49863 | 1.327869 | 0.249185 |
|   | Percent. | 42.6 | 57.4 |        |        |          |          |
| My level of competence was assessed                         | No.      | 26   | 35   | 1.4262 | .49863 | 1.327869 | 0.249185 |
|   | Percent. | 42.6 | 57.4 |        |        |          |          |

Table (3) showed responses of nursing students on practical learning as the majority of them (96.7%) indicated that the simulation laboratory located at the Nursing College and there were an availability of access to it (88.5%), in addition, clinical preceptors accompany them to the simulation laboratory (70.5%) and the teaching strategies used were alternating between demonstrations, lectures and group discussion. The same table exhibited that most of respondents reported that demonstration of skills done by the supervisors as well as they obtained feedback after the simulation sessions.

On the other hand, only half of the nursing students had opportunity to practice skills during simulation sessions, in addition, they displayed insufficient benefits from clinical accompaniment. Results of the current study represented that the commonly preferred learning strategies by nursing students were: liking to think scientifically to explain things; regarding as impatient and pushy; having a high regard for awareness and meaning and liking to carry out plans and new experiences. Figure (2).

The majority of nursing students signified that formative assessment used in their clinical practice, while 78.7% and 60.7% of them indicated that in formative assessment skills demonstrated on patients and by simulation respectively. The majority of respondents (59%) were of the opinion that formative assessment re-enforced their learning while only half of them viewed it as providing feedback on their progress. Regarding barriers encountered during formative assessments, 67.2% of respondents were of the opinion that they experienced a lot of stress during assessments while 52.5% of them did not know what to expect. The nursing students indicated that summative assessment conducted at the end of the course (67.2%) to test their comprehension of the subject field (49.2%), while 57.4% of them opposed that they were prepared for the examination and their level of competence assessed by summative assessment. Table (4). The majority of nursing students (59%) reported that they encouraged by nursing educators to discuss aspects of clinical experience in class but in wide space intervals, while the commonly used theoretical teaching strategies were lectures. In addition, about half of respondents encouraged to compare their clinical experiences with what they learned in theory. Results showed that 52.5% of respondents encouraged by clinical preceptors to compare theoretical knowledge with what they do in practice and 50.8% of them encouraged applying the nursing process more comprehensively. The gap between the theoretical knowledge and the actual clinical procedures in the wards perceived commonly by nursing students (54.1%) as not all-theoretical knowledge can be applicable in practical skills (50.8%) and aseptic technique not done in the real practice setting (44.3%). Table (5).

Table (6) demonstrated that there was no statistical correlation between nursing students' academic levels and their responses on encouragement by nursing educator and clinical preceptor to discuss learning experiences of theoretical instruction and practical training as well as aspects learned through discussion and teaching strategies used by nursing educators. The same table indicated that there was no statistical correlation between nursing students' academic levels and the gap between the theoretical knowledge and the clinical procedures in the wards.

## DISCUSSION

### Responses on clinical experience

The majority of nursing students in this study indicated that they have been oriented to the clinical practice prior to clinical placement. These findings were consistent with the results in a study conducted by Nxumalo (2011) who found that student nurses are orientated prior to placement in the clinical areas. While the results of this study indicated that nursing students oriented to the clinical setting and supervised by their clinical preceptors. These results contradicted with the findings of Nxumalo (2011) who reported that many of the student nurses orientated by the senior professional nurses in the wards. In addition, Carson and Carnwell (2007) found that orientation was undertaken by nurse educators. Nursing students in this study noted that there were no lists of planned activities on arrival in the clinical setting. These results opposed the results of Nxumalo (2011) who revealed that most of the respondent given lists of planned activities. Respondents of this study

Table 5. Responses of nursing students on aspects inducing theory-practice gap (n=61)

| Items   | yes      | no   | mean | SD     | $\chi^2$ | sig      |          |
|---|----------|------|------|--------|----------|----------|----------|
| Encouragement to discuss aspects of practical experience in class with the nurse educator   | No.      | 36   | 25   | 1.5902 | .49588   | 1.983607 | 0.159011 |
|   | Percent. | 59   | 41   |        |          |          |          |
| Help me to search for connections to my previous experiences                                | No.      | 25   | 36   | 1.4098 | .49588   | 1.983607 | 0.159011 |
|   | Percent. | 41   | 59   |        |          |          |          |
| Compare my clinical experiences with what I learn in theory                                 | No.      | 31   | 30   | 1.5082 | .50408   | 0.016393 | 0.89812  |
|   | Percent. | 50.8 | 49.2 |        |          |          |          |
| Discussion of subjects by the nurse educator periodically                                   | No.      | 13   | 48   | 1.2131 | .41291   | 20.08197 | 7.42E-06 |
|   | Percent. | 21.3 | 78.7 |        |          |          |          |
| Demonstration   | No.      | 45   | 16   | 1.7377 | .44353   | 13.78689 | 0.000205 |
|   | Percent. | 73.8 | 26.2 |        |          |          |          |
| Group discussion  | No.      | 39   | 22   | 1.6393 | .48418   | 4.737705 | 0.029508 |
|   | Percent. | 63.9 | 36.1 |        |          |          |          |
| Lectures  | No.      | 52   | 9    | 1.8525 | .35759   | 30.31148 | 3.68E-08 |
|   | Percent. | 85.2 | 14.8 |        |          |          |          |
| Compare theoretical knowledge with what I do in practice                                    | No.      | 32   | 29   | 1.5246 | .50354   | 0.147541 | 0.700896 |
|   | Percent. | 52.5 | 47.5 |        |          |          |          |
| Clarify difficult concepts  | No.      | 30   | 31   | 1.4918 | .50408   | 0.016393 | 0.89812  |
|   | Percent. | 49.2 | 50.8 |        |          |          |          |
| Apply the nursing process more comprehensively  | No.      | 31   | 30   | 1.5082 | .50408   | 0.016393 | 0.89812  |
|   | Percent. | 50.8 | 49.2 |        |          |          |          |
| There is a gap between theoretical knowledge and practical skills                           | No.      | 33   | 28   | 1.5410 | .50245   | 0.409836 | 0.522053 |
|   | Percent. | 54.1 | 45.9 |        |          |          |          |
| Aseptic technique is maintained during simulation and not done in the real practice setting | No.      | 27   | 34   | 1.4426 | .50082   | 0.803279 | 0.370115 |
|   | Percent. | 44.3 | 55.7 |        |          |          |          |
| During simulation one uses imagination and in the real practical setting one becomes clear  | No.      | 27   | 34   | 1.4426 | .50082   | 0.803279 | 0.370115 |
|   | Percent. | 44.3 | 55.7 |        |          |          |          |
| Not all theoretical knowledge can be applied in practical skills                            | No.      | 31   | 30   | 1.5082 | .50408   | 0.016393 | 0.89812  |
|   | Percent. | 50.8 | 49.2 |        |          |          |          |

further reported that had inadequate supervision from clinical preceptors because of the shortage in the college staff and each preceptor supervised many students. Nxumalo (2011) supported this result, in his study; supervision reported as inadequate for guidance and support of student nurses.

were, these results related to shortage in number of nursing educators and clinical preceptors compared to the number of the students and the job tasks assigned to them. The same results recorded in the study of Nxumalo (2011). Findings of different researchers are not consistent with the above results

**Table 6. Correlations between students' levels and theory-practice gap (n=61)**

| Items   |     | 1  | 2  | 3 | 4  | Cramer's | Sig. |
|---|-----|----|----|---|----|----------|------|
| Encouragement to discuss aspects of practical experience in class with the nurse educator   | No  | 13 | 2  | 5 | 5  | .297     | .147 |
|   | yes | 11 | 11 | 6 | 8  |          |      |
| <i>Aspects learned through discussion with the nurse educator</i>                           |     |    |    |   |    |          |      |
| Help me to search for connections to my previous experiences                                | No  | 17 | 7  | 4 | 8  | .253     | .273 |
|   | yes | 7  | 6  | 7 | 5  |          |      |
| Compare my clinical experiences with what I learn in theory                                 | No  | 15 | 5  | 4 | 6  | .224     | .381 |
|   | yes | 9  | 8  | 7 | 7  |          |      |
| Discussion of subjects by the nurse educator periodically                                   | No  | 21 | 11 | 7 | 9  | .242     | .313 |
|   | yes | 3  | 2  | 4 | 4  |          |      |
| <i>Teaching strategies used by nursing educator in the theoretical parts</i>                |     |    |    |   |    |          |      |
| Demonstration   | No  | 6  | 0  | 4 | 6  | .360     | .048 |
|   | yes | 18 | 13 | 7 | 7  |          |      |
| Group discussion  | No  | 12 | 2  | 3 | 5  | .281     | .184 |
|   | yes | 12 | 11 | 8 | 8  |          |      |
| Lectures  | No  | 4  | 1  | 2 | 2  | .107     | .875 |
|   | yes | 20 | 12 | 9 | 11 |          |      |
| <i>Encouragement by clinical preceptor to talk about theoretical learning instruction</i>   |     |    |    |   |    |          |      |
| Compare theoretical knowledge with what I do in practice                                    | No  | 11 | 8  | 7 | 3  | .295     | .150 |
|   | yes | 13 | 5  | 4 | 10 |          |      |
| Clarify difficult concepts  | No  | 12 | 4  | 7 | 8  | .237     | .332 |
|   | yes | 12 | 9  | 4 | 5  |          |      |
| Apply the nursing process more comprehensively  | No  | 15 | 3  | 7 | 5  | .333     | .080 |
|   | yes | 9  | 10 | 4 | 8  |          |      |
| <i>The gap between the theoretical knowledge and the clinical procedures in the wards</i>   |     |    |    |   |    |          |      |
| There is a gap between theoretical knowledge and practical skills                           | No  | 12 | 4  | 4 | 8  | .223     | .385 |
|   | yes | 12 | 9  | 7 | 5  |          |      |
| Aseptic technique is maintained during simulation and not done in the real practice setting | No  | 13 | 8  | 7 | 6  | .126     | .810 |
|   | yes | 11 | 5  | 4 | 7  |          |      |
| During simulation one uses imagination and in the real practical setting one becomes clear  | No  | 15 | 7  | 4 | 8  | .195     | .510 |
|   | yes | 9  | 6  | 7 | 5  |          |      |
| Not all theoretical knowledge can be applied in practical skills                            | No  | 13 | 4  | 5 | 8  | .216     | .414 |
|   | yes | 11 | 9  | 6 | 5  |          |      |

### Responses on availability of resources

Most of nursing students in the current study were of the opinion that there were insufficient resources during placement in the clinical practice as models for simulated learning experiences, equipment and instruments. These results in line with Nxumalo (2011) that found the majority of the student nurses reported that there were insufficient resources during placement in the clinical practice. In this regard, Moeti *et al.* (2004) noted the importance of resources such as staff, supplies and equipment, which affected the development of the required competencies of nurses and lead to insufficient learning experiences. Results of this study indicated shortage in human resources, mainly clinical preceptors and nursing educators and clinical preceptors were more available than nursing educators

as the nurse educators and clinical preceptors reported as not available due to large number of student nurses to supervise, lack of time and overload of academic work (Carson and Carnwell 2007; Mabuda *et al.*, 2008; Murathi *et al.*, 2005). While Hennessy *et al.* (2006) asserted that adequate staff and equipment in training enhances the standard of clinical training. In their study, Dee and Stanley (2005) found student nurses prefer human resources and print resources to electronic resources in clinical practice however, they found that student nurses do not make full use of the human resources available to them. They suggest that talking to nurse educators and clinical preceptors can be the first step in highlighting these teachers awareness to interests in specific topics and subjects.

## Responses on practical learning

Based on the results of this study, most respondents indicated that the simulation laboratory located at the Nursing College and there were an availability of access to it. Nxumalo (2011) further confirmed this result. The majority of respondents in this study further indicated that they accompanied by clinical preceptor to the simulation laboratory. While in the study of Nxumalo (2011), the students accompanied by nurse educator alone or with the clinical preceptor. Morgan (2006) viewed the responsibility of accompaniment of student to the simulation laboratory nurses as both the nurse educators and clinical preceptors. Respondents of this study revealed that the teaching strategies used for practical learning were alternating between demonstrations, lectures and group discussion. These results were in agreement with a study conducted by Johnson and Mighten (2005) who found no statistically significant difference existed between the course-passing rates of students in using lectures versus discussion groups as strategies of teaching. The results provide strong support for utilization of both lecture notes and structured group discussion. While Nxumalo (2011) showed the majority of the student nurses indicated demonstration as the most used teaching strategies utilized by the clinical accompanist. Anderson and Kiger (2008) explained that demonstrations help maximize student nurses' confidence in relation to social learning theory. A confidence building approach includes use of clinical demonstrations on models in simulation laboratories and accompanied by feedback, praise, humor, and mindfulness training. Sharing stories and experiences, as well as allowing students to practice during demonstrations leads to learning in a safe environment.

Pertaining to the results of the current study, most of respondents reported that demonstration of skills done by their supervisors in the simulation laboratory. The same results reported by Nxumalo (2011). These findings were in line with Morgan (2006) who viewed that skills demonstration is vital before student nurses are given the opportunity to practice. Jefferies and Rizzolo (2006) stated that qualified faculties who have trained in simulation assume the educator role during the simulated learning experience. Clinical staff or staff specific to the patient simulation laboratory can play the educator role. In either case, it is important for the educator to have knowledge of the simulation and the material it covers. Hoffman *et al.* (2007) added that students participating in the simulated learning experience must come into the simulated clinical environment prepared for the simulation with a basic knowledge of the material and dressed appropriately for the clinical experience. In this study, nursing students revealed that they obtained feedback from their supervisors after the simulation sessions. These results supported by the findings of Nxumalo (2011). According to Hanson and Stenvig (2008), positive feedback can increase self-esteem whereas negative feedback can discourage and frustrate the students. The authors further state that giving of immediate and constructive written feedback was an important attribute. Results of this study further presented that only half of the nursing students had opportunity to practice skills during simulation sessions. Scully (2011) was of the opinion that, mastering a skill in the classroom can help facilitate closing the theory-practice gap when applying the same skill to the clinical setting. The need

for adequate practice time in a controlled setting in university laboratories is essential. These results were opposed to the findings of Nxumalo (2011), who revealed that the majority of student nurses had the opportunity to practice skills. Morgan (2006) is of opinion that if student nurses given the opportunity to practice the skills in the simulation laboratory, it will prepare them adequately for clinical placement. Lasater (2007) pointed out that experiential learning such as simulation allows the student to experience both the good and the bad aspects of working with patients as a nurse. The simulated experience is not just a flat experience but also rather one rich with dimension. The majority of the nursing students in this study viewed clinical accompaniment had minimal benefits for them. While these results were incompatible with the previous study of Nxumalo (2011), where the student nurses indicated that clinical accompaniment was beneficial towards professional growth. Sanford (2010) stated that simulation served as a bridge to bring the information from the classroom and the psychomotor skills learned together in a safe environment greatly benefitted them to adjust to the clinical setting. In a study by Lasater (2007), it was found that the reaction of the students was favorable to the scenarios presented during simulation and students felt the simulation was a superior method to just reading about a particular disease or condition.

## Responses on the preferred learning strategies

Regarding responses of the nursing students to the preferred learning strategies, results of the current study exhibited that the commonly preferred learning strategies by nursing students were: liking to think scientifically to explain things; regarding as impatient and pushy; having a high regard for awareness and meaning and liking to carry out plans and new experiences. The findings of Nxumalo (2011) showed that the majority of the student nurses reported seldom or never like to think scientifically to explain things. In addition they neither learned from experimenting nor had high regard for awareness and meaning. While many of the student nurses indicated that, others often regarded them as impatient and pushy most of the time.

## Responses on formative and summative assessments

Nursing students in the current study signified that formative assessment used in their clinical practice while skills demonstrated on patients more than by simulation. These results supported by Bartfay *et al.* (2004) and Nxumalo (2011) who noted that Many, of student nurses indicated skills demonstration on patients as the preferred strategies that used during formative assessment for clinical competencies. The majority of respondents were of the opinion that formative assessment re-enforced their learning while only half of them viewed it as providing feedback on their progress. These results disagreed by previous studies done by Quinn and Hughes (2007) and Nxumalo (2011) who viewed that the majority of the student nurses are of the opinion that formative assessments test their clinical and theoretical knowledge followed by provision of feedback on their progress. Regarding barriers encountered during formative assessments, the majority of respondents were of the opinion that they experienced a lot of stress during assessments while nearly half of them did not



know what to expect. On the other hand, the previous researches represented other barriers to formative assessments. Dolan (2003) and Murphy *et al.* (2008) revealed that student nurses viewed inconsistency in marking by nurse educators as frustrating in that it discourages students and have a negative impact on their performance. While Nxumalo (2011) reported that many of the student nurses felt that, some assessors were stricter than the others were and that assessment done only periodically. Respecting summative assessment, the majority of nursing students in this study noted that the summative assessment conducted at the end of the courses while less than half of them signified that it test their comprehension of the subject field. These results confirmed by Nxumalo (2011) as student nurses were of the opinion that summative assessments done at the end of the course to indicate whether they have passed or failed. Concerning barriers of the summative assessment, nursing student were of the opinion that it did not assessed their level of competence and they were not prepared for the examination. While Nxumalo (2011) viewed, many of the student nurses revealed that not providing feedback after summative assessment as a major barrier.

### Responses on aspects inducing theory-practice gap

Based on results of the current study, the majority of respondents reported that they encouraged by nursing educator to discuss aspects of practical experience in class during theoretical instruction but in a long intervals. These results contradicted the findings of Nxumalo (2011), as the majority of the student nurses indicated that they were encouraged to talk about the meaning of their clinical experiences, while they implied the nurse educators were in class about 3-4 periods per day. Regarding aspects that learned through the discussion with the nurse educators, half of respondents in this study specified that discussion assisted them to find a link between the theory and practical learning. In the study of Nxumalo (2011), the majority of student nurses directed that discussions of the meaning of clinical experiences during theoretical instructions helped them to link theory with practice. Nickitas (2008) mentioned that nurse educators must model moral courage for student nurses as well as ways to address problems directly rather than ignore them. "Sidestepping problems and broken systems can lead only to greater frustration and disappointment". Speaking and listening to students for the express purpose of enhancing relationships is valuable. Most of respondents in this study identified lectures as the most commonly used teaching strategy by nursing educators followed by demonstration and group discussion. While in the study of Nxumalo (2011), many of the student nurses indicated group discussion followed by lectures as a teaching strategies used by nurse educators. Flanagan and McCausland (2007) acknowledged that to think critically and function effectively in a complex and dynamic profession such as nursing, many learning skills are necessary for knowledge acquisition and information processing. Teaching around the cycle encompasses traditional lectures, active learning strategies, collaborative learning, and problem solving as a balanced and effective approach to teaching.

Concerning encouragement by clinical preceptors during clinical experience to talk about theoretical learning

experiences instruction; about half of the respondents in this study encouraged to compare theoretical knowledge with what they do in practice. In addition, they encouraged applying the nursing process more comprehensively. These results were inconsistent with the findings of Nxumalo (2011) who noted that the majority of student nurses indicated that the discussions helped them to compare theoretical knowledge with what they do in practice. McKenna *et al.* (2009) further explained a form of reflection is to encourage student nurses to talk about their experiences in clinical practice, offer a more integrated approach to classroom theory and its application in practice. More than half of the nursing students in the current study revealed that there was a gap between the theoretical knowledge and the actual clinical procedures in the wards. They specified that not all-theoretical knowledge can be applicable in practical skills and aseptic technique not done in the real practice setting. In the study of Shariff and Masoumi (2005), all the students clearly demonstrated that there is a gap between theory and practice. Morgan (2006) and Carson and Carnwell (2007) were of the opinion that there were perceived differences by student nurses pertaining to the reality of practice and idealism of theory. The researchers commented that the existence of theory-practice gap in nursing has been an issue of concern for many years as it shown to delay student learning. While the study of Essani & Ali (2013) viewed the gaps between knowledge and practice, as perceived by the participants, were categorized into five major categories: (1) medication (34%), (2) skills (28.3%), (3) knowledge (13.36%), (4) handling of code blue and intubations (12.6%), and (5) operating medical devices (11.58%). On the other hand, Nxumalo (2011) noted that the majority of student nurses indicated that there were no differences between the simulated skills and the actual clinical procedures in the ward. In addition, Hatlevik (2012) showed that students' perception of coherence between theory and practice during initial nursing education directly influenced by reflective skills and theoretical knowledge. The results also reveal that reflective skills have mediating effects and that practical skills have a fully mediated and theoretical knowledge a partially mediated influence on students' perception of coherence. Results of this study confirmed that that there was no statistical correlation between nursing students' academic levels and their responses to encouragement by nursing educator and clinical preceptor to discuss learning experiences of theoretical instruction and practical training as well as aspects learned through discussion and teaching strategies used by nursing educators. In addition, the results indicated that there was no statistical correlation between nursing students' academic levels and the gap between the theoretical knowledge and the clinical procedures in the wards. Based on own knowledge, there was no previous study search the correlation between nursing students' academic levels and aspects induced the theory practice gap.

### Limitation of the study

This study conducted in only one College of Nursing, and limited number of students (the actual total number of students), which means that the findings will have meaning for this specific context only. The study need to replicate in several Settings and huge number of nursing students to compare the results.

## Conclusion

The finding of this study and the literature support the need to rethink about the practical skills training in nursing education as well as emphasized the observed gap in knowledge and practice among nursing students. It is clear that all themes mentioned by the students play an important role in student learning and nursing education in general. There were some similarities between the results of this study with other reported studies and confirmed that some of the factors are universal in nursing education. Nursing students must be adequately prepared to carry out clinical skills competently and efficiently. Educators and clinical preceptors must display the knowledge and skills required to promote theory-practice integration, to enhance nursing students' education, which in turn will optimize high standards of patient care relevant to clinical practice. Clinical skills laboratories are essential to help students develop the collaborative skills required for a profession like nursing.

## Recommendations

The researcher followed suggestion by (Brasell & Vallance, 2002), who stated that a major challenge to the nursing profession is to find ways of merging theory and practice in the delivery of nursing education and patient care. One option for achieving this goal is for nurse educators to spend time in clinical practice; updating their clinical skills and re-experiencing the realities of practice. Criteria for assessing both written work and performance reality of the clinical environment. This may serve to reduce anxiety in students and help them work more effectively with the discrepancies (Landers, 2002). Due to the advancement in technology there is more need that change in nursing practice should initiate with change in the educational curriculum of the nursing programmes. Thus, the nursing faculty should initiate change in the curriculum with a focus on changing and improving nursing practice as well as having a liaison between the education and the practice areas in the educational setting, as well as the clinical setting. The development of an innovative curriculum allowing closer sequencing of theory and practice, evaluating the effect length of clinical placement has on knowledge and skill acquisition, improving collaboration between clinical areas and educational institutions and developing preceptors' lecturing roles. Faculties of nursing need to be concerned about solving student problems in education and clinical practice as well as supplying them with adequately prepared simulation laboratory and other needed resources. The findings support the need for Faculty of Nursing to plan nursing curriculum in a way that nursing students be involved actively in their education. For re-organizing training, it is suggested that the concept of 'sisters becoming teachers' have to be modified. Anyone and everyone cannot become a teacher. In order to provide exemplary education, students have to be taught by qualified and specialized educators. Hiring joint appointees and academicians working as clinical preceptors as well as educators. In addition, hiring senior students as preceptors in order to guide and educate junior students is one of the effective methods in students' clinical education. Communication between the nursing college and clinical area should be encouraged in order to address such concerns as those raised by the student nurses relating to the negative

attitude of ward staff and their lack of interest in teaching student nurses. The nursing college and clinical area should plan bilateral regular meetings. In-service training and workshops should be conducted for nurse educators and clinical preceptors in utilization of innovative teaching strategies that stimulate utilization of concrete experiences, reflective observation, abstract conceptualization and active participation to promote the desirable integration of theory and practice.

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