

CHAPTER 4

RESULTS AND INTERPRETATIONS

.1 INTRODUCTION

This chapter will report the results and interpretations of the present study. Fifteen research articles on reflective practice were analyzed by utilizing the meta-analysis method. Findings of the meta-analysis are directed at answering the study's three research questions namely:

- (1) What are the themes within the objectives and purposes in the research studies on reflective practice?
- (2) What are the research methodologies used in the research studies on reflective practice?
- (3) What are the findings reported in the research articles on reflective practice?

4.2 RESULTS OF THE STUDY

The results of the study are organized into four sections with the last three sections corresponding to the three research questions. The four sections are:

- 1) The number of research articles by year of publication.
- 2) Major themes of the fifteen research articles' objectives and purposes.
- 3) Research methodologies used in the fifteen research articles.
- 4) Findings of the fifteen research articles

4.2.1 Number of Research Articles by Year of Publication

Table 4.1 below lists the fifteen research articles by the year when they were published in the 1990s. These articles are the samples of the present meta-analysis study on reflective practice. It is to be noted here that these fifteen research articles represent the eligible studies which have met the inclusion criteria set for the current study.

Table 4.1
Distribution of the Fifteen Research Articles of the Meta-Analysis Study

Year	N	%
1994	1	6.70
1995	6	40.00
1996	4	26.60
1997	3	20.00
1998	1	6.70
Total	15	100

Results in Table 4.1 shows the year 1995 as having the most number of research articles published. 40% (N=6) of the fifteen eligible articles sampled in the study was published in that year. In 1996, a total of 4 articles was published, representing 26.6% of the total articles. The results show a total of 66.6% (N=10) for the combined years of 1995 and 1996. In 1997, there were three research articles while there was only one article each in 1994 and 1998.

4.2.2 Themes of the Objectives and Purposes of the Fifteen Research Articles

This section will present the results of the thematic analysis of the fifteen research articles' objectives and purposes as shown in Table 4.2 below. The results will provide answers to the study's first research question :- What are the themes within the objectives and purposes of the research studies on reflective practice?

Table 4.2

Objectives and Purposes: Categories of Themes

No.	Author/Year	Objectives and Purposes	Themes
1	Snowball et al 1994	To explore the role of the dissertation supervisor. To examine the potential of using reflection as a tool for learning and for enhancing professional educational practice.	Using reflection as a learning tool
2	Davies 1995	To examine what effect reflection has on clinical practice experience on students as learners and care givers.	Effects of reflective practice on clinical experience.
3	Burnard 1995	To explore nurse teachers' perceptions of reflection in nurse education and practice.	Perceptions of reflection in education and practice.
4	Shields 1995	To investigate students' perceptions of reflection as a mean of learning.	Perceptions of reflection as a learning tool.
5	Glen et al 1995	To explore the use of reflective tutorials as a strategy to assess teaching practice.	Using reflective tutorials to assess teaching practice

6	Wong et al, (1995)	To develop a procedure for assessing the level of reflection from reflective papers.	Assessing reflection level from reflective diaries.
7	Richardson, (1995)	To analyze reflective diaries for levels of reflectivity. To examine the use of reflective diary in reflection and learning. To demonstrate reflection skills. To use findings to improve teaching.	Assessing levels of reflection and learning from reflective diary. Demonstrating reflection skills.
8	Stoddart, (1995)	To explore students' views on reflective group sessions.	Perceptions of reflective group
9	Durgahee, (1996)	To assess nurses' perceptions on: - the value of reflective processes. - the impact of reflective practice on patient care. - their personal and professional development.	Perceptions of value and effect of reflective practice.
10	Mountford and Rogers, (1996)	To investigate the potential effect of formal reflection in- and – on assessment in helping the students' education and professional practice.	Effects of reflection on education and practice
11	Getliffe, (1996)	To examine students' and teachers' perceptions of reflection as a teaching and leaning tool. To identify students' and teachers' preparation required for reflection. To identify characteristics of reflective sessions. To examine level of reflection.	Perceptions of reflection as a learning tool. Identifying skills for reflection. Assessing level of reflection.
12	Taylor, (1997)	Exploring the use of reflective processes to examine work practices.	Effects of reflection

12 con't	Taylor, (1997)	To investigate the reflective processes of midwives in examining their practice.	on work practices.
13	Hallett, (1997)	To explore students' and supervisors' views on learning through reflection in the community.	Perceptions of Reflection as a learning tool
14	Wong et al, (1997)	To explore how teaching and learning strategies could be arranged to maximize reflective learning.	Strategies to maximize reflective learning.
15	Malik, (1998)	To explore models of faculty practice that encourage reflective practice in educators. To review curriculum models that encourage reflective practice in nursing students. To examine models of clinical supervision that are reflective-practice based.	Examining educational models which promote reflective practice.

Analysis of themes from table 4.2 shows three major and two minor categories. The three major themes are: 1) effects of reflection, 2) learning tool, and 3) assessing reflection while the two minor themes are: 1) skills and preparation and 2) reflection models. These five categories of themes are presented below in Table 4.3:

Table 4.3
Major and Minor Themes of Objectives and Purposes

Categories of Themes	No. of Research Articles	%
Effects of reflection	6	40.00
Learning tool	4	26.60
Assessing Reflection	3	20.00
Strategies of reflection	1	6.70
Reflection models	1	6.70
Total	15	100

As shown in Table 4.3, 40% (N=6) of the research articles' objectives and purposes focus on investigating the effects of reflection on various nursing aspects like clinical practices (Davies, 1995; Taylor, 1996), education and practice (Burnard, 1995; Mountford & Rogers, 1996), reflective group (Stoddart, 1996), and patient care (Durgahee, 1996). Another 26.60% (N=4) of objectives and purposes are surveying the nurses' views on the use of reflection as a learning tool (Snowball, 1994; Shields, 1995; Getliffe, 1996; Hallett, 1997). With regard to the major theme of assessing reflection, three articles, representing 20.00% of the objectives and purposes, attempted to assess reflection from teaching practices (Glen et al, 1995) and reflective diaries (Wong et al, 1995; Richardson, 1995). The remaining two minor themes include one article each; focusing on strategies of reflection (Wong et al, 1997) and reflection models (Malik, 1998).

4.2.3 Research Methodologies of the Fifteen Research Articles

In this section, results of the methodologies from the fifteen research articles will be presented. The findings here will provide answers to the second research question: what are the research methodologies used in the research studies on reflective practice? The three sub-sections on the research methodologies consist of the samples, data collection methods and data analysis methods.

4.2.3.1 Samples

Table 4.3 below shows the distribution of samples (research participants) from the research articles of this meta-analysis. However, it should be noted here that out of the fifteen research articles, two articles did not provide information on the number of samples in their studies. The two articles belong to Mountford and Rogers (1996) and Malik (1998).

Table 4.4
Distribution of Samples

Sample	N	%
(1) Pre-registration students		
(a) Undergraduate program	42	11.7
(b) Diploma program	30	8.3
(2) Post-registration students		
(a) Degree program	80	22.2
(b) Post-basic diploma	175	48.6
(3) Nurse educators	19	5.3
(4) Nurse supervisors	14	3.9
Total	360	100

As shown in Table 4.4, there are four categories of samples and they are: 1) pre-registration students, 2) post-registration students, 3) nurse educators, and 4) nurse supervisors. Findings in Table 4.4 show post-registration student nurses as the major group of samples in the fifteen research articles. 70.8% (N=255) of the research participants are post-registration students pursuing higher studies by undertaking either a degree study (22.2%) or a post-basic diploma course (48.6%). Post-registration students refer to qualified nurses who have already obtained their licenses to enable them to practice as professional nurses.

In the sample on pre-registration nurses, Table 4.4 shows a percentage of 20% (N=72) which is one third less than the post-registration group. This group of pre-registration nurses are students undergoing basic training by undertaking a undergraduate degree program or a diploma program.

The remaining 9.2% of the total sample comes from the categories of nurse educators (N=19) and supervisors (N=14). Together, they make up the smallest group of research participants within the fifteen research articles. Nurse educators here refer to the student's classroom teachers or clinical teachers while nurse supervisors are nursing sisters in charge of a ward or a medical unit.

4.2.3.2 Data Collection Methods and Data Analysis Methods

Results of both the data collection methods and data analysis methods are presented together in Table 4.5 below. The authors' names and the year of publication are also included in the table.

Table 4.5
Distribution of Methods of Data collection and Data Analysis

No.	Author/Year	Data Collection	Data Analysis
1	Snowball et al, (1994)	1. Reflective written accounts of meetings 2. Taped recordings of group reflection	Content analysis
2	Davies, (1995)	Interviews	Content analysis
3	Burnard, (1995)	Interviews	Content analysis
4	Shields, (1995)	Interviews	Content analysis
5	Glen et al, (1995)	1. Taped recordings of tutorials 2. Reflective journals	Content analysis
6	Wong et al, (1995)	Reflective journals	Content analysis
7	Richardson, (1995)	1. Reflective diaries 2. Interviews	Content analysis
8	Stoddart, (1996)	Interviews	Content analysis
9	Durgahee, (1996)	1. Questionnaires 2. Interviews	Content analysis

Mountfort & Rogers, (1996)	1. Reflective sheets 2. Reflective group discussions	Content analysis
Getliffe, (1996)	1. Questionnaires 2. Reflective diaries	Content analysis
Taylor, (1997)	1. Reflective logs 2. Taped recordings of teleconferencing	Content analysis
Halett, (1997)	Interviews	Content analysis
Wong et al, (1997)	1. Observation notes 2. Interviews 3. Reflective journals	Content analysis
Malik, (1998)	1. Observation notes 2. Interviews	Content analysis

Table 4.5 above shows a total of seven methods of data collection. They are: interviews, 2) reflective diaries which include reflective written accounts of meetings, reflective journals, reflective logs and reflective sheets, 3) questionnaires, observation notes, 5) reflective group discussion, 6) tutorial recording, and 7) teleconferencing recording. The most frequently used method of data collection was the interview method which was used in ten out of the fifteen research articles in this meta-analysis study (articles numbered as 1, 2, 3, 4, 7, 8, 9, 13, 14 & 15 in Table 4.5). Reflective diaries were used in seven of the research studies and this method of data collection was the next most frequently used method (articles numbered as 5, 6, 10, 11, 12, 14 in Table 4.5).

Except for the methods of interviews and reflective diaries used to collect data, the other five methods are rarely used. As shown in Table 4.5 questionnaires were used as the data collection methods in two studies by Durgahee, (1996) and Getliffe (1996). Similarly, observation notes were also used in two studies by Wong et al (1997) and Malik (1998) while studies by Snowball et al (1994) and Mountford and Rogers (1996) used reflective group discussions to collect data. The remaining methods of collecting data via taped recordings of tutorial and teleconferencing were utilized in only one research each (Glen et al, 1995; Taylor, 1997 respectively).

In addition, findings on the methods of data collection revealed the trend of employing more than one method of data collection. Findings in Table 4.5 show a total of eight research studies utilizing two methods to collect data (articles numbered as 1, 5, 7, 9, 10, 11, 12, 15) with one study having a combination of three data collection methods (Wong et al, 1997). In the remaining six research studies (articles numbered as 2, 3, 4, 6, 8, 13), only one data collection method was used with interview being utilized in five of the studies.

In regard to the methods of data analysis, Table 4.5 reveals the method of content analysis as the sole method of analyzing data used in all the fifteen research articles. In these articles, the data content was mainly analyzed in search of themes to report the study's findings. A small number of these research articles mentioned 'thematic analysis' as the method of data analysis. It was decided to regard this method as referring to content analysis as the researchers of these articles had stated that content of data collected was analyzed for themes.

4.2.3.3 Findings

This section deals with the major findings analyzed from the fifteen research articles. Findings reported here will help to provide answers to the third research question of the current meta-analysis study. The research question is: What are the findings reported in the fifteen research articles?

Initially the findings are coded and reported according to each article as shown in Appendix. B. Subsequently these findings are subjected to content analysis for major themes and presented in a summary as shown in Table 4.5 below.

The four major themes are: 1) Effects of reflective practice on learning, 2) Reflective diaries and reflective practice, 3) Assessment of reflection from reflective diaries, and 4) Preparation and skills required for reflective practice.

Table 4.6
Summary of Findings According to Major Themes

(1) Effects of Reflective Practice on Learning

- Reflective practice was a useful tool for effective learning. (Burnard, 1995; Mountford & Rogers, 1996; Shields, 1995).
- Reflective practice helped to identify individual learning needs, derive knowledge from practice and boost confidence in applying knowledge and skills. (Getliffe, 1996; Davies, 1995; Wong et al, 1997).
- Reflection helped to gain insight into clinical situations, promoted active learning and critical thinking and helped to improve problem-solving skills (Durgahee, 1996; Shields, 1995; Snowball, 1994).
- The practice of reflection enabled students to formulate views on best nursing practice and confront practice issues; progress was shown in dealing with practices and interpersonal relationship issues (Taylor, 1997).
- Reflection built confidence and promoted understanding of self (Getliffe, 1996).
- Reflective practice could cause anxiety over personal disclosure and was regarded a fashionable concept by some of the research participants (Burnard, 1995).
- There were reports of lack of evidence in linking ability to reflect and quality of practice (Glen et al, 1995; Stoddart, 1996).

(2) Reflective Diaries and Reflective Practice

- Reflective diaries helpful in developing understanding of reflective process and facilitated reflective learning (Glen et al, 1995; Richardson & Maltby, 1995).
 - Reflective diaries able to show evidence of reflective thinking (Wong et al, 1995) and could help students think about their practices making them alert of client's needs (Durgahee, 1996).
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- There was a need for specific incident to provide focus for reflection when writing in the diaries; teaching event, work incident, metaphor and exemplars were useful as point of reflection (Getliffe, 1996; Glen et al, 1995; Malik, 1998)
- Reflection-in and on- assignment and discussion can also serve as focus for reflection during diary writing (Mountford & Rogers, 1996).
- Diaries sometimes viewed as beneficial means of assessing and evaluating clinical progress but if diaries were “assessed” by teacher, some students became anxious and experienced difficulties in describing feelings (Richardson & Maltby, 1995).
- There was a need for diaries to be more reflective and less descriptive (Wong et al, 1995).
- Diary writing and dialogue sessions complemented each other in facilitating student’s reflection (Malik, 1998).

(3) Assessment of Reflection from Reflective Diaries

- Majority of students able to achieve lower level of reflectivity as measured from reflective diaries; very few students achieved higher level of reflectivity (Getliffe, 1996; Richardson & Maltby, 1995; Wong et al, 1995).
- Mezirow’s (1990) model can be used to distinguish between non-reflectors and reflectors; and the process is reliable (Wong et al; 1995).
- It was problematic and less reliable when identifying finer levels of reflection from diaries (Getliffe, 1996; Wong et al, 1995).
- Number of years of working had no effect on level of reflectivity (Wong et al, 1995).

(4) Preparation and Skills Required for Reflective Practice

- Reflective sessions need supportive network and a sense of partnership between student and teacher (Davies,1995; Glen et al, 1995); a relaxed atmosphere and a non-threatening environment (Getliffe, 1996; Halette, 1997).
 - Teacher’s role include educator, counselor and facilitator for change (Glen et al, 1995).
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- Teacher's skills include being knowledgeable and experienced, providing constructive criticism and be willing to reflect on one's own performance and knowledge (Glen et al, 1995; Getliffe, 1996).
- Few teachers reflected on their own teaching and they lacked commitment to develop themselves through reflection (Malik, 1998).

4.3 INTERPRETATIONS OF THE RESULTS

The current meta-analysis study aims to answer the following three research questions:

1. What are the themes within the objectives and purposes in the research studies on reflective practice?
2. What are the research methodologies used in the research studies on reflective practice?
3. What are the findings in the research articles on reflective practice?

In this section, results of the meta-analysis are directed at addressing the above research questions. Interpretations of the results are presented in three sub-sections in accordance to the three research questions. The sub-sections are on the : 1) objectives and purposes, 2) methodologies (samples, data collection methods and data analysis methods), and 3) findings of the fifteen research articles.

4.3.1 Themes of the objectives and purposes

Within the objectives and purposes of the research articles, five themes had been identified as shown in Table 4.3. These themes included examining the effects of reflection, reflective practice as a learning tool, assessment of reflection, strategies for reflective practice and models of reflection.

Among the fifteen research articles, examining or exploring the effects of reflection appeared to be the most common objective of these research studies, followed by the objective of exploring reflection as a learning tool, and the attempt to assess the level or extent of reflection. These three main themes represented a total of

86.6% (N=13) of the fifteen research articles' objectives and purposes of studies (see Table 4.3). This finding is perhaps not surprising based on the general acceptance within nursing education that as a learning tool, reflective practice can help to improve the knowledge, skill and competency of student nurses (Burnard, 1995; Mountford & Rogers, 1996; Shields, 1995). Naturally, the objectives of doing research work on the concept and process of reflection would be to look into the effects of reflection as a learning strategy as well as to try and measure the level of reflection.

As for the minor theme of the strategies of reflection, Wong et al's (1997) research was the only study with the specific purpose of exploring how teaching and learning strategies could be arranged to maximize reflective learning among post-registration nurses. The other minor theme of reflection models was identified from Malik's (1998) study where the aim was to examine the models of faculty practice, the curriculum models and the models of clinical supervision. Malik's study was conducted during a study tour of UK and Australia where reflective practice was already part of the nursing curriculum especially in clinical education. The purpose of Malik's study in examining the reflective models was most likely guided by the fact that reflective practice is enshrined in the Australia's nursing curriculum and gaining acceptance in some of the UK nursing curriculum as well. These two countries would probably represent the best places to study the usage of reflective models.

4.3.2 Samples

In this section, interpretations of the results continue with the second sub-section on the samples identified from the fifteen research articles. Samples here refer to the research participants involved in these studies. As shown in Table 4.4, the total number of research participants in this meta-analysis study is three-hundred and sixty nurses. An overwhelming 90.8% (N=327) of these nurses were student nurses who were either pre or post-registration students. The literature review in chapter two has shown that the concept and process of reflection has been well accepted within nurse education as a useful method of learning in the clinical areas. Therefore nursing research in the area of reflective practice will naturally involve students.

In addition, these research participants are usually students of the researchers. According to Powell (1989), this is important because reflection is a difficult topic, requiring a prior relationship with the researcher in order for any meaningful discussion of reflection, on a personal level, to take place. Powell went on to explain that the relationship of the researcher with students was a necessary one, the ease and confidence with which the students discussed their nursing with the researcher would have been very difficult to achieve with strangers. Davies (1994) concurs with Powell (1989) by stating that a good rapport and mutually respecting relationship between teacher and student was also considered important as this would lead to a more effective and complete data collection.

The sampling of the researcher's students could be considered as a purposive and convenient one. According to LoBiondo-Wood & Haber (1994), this type of sampling is a non-probability sampling method in which the respondents are chosen for the study according to their being able to participate actively and provide insight on the topic in hand. However, LoBiondo-Wood & Haber added that the findings from studies that use a purposive sample cannot be generalized to a larger population.

With 90.8% (N=327) of the total samples (N=360) being students, the remaining 9.2% (N=33) consists of nineteen educators and fourteen nursing supervisors. The small percentage of educators and supervisors as research participants does not augur well for the propagation of reflective practice among nurses. As teachers to students and ward managers to qualified nurses, both the educators and the supervisors play a vital role in the development of nurses into habitual reflective practitioners (Jarvis, 1992; Paterson, 1993). Besides the need to be knowledgeable and skillful in reflective practice, they too must become reflective practitioners themselves in order to teach and role-model reflection to the other nurses under their care and supervision. Therefore, studies in the areas of reflective practice should involve more educators and supervisors as this will help to build reflection into the structure of everyday practice.

4.3.3 Data collection methods

A total of seven methods of data collection is listed in Table 4.5 which shows interview as being the most frequently used method to collect data in the fifteen research articles of this meta-analysis study. While ten studies used interview, seven studies used reflective diaries which were the next most frequently used data collection method.

The concept and process of reflection is a complex one and the interview method is well-suited to collect data from subjects involved in the studies of reflective practice. According to LoBiondo-Wood & Haber (1994), interview methods are popular in nursing research. It is considered a strong method for research because it approaches the task directly. The interview also provides opportunity for in-depth probing, and elaboration and clarification of terms, if necessary (Wiersma, 1995). From Table 4.5 and Table 4.2, it is evident in some studies where interviews were used as the only instruments to seek information directly from the respondents who were asked for their views on the various aspects of reflective practice (Burnard, 1995; Glen et al, 1995; Shields, 1995; Stoddart, 1996).

With regard to the use of reflective diaries to collect data, the method is considered as rather unique to the studies on reflective practice. Boud et al (1989) suggests that reflection is an activity by which experience is recaptured, thought about and evaluated. As such, diaries are best suited for this reflective process of recalling and recording of events of experience. Schon (1987), the noted scholar on reflection, also suggested that writing about experiences in the form of a diary was a useful way of studying reflection. For the purpose of studying and evaluating reflection, reflective diary can function as an instrument to provide data for such purposes. In studies done by Wong et al (1995), Richardson (1995), and Getliffe (1996), reflective diaries were analysed for the level of student's reflectivity.

Besides interview and reflective diaries, other methods of data collection are reflective written accounts of meetings and taped recordings of group reflection (Snowball et al, 1994), taped recordings of tutorials (Glen et al, 1995), reflective group discussions (Mountford & Rogers, 1996) and taped recordings of teleconferencing (Taylor, 1997). These uncommon methods of data collection are rather specific to the four studies mentioned here and the researchers must have found them to be the most appropriate for their research designs. For example, in Taylor's study, the research participants were midwifery students on a distance learning program where the researcher relied on teleconferencing to communicate with the students. As in Glen et al's study, reflective tutorials were used as a strategy to assess teaching practice the of the student tutor. It should be noted that each of the four studies mentioned here had an additional method of data collection (see Table 4.5).

Questionnaires and observation notes were the remaining two data collection methods among the seven methods stated earlier. While Durgahee (1996) and Getliffe (1996) used questionnaires to collect data, observation notes were used in studies carried out by Wong et al (1997) and Malik (1998). According to Table 4.5, these four studies also had additional instruments for data collection as similar to the four studies mentioned above. Wong et al's (1997) study had in fact used a combination of three methods to collect data. In Wong et al's study, the three methods consisted of observation notes, interviews and reflective journals and this is done for the purpose of triangulation.

According to Hardey (1994), triangulation refers to the combination of more than one research technique during the course of an investigation. Such an approach is significant for nursing research because complex phenomena of interest to nursing are not adequately dealt with by methods that are located within only one perspective. Reflective practice is not an easy concept to study and triangulation is important at times for several reasons. Reasons may include the need to match information from other source of information or to enable the researcher to take advantage of the strong points of each type of method and collect information that may only be available through a particular technique.

It can be seen that nine studies out of the fifteen listed in Table 4.5 had used more than one technique to collect data. Durgahee (1996) used two methods for data collecting and stressed that survey and interview were combined to disconfirm the tenability of arguments that findings were only artifacts of particular methods. In Mountford and Rogers' study, information from reflective group discussions were matched with those from student's reflective sheets which were similar to diaries. Another example referred to the study done by Richardson (1995) where diaries were analyzed for level of reflection and learning, and interviews were used to explore student's experiences in reflective diary writing. Based on these examples, it can be seen that the choice of the methods of data collection are dependent on the study design as well as the researcher's experience and familiarity of the research areas involved.

4.3.4 Data analysis methods

Results in Table 4.5 shows that content analysis is the data analysis method used in all the fifteen research articles in this meta-analysis study. This is perhaps not surprising due to the qualitative methods adopted by all the studies here. In addition, these studies used methods like interviews, diaries, observation notes, questionnaires and taped recordings of discussions or tutorial sessions to collect data. Data gathered by such technique tends to produce large volumes of content which need to be analysed for pertinent information in order to provide answers to the research questions. Consequently, content analysis becomes the method of choice when the data needs to be analysed.

In addition, the content analysis technique is also considered as very well suited for small-scale educational research projects (Borg & Gall, 1963). In this meta-analysis, most of the studies are small scale research work involving the nurse teachers and her students. While Davies's (1995) study had six research participants, Snowball et al (1994) had four, Burnard (1995) twelve, Shields (1995) eleven, Glen et al (1995) one, Getliffe (1996) six, Taylor (1997) seven, and Hallett (1997) twelve.

Another possible explanation for the exclusive use of content analysis as the data analysis method for all the fifteen research articles may be due to the study of reflective practice. According to Krippendorff (1980), anything connected with the phenomena of interest qualifies as data for content analysis. In this study, reflective practice is the phenomena of interest being studied. Depending on the research designs of these studies, many types of information were gathered through the various methods as listed in Table 4.5. The content within these information would then be subjected to the process of coding before final analysis.

4.3.5 Findings

In this section, discussion of findings is grouped under the themes which emerged from the collective findings of the fifteen research articles in this meta-analysis study: 1) effects of reflective practice on learning, 2) reflective diaries and reflective practice, 3) assessment of reflection from reflective diaries, and 4) preparation and skills required for reflective practice. The four themes here are the same as those listed in section 4.2.3.3 where results of the major findings were reported in Table 4.6. Whenever relevant, discussion of findings in this section will also include other minor findings reported in Appendix B which is a summary of all the reported findings from the fifteen research articles.

(1) Effects of Reflective Practice on Learning

Many studies in this meta-analysis reported positive findings on the effects of reflective practice on learning. There were findings on how the reflective process had helped student nurses learn in the practice area (Burnard, 1995; Mountford & Rogers, 1996; Shields, 1995). Reflective practice was also seen as useful in promoting critical thinking and problem-solving skills (Durgahee, 1996; Shields, 1995; Snowball, 1994). In addition, the practice of reflection had enabled students to formulate views on best nursing practice and confront practice issues (Taylor, 1997). These findings suggest the advantages associated with reflective practice in the clinical area.

Positive findings from Table 4.6 showing reflective practice as a useful formal learning activity (Burnard, 1995) certainly help to project the relevance of reflective learning in the clinical education of student nurses. Nursing is a practice-led profession and this makes learning from practice experience a major component in the training of student nurses. According to Jarvis (1992), reflection is a useful way in turning each experience into another learning experience. By reflecting on clinical experience with their teachers, students can improve on their quality of nursing care and enhance their future practice (Burnard, 1995).

As a tool for professional development and learning (Snowball, 1994), reflective practice can help students to identify their individual learning needs and students also move from a passive to a more active mode of learning as reported by Davies (1995) in Table 4.6. In supporting the use of reflection in nurse education, Boud et al (1985) stress that reflective sessions enable learners to become actively engaged in the learning process, which results in a high level of involvement.

While most results supported reflective practice as a useful tool for learning especially in the clinical area, research participants who were educators were doubtful whether or not to teach reflection formally (Burnard, 1995). These educators also regarded reflection as a part of the process of nursing and a fashionable concept. In studies done by Glen et al (1995) and Stoddart (1996), there were reports of lack of evidence in linking ability to reflect and quality of practice. As a multifaceted concept consisting of intellectual and affective domains (Atkins & Murphy, 1985; Boud et al, 1985, reflection is not only difficult to assess in tangible terms but even more difficult to link it to practice quality.

On the question of anxiety, Burnard's(1995) study showed that personal disclosure during reflective session could cause anxiety and this might inhibit the process of reflection (see Table 4.5). However, research participants who were first year student nurses reported that clinical debriefing involving reflection had actually helped to reduce anxiety (Davies, 1995). This finding suggests the need for

facilitators to be cautious and sensitive to issues raised during debriefing sessions in order to avoid or at least to reduce anxiety.

(2) Reflective diaries and reflective practice

Writing in diaries or journals is considered an effective and important reflective activities which can be used to engage student nurses in reflection (Davies, 1995). According to findings reported in Table 4.6, reflective diaries are helpful in developing understanding of reflective process and facilitated reflective learning (Glen et al, 1995; Richardson & Maltby, 1995). By keeping reflective diaries, students could practice and improve on their reflective skills (Durgahee, 1996; Glen et al, 1995; Richardson & Maltby, 1995; and Wong et al 1995,1997).

Wong et al (1995) states that the writing of reflective diaries can show evidence of reflective thinking. This view is supported by Durgahee's (1996) study which reported that reflective diaries helped students to think about their practices making them alert to client's needs. For purpose of learning, diaries will need to be more reflective and less descriptive as shown in Shield's (1995) study. Malik (1998) suggested having dialogue sessions to complement reflective diaries as this was found to be useful in her study. Dialogue sessions are similar to clinical debriefings where teachers facilitated student's reflection on their daily clinical experience to foster learning. Students were then encouraged to record the reflective discussions in the diaries soon after the sessions.

Findings from Davies's (1995) study had shown that reflective journals enhanced self-evaluation and provided a mechanism to search for a balance between positive and negative experiences (see Appendix B). Davies emphasizes that student's diary can reflect both personal and professional issues which students find stimulating, challenging, troublesome or puzzling. However, it was reported by Richardson & Maltby (1995) that students experienced anxiety if diaries were assessed for clinical progress. To allay student's anxiety, both researchers stressed the importance of making explicit the purpose and aims of the diary to the students who would at least know what to expect.

From findings discussed thus far reflective diaries have been well accepted as an effective means in promoting reflection; but problems associated with student's writing skill and assessment of diaries may exist. It is believed that factors like student's proficiency in language and ability to express feelings and thoughts in writing may in turn affect the quality of reflection. If diaries can show reflective thinking (Wong, 1995) and the ability to think critically about a situation (Scalan & Chenomas, 1997), then there certainly is a need to demonstrate their effectiveness as a tool for promoting reflection and learning (Richardson & Maltby, 1995). Further studies are needed since no one really knows how these reflective and critical thinking skills are translated into practice.

(3) Assessment of reflection from reflective diaries

Among the fifteen research articles in this meta-analysis study, three studies attempted to measure the level of reflectivity from student's diaries (Getliffe, 1996; Richardson & Maltby, 1995; Wong et al; 1995). In order to measure the student's level of reflectivity, Getliffe used the Reflective Index of Zeichner and Liston (1987) while Mezirow's (1990) model was used by Richardson & Maltby. Two models were used in Wong et al's study; Mezirow's and Boud et al's (1985).

As shown in Table 4.6 where results of the findings are reported, majority of the students in all the three studies mentioned above managed to achieve only the lower level of reflectivity as measured from their reflective diaries. Getliffe (1996) cited three contributing factors which might contribute to low level of reflectivity and these included student's inexperience in reflective process, limited practical experience and large group reflective sessions inhibited reflection. In addition, the process of identifying finer levels of reflection was found to be problematic and less reliable (Wong et al, 1995; Getliffe, 1996). However, Wong et al maintained that the process of using Mezirow's model to distinguish between reflectors and non-reflectors was reliable.

Discussions in the previous section have favored reflective journals as valid tools for assessing student's accomplishment of learning through reflection. Wong et al (1995) argues that it is essential to have an approach to evaluate the level of reflection to ensure successful implementation of reflective learning in the education of professional nurses. However, there are problems associated with assessing reflective learning as identified by the three studies here. This has implication for further research to validate an instrument to measure reflection from student's reflective diaries. It is important to note here that prior to assessing students' level of reflectivity, they should at least be prepared with skills and knowledge on how to become reflective practitioners.

(4) Preparation and skills required for reflective practice

The role of the educator in encouraging reflective practice among student nurses has been highlighted in some of the findings in this meta-analysis. Glen et al (1995) sees the teacher playing the multiple role of educator, counselor and facilitator of change. The teacher must also be knowledgeable and experienced (Getliffe, 1996), be able to provide constructive criticism and be willing to reflect on one's own performance and knowledge (Glen et al, 1995). This means teachers will need to practice reflection and not just teach student to reflect. In fact, Stoddart (1996) insists that teachers themselves should be reflective practitioners, so that they will be able to foster reflection among the students and become role models as well. Student nurses in Stoddart's study commented that they looked up to their tutors as a source of support (see Appendix B).

The importance of teacher's support during reflective sessions was further confirmed in other studies. Findings had shown that reflective sessions needed supportive network and a sense of partnership between student and teacher (Davies, 1995; Glen et al, 1995). Studies by Getliffe (1996) and Hallett (1997) reported the need to have a relaxed atmosphere and a non-threatening environment to facilitate a successful reflective sessions. Student nurses frequently experience anxiety during their clinical posting due to lack of practical experience and the ever busy clinical settings. Teacher's support and a friendly environment will go a long way in reducing student's anxiety. Reflective sessions are more likely to be effective when students

are relaxed and teachers are seen as friends and partners in learning. As stated by Palmer et al (1994), reflection is profoundly difficult to achieve without expert guidance and support.

To facilitate the teaching of reflection to beginning student nurses, non-expert teachers can make use of Johns' (1994) structured approach to develop reflective skills among students. As shown in Appendix A, Johns's reflective model consists of a series of questions which act as guidelines for the teachers to follow during reflective sessions. There is however disadvantage associated with having a structured approach like Johns's model to teach reflection. Palmer et al (1994) warn that guides might produce uniformity and the uniqueness of an individual student's experience might be lost.

Malik (1998), on the other hand, suggests a comprehensive supervision system that utilizes guided reflection. This requires teacher education to be appraised and revolutionized so that teachers can develop the necessary skills to facilitate reflective practice (Durgahee, 1996). Malik (1998) reported in her study that few educators reflected on their own teaching and many nursing lecturers lack the commitment to develop themselves through reflection. The finding is considered disturbing as Malik's study was carried out in Australia where reflection is included as a domain of competencies issued by the registration authority.

Findings in this meta-analysis have highlighted the usefulness of reflective practice as a learning stool for clinical education of student nurses. Problems related to the assessment of reflectivity from diaries revealed the need to fine-tune a reliable instrument to measure the level of reflectivity. The educator's role has been shown as pivotal in the development of students reflective skills. To ensure the habitual practice of reflection, the teachers must be reflective practitioners themselves and be able to provide a supportive and conducive environment to conduct reflective sessions.