

## CHAPTER 5

# DISCUSSION, CONCLUSION AND RECOMMENDATIONS

## 5.1 INTRODUCTION

In this chapter the researcher concludes the thesis with a discussion of the integrated results obtained through a process of triangulation of research participants (students, academic and clinical staff) and through quadangulation of data collection. The focus is on reflective discussion of the methodology as well as on the conclusion of the research findings. The researcher offers recommendations on how health science facilitators of learning can expose the students to effective and transformative learning strategies such as critical reflection to become lifelong practitioners that will take responsibility for their own learning within the health science domain.

## 5.2 REFLECTIVE DISCUSSION OF THE METHODS

This research study inevitably focused on all the role players in health science education. “Health professionals in general try to answer research questions facing them in their daily practice, as they try to respond to the current rapidly changing social scene in South Africa” (Van Rooyen, 1998:79).

A mixed methods design with a combination of qualitative and quantitative approaches to the research proved to be the most appropriate technique. An action research approach was also included in the research design. I as the researcher needed to be an active “learner” watching, communicating, experiencing, and reflecting with the other role players.

A mixed methods research approach can answer a broader and more representative range of research questions because the researcher is not confined to a single method or approach. It can also provide stronger evidence for a conclusion through convergence and corroboration of findings (this is the principle of tri- and quadangulation). Qualitative and quantitative research can add insight and understanding that might be missed when only a single method is used. This research approach therefore produces more complete knowledge necessary to inform theory and practice.

According to De Vos et al. (2002:423), “a more holistic understanding and better ways of achieving change is possible with an action research approach“. This principle of self-development is evident, where all the role players (students, academic and clinical staff) must organise themselves to reach the specified outcome of effective transformative learning.

Furthermore, this study functions on a multi-disciplinary approach and a shared conceptual framework in which all role players are involved.

The research study implies a process of collective reflection and self-realisation in order to assist students to regain confidence in their own learning. In this way participants are encouraged to share their learning experiences, to reflect critically and to make adjustments if and where necessary.

The triangulation of data collection methods allowed this research to fit in with the “dominant-less-dominant” design of Creswell (1994). In the overall research the qualitative paradigm dominated with the observations and interviews, but in the evaluative phase a traditional quantitative questionnaire was very appropriately utilised.

### **5.3 RESEARCH QUESTIONS, AIM AND OBJECTIVES OF THE STUDY**

This chapter presents a summary of the findings of the research. The research aim and objectives as indicated in Chapter 1 are highlighted again.

The purpose of this study is indicated and discussed in Chapter 1, namely to evaluate strategies:

- of facilitating effective learning,
- to promote the concepts of ownership and reflection on learning,
- for promoting a learning-centered approach,
- to integrate theory and practice through a reflective learning approach.

*It is important to realise that facilitators of learning in health sciences can actively contribute towards effective learning by planning learning strategies and creating learning opportunities that will enhance the possibility of each student to construct his/her own meaning.*

*Critical reflection is embedded in all quadrants of the metaphoric Four-Quadrant Brain Model of Herrmann (1996) and can therefore be considered a holistic learning strategy that is planned by the facilitator. During the 10-week reflective practice session students weekly engaged in reflective discussions, in which certain actions continuously surfaced and that may be assigned to the four quadrants of the whole-brain. Reflective learning group discussions may therefore be considered and categorised as a whole-brain learning strategy.*

In health science education critical reflection can blend learning through experience with theoretical and technical learning to form new knowledge construction and insight.

In Chapter 1 the following overarching research question and sub-questions were posed:

**How can health science training institutions integrate critical reflection through action learning to add value to in-depth, independent, self-regulating and lifelong learning?**

- To determine the value of integrating critical reflection in the learning outcomes.
- To determine the relationship between the students' learning style and critical reflection as a learning strategy.
- To develop and implement different tools to create learning opportunities for reflective learning.

- To evaluate whether critical reflection as a learning strategy can be applied to stimulate and inform practice.
- To promote the principles of lifelong learning for health science students through critical reflection

## **5.4 MAIN FINDINGS OF THE RESEARCH**

The purpose of this section is to present the findings of the research in relation to the questions and rationale of the study as outlined in the section above (section 5.3) and the literature review presented in Chapter 2.

### **Research sub-question 1**

#### **What is the value of integrating critical reflection in the outcomes of learning programmes in health science education?**

Literature as discussed in Chapter 2 shows that a researching-while-teaching approach (Schartz, 1993) is needed to be able to improve teaching and learning in general. The intention is to improve professional practice through action learning and research.

Currently in health science education the emphasis is still on the “technical rationality” model of professional education (Schön, 1983) with the focus on teaching technical expertise and systematic procedures. To be able to break down these barriers, value must be added to the learning outcomes of

programmes by means of effective and appropriate learning strategies to strengthen the learning-centred approach.

Health science education in general is characterised by a work-integrated learning component. The importance of integrating theory and practice, as well as learning from experience is therefore evident. There is a necessity to follow a cyclic process of actions and reflections-on-actions.

A reflective approach to learning and learning facilitation, which will enable students to understand the importance and value of their own learning needs and to take the responsibility for their own learning, is called for.

To create the dynamics of enhanced effectiveness and individual understanding (Gray, 2001), the integration of a reflective learning cycle with action learning is promoted. Furthermore, the integration of reflective thinking as an aspect of learning (Dewey, 1993) should be part of the outcomes of the learning programme.

Literature indicates that reflective discourse is the medium by which critical reflection can be put into action to promote and develop transformative learning (Taylor, 1998).

In terms of research question 1 this study shows that 47% of the respondents in the pilot study indicated that they did not have a proper understanding of the relevant concepts such as reflection, reflective practice, etc. but 74% of the respondents agreed that critical reflection can add value to effective learning (section 4.2). 81% of respondents indicated that the value of reflection for all the role players is dependent on the active involvement and commitment of all concerned.

During the 10-week reflective time period it was observed that the utilisation of critical reflection as a learning strategy is more valuable if it is integrated in the outcomes of the learning programme at an early stage (first year of study).

From the interviews it is evident as illustrated in Figure 4.1 and 4.2 that as many as 71% of the students and 86% of the staff members gained personal and developmental value from the 10-week reflective practice period. During this period students kept a reflective journal and attended a weekly reflective learning group session observed by staff members and the researcher.

From the information obtained from the questionnaires at the end of the action research process it was clear that students' motivation increased (75%), individual progress was recognised (76%) and enhancement of confidence (70%) and the increase in learning independence were evident (Table 4.9).

Furthermore 52% of the students were of the opinion that value was added to their own learning through sharing learning experiences (Figure 4.6) in a small reflective learning group of 4-5 students, as indicated by 86% of the respondents (Figure 4.9).

Students indicated that it was important that they took responsibility for their own learning (18%), with 12% that said that they realised through reflective practice that learning is a holistic, but personal process. In total 29% appreciated the fact that reflective practice made them aware of mistakes/errors that could have been avoided in this way (Figure 4.14).

In Figure 4.15 it is indicated that only 18% of the student focus groups realised the importance of taking responsibility for their own learning. As observed during the weekly reflective sessions 58% of the students did not really take any serious responsibility. Positive feedback obtained from the observation is that 28% of the students showed interest and accepted responsibility for their own learning.

## **Research sub-question 2**

### **What is the relationship between the learning styles and critical reflection as a learning strategy?**

According to Knowles (1990), effective learning takes place if the whole brain is involved in learning. Lumsdaine and Lumsdaine (1995) documented four learning modes highlighting whether a learner is a whole brain person or not.



From the questionnaires it was clear that respondents were hesitant to rate themselves completely as “natural” reflectors, but 36% of the staff members and 22% of the students rated themselves respectively as “natural” reflectors (Table 4.6). The need to discuss and explore the students’ learning experiences and to develop their thinking skills further may not be achieved through writing reflective journals alone, and therefore other learning tools/methods need to be investigated.

During the interviews and after the completion of the reflective phase of 10-weeks 71% of the students indicated that despite being unaware and uninformed about their learning styles and thinking preferences, they would integrate reflective practice in their daily learning activities.

### **Research sub-question 3**

#### **Which learning tools/methods can facilitate opportunities for reflective learning?**

Literature states that different learning tools are conducive to transformative learning, specifically if a learning strategy such as critical reflection is utilised. According to Gravett (2005) several learning tools such as portfolios, case studies, incident files, etc can be implemented to enhance critical reflection.

62 % of the respondents (Table 3.11) identified the following opportunities to reflect learning experiences utilising the following tools/methods:

reflection reports on experiential learning in the work place, group discussions, case study presentations, problem-solving tasks, simulations, portfolios and image critique sessions (evaluation of radiographic images).

During the 10-week reflective practice time period students had to keep a reflective journal and then needed to attend a weekly reflective learning group that was observed. The reflective journal as a learning tool/method was decided on by the researcher because of practical issues such as providing a journal to all students, and keeping a journal laid the foundation for reflective discussions.

Student focus groups indicated that 76% found it difficult and 18% found it extremely difficult to keep a reflective journal (Figure 4.3). Aspects contributing to the difficulties experienced by the students were lacking writing skills (23%), limited time available to document reflections (29%) and lacking general reflective skills (47%). These are represented in Figures 4.5 and 4.7. The total absence (100%) in terms of students' discipline to keep a reflective journal is a real concern (Figure 4.13).

Gray (2001) identifies how a reflective learning cycle can be integrated with action learning in the learning programme of nursing to create the dynamics of enhanced effectiveness and individual understanding. McKay (Ember, 2001)

indicates the inter-relationship between the cycles in the radiography programme where learners are encouraged to keep reflective journals and use clinical experience to inform tutorial discussions.

#### **Research sub-question 4**

#### **Can a learning strategy such as critical reflection be applied to inform and promote practice?**

Reflection can be a tool for directing and informing practice setting or for transforming and reconstructing the social environment (Williamson, 1997). The social environment implicates the different clinical settings within a medical context.

Students in health sciences need to take greater responsibility for both their learning and their understanding of the relationship between theoretical learning and its application in clinical placements.

The acquisition of critical reflective and creative thinking skills results in the development of competencies. Students therefore acquire skills that will develop the practice, based on intellectual commitment, of using those skills to direct behaviour (Shriven, 2000). Taylor (1998) considers critical reflection as the distinguishing attribute of adult learning and as a vital process in transformative learning.

The study has revealed that the learning environment for radiography education consisting of an academic and work-integrated clinical component offers enough opportunities for integrating an alternative learning strategy such as critical reflection. A 100% of the students indicated that there was clearly no time available, especially in the clinical setting, for reflective learning group discussions in practice (Figure 4.10). The serious shortage of radiographers also contributes to overworked staff and very limited time for any additional learning activity. This unfortunately does not contribute to transformative learning in the clinical work-integrated learning environment. It was revealed in the questionnaires that students spent only ten minutes on average doing personal reflection (self-confrontation), writing a journal or participating in reflective discussion (Table 4.7). Students used a calculated total of 45 minutes per week on average for personal reflection during the phase when reflective practice was implemented.

The information in Figure 4.10 obtained during the interviews, indicates that the time available for reflective practice seems to have an influence, especially in the clinical setting. However, students' unwillingness and lack of commitment to investigate alternative strategies to enhance learning effectiveness (44%), the lack of knowledge regarding alternative strategies to promote the concept of metalearning and effective learning (28%) as well as the absence of academic leadership in terms of promoting transformative learning (14%) are major concerns.

It was furthermore observed that an aspect like available time in the clinical setting for reflective discussion might hinder or limit the value and effectiveness of critical reflection to inform practice. In Table 3.13 comments such as: "...the reality of having to work and to study simultaneously, there is not a lot of time to do something else like reflection..." (RPOS 09) are listed.

Positive comments are proof of the value of critical reflection as a learning strategy to integrate theory and practice: "... the integration of knowledge and skills in the work place gives me a positive feeling and it is easier to reflect on it..." and "...I need to learn quickly in practice, through reflection I can identify my mistakes more easily..." (Table 3.13, RPOS 14). The following comments emphasise the value of critical reflection to inform and direct practice:

"...reflecting critically by keeping a weekly record was a good method to evaluate my integration of theory and practice..." and "...I feel more comfortable with the principles of reflective practice (week 7)..."(Table 3.13, RPOS 22)

In the questionnaires staff members felt strongly about the fact that critical reflection facilitates the integration of theory and practice very well (88%), and another 54% of students agreed about this only to some extent (Table 4.6). The successful integration of reflective practice in the lecture room is acknowledged by 48% of the staff members and by 52% in the clinical setting (table 4.8).

## **Research sub-question 5**

### **Does critical reflection promote the principles of lifelong learning in health sciences?**

The Continuous Professional Development (CPD) system, which is a prerequisite for annual professional registration with the Health Professions Council of South Africa (HPCSA), requires an accumulated number of points that reflect the fact that a certain level of knowledge, skills and competencies has been acquired in a prescribed time. Furthermore, in the medical environment there are increasing demands from the Department of Health as well as the employers in the private sector for reflective clinical practice, skills and attitudes appropriate to professional practice.

Health science education has traditionally focused on the assimilation of vast amounts of knowledge and on clinical apprenticeship as the “hallmark“of good education, and has undervalued reflection in learning (Pee et al., 2000). Today, however, health science education needs to prepare student for lifelong learning and to achieve this, a more reflective approach to learning is called for.

Higher education has been identified to play a vital role in economic and social development (UNESCO, 1995:3). Maintaining the relevance of education and the need to be lifelong students necessitate a change in focus from teaching to learning. The students have to be actively involved in constructing their own

knowledge and therefore a different educational approach, which is more learning-centred, has to be introduced.

Technology expansion, knowledge and educational innovations require a graduate who will be able to cope, adapt and continue learning in the world of work (Fielden, 1998). Crouse (1988:1) therefore suggests that students “be prepared by systematically developing their abilities in order to equip them for lifelong learning and creative application of knowledge on a high intellectual and scientific level”. There is an urgent drive to shift the emphasis from teaching to learning, in other words from lecturing to the facilitation and management of learning.

In the findings of the study the value of working together in a learning group, supporting one other and sharing learning experiences, is a catalyst in terms of promotion, building individual confidence and encouragement through reflective practice. The aforementioned aspects observed during the 10-week reflective action-learning phase can be regarded as building blocks for successful implementation and enhancement of the concept of lifelong learning.

The study indicates that 72% of the students demonstrated the ability to master the skill of reflection relatively well and another 14% were very successful in mastering it (Figure 4.12). Figure 4.7 underscore the importance for students to continue with the process to master and improve reflective skills.

As indicated in Figure 4.19 reflective practice does not only enhance lifelong learning, but it is also a tool for quality purposes. Staff members (92%) indicated that they regard reflective practice as a tool for quality control to determine the effectiveness of their own facilitation of learning (Table 4.8).

Furthermore, critical reflection as a learning strategy was regarded by 28% of the respondents as having positive outcomes, such as the opportunity to share learning experiences (14%) and to improve communication within a specific reflective learning group (14%).

During the focus group interviews 71% of the students indicated that they would definitely integrate reflective practice as an integral part of their daily learning activities (figure 4.23). This could be an indication of the intension of students to become lifelong learners.

Respondents agreed (staff 88% and students 59%) that they considered themselves to be lifelong learners (Table 4.6). This is positive in terms of the fact that all the role players in the radiography context view continuous improvement of competence as an integral part of being a professional.

All (100%) the staff respondents (academic and clinical members) indicated that regular updating of knowledge and skills is absolutely necessary to be able to facilitate reflective practice and lifelong learning effectively (Figure 4.22).



**The research findings to the overarching research question will be presented in the next section.**

Overarching research question

**How can health science training institutions integrate critical reflection through action learning to add value to in-depth, independent, self-regulating and life-long learning?**

The research findings indicate that to become self-directed, flexible, metacognitive learners in health science education and for health science lecturers to become reflective practitioners themselves, students must apply the following action learning principles: analysing concrete, real-life situations; undertaking independent study; encouraging student-facilitator partnership; acting promptly; emphasising time on task; high expectations and developing diverse talents and ways of learning.

In this study learning tools, such as reflective journals and small reflective learning group discussions were investigated as learning strategies to integrate critical reflection in health science training. The research findings indicate that both methods can be utilises effectively to facilitate effective learning.

## **5.5 RECOMMENDATIONS FOR INTEGRATING CRITICAL REFLECTION AS A LEARNING STRATEGY INTO LEARNING PROGRAMMES**

This section presents the recommendations of this study for integrating critical reflection as a learning strategy into learning programmes in health sciences.

### ***Recommendations regarding students***

- Students need to be orientated properly and in-depth orientated, with regards to the implementation of alternative learning strategies resulting in a better understanding, willingness and commitment from their side.
- The positive aspects, e.g. increased motivation, enhancement of confidence, recognition of individual progress, increased learning independence and sharing of learning experiences, need to be communicated to all health science students to highlight the value of critical reflection as a learning strategy.
- Students must be educated concerning the value and importance of metalearning as part of transformative learning in the current educational paradigm of a learning-centred approach.
- Students have to develop basic reflective and writing skills when a reflective journal is utilised as learning tool to facilitate critical reflection. The focus of the reflective journal is the thinking process of students; development of reflective writing skills facilitated by the reflective journal encourages students' active involvement in and taking responsibility for their own learning. When utilising tools such as a reflective journal and portfolios, the narrative mode of analysis needs to be developed.

- Effective time management and planning of reflective learning activities are essential to optimise the value of critical reflection. Students need to utilise the limited time available in especially the clinical setting where integration of theory and practice culminates in engaging in reflective practice.
- Students need to be aware of their learning styles and preferences to promote their thinking preferences. The areas that are less preferred need to be developed.
- The continuous improvement of reflective skills needs attention, even in professional practice in order to function as lifelong learners.

### ***Recommendations regarding academic and clinical staff members***

- In alignment with the South African educational approach of Outcomes-Based Education, transformative learning should be promoted and included in curriculum design.
- The effective integration of critical reflection as a learning strategy should be implemented from the first year of study and can be utilised with success in the clinical setting and in the lecture room.
- To be able to take responsibility for their own learning students need to be assisted to gain insight into their preferred learning style and thinking processes.

- Designing the curriculum, writing learning outcomes and structuring learning activities to incorporate all four quadrants of the whole-brain model will facilitate the development of the full potential of a student.
- The integration of a variety of alternative learning tools to facilitate critical reflection in health science education needs to be investigated through the introduction of more research projects on a national and inter-disciplinary level.
- To facilitate reflective discussions where critical reflection stimulates and directs practice, the work-integrated component of the learning programmes should be revised and adjusted.
- Regular updating of staff members' skills to facilitate reflective learning should be a focus point for institutions involved in health science education.
- Capacity building staff members regarding their knowledge of principles, the application and value of alternative learning strategies (e.g. critical reflection), as well as the development of academic leadership should be encouraged to ensure meaningful lifelong learning.
- The support and development needs of clinical staff members involved in the delivery of learning programmes and their capacity to endorse and promote the process of reflection should be facilitated.

The limitations of this study are discussed in the next session.

## 5.6 LIMITATIONS

The study was limited to institutions involved in radiography learning programmes only. A wider inter-professional approach would give a bigger sample that is more representative and could be used as a generalisation of how critical reflection as a learning strategy can be integrated in health science education. Future studies should therefore examine a more diverse section of health sciences.

The inclusion of an in-depth analysis of students' learning style flexibility and staff members' thinking preferences by means of the Herrmann Brain Dominance Instrument would provide results that could enrich clarification of the relationship between learning and thinking preferences and critical reflection as a learning strategy.

The limited number of empirical studies done in other health science programmes in this country (e.g. physiotherapy, occupational therapy, etc.), to demonstrate the value of integrating critical reflection as a learning strategy could have complemented this research study in terms of comparing similarities and differences.

There are recommended areas of research that emerged from this study and these be highlighted in the next session.

## 5.7 RECOMMENDATIONS FOR FURTHER STUDY

Conducting this study has indicated that the study is not an end in itself but it has opened up ample opportunities for further research. The following aspects are presented as recommendations:

- The investigation of applicable and effective learning activities and methods other than reflective journals and reflective learning groups to facilitate critical reflection.
- Skills to facilitate reflection at deeper levels to guide students to the developmental level of reflection need to be clarified through participatory action research projects.
- Empirical research that aims at determining the level and extent of reflection and learning by analysis of reflective journals needs to be encouraged. More debate and exploration are therefore needed in evaluating the effectiveness of sharing experiences and reflective journals.
- The possibility to accommodate reflection using computer-based technology, for example virtual chat rooms, should be investigated.
- Curriculum design and development should take opportunities and time available for reflective practice into consideration.
- Facilitators of learning in health science education could be encouraged to get involved in multi-disciplinary and inter-disciplinary action research projects to facilitate critical reflection and promote lifelong learning.

## 5.8 CONCLUSION

The findings of this study undoubtedly present a challenge to all the role players in health science education in South Africa to ensure that the learning programmes are aligned with community needs, educational requirements and the expectation of students and other stakeholders like employers and industry.

A variety of learning strategies should be adopted to encourage reflection in health science students. Embedding critical reflection as a learning strategy within learning programmes necessitates a shift in philosophy from teaching in a didactic sense to facilitating learning. Embedding critical reflection within the learning programmes means time is of the essence. A crammed learning programme and limited time in clinical practice are not conducive to facilitating reflection. However, facilitation represents a new role for health science educators within both higher education and health science practice contexts.

It is trusted that the recommendations of this research will be taken into consideration and implemented by the stakeholders concerned. It is my hope that facilitators of learning in the health sciences will respond to this challenge to demonstrate academic leadership and implement critical reflection as a learning strategy in the outcomes of learning programmes as well as to facilitate transformative learning in the promotion of a more learning-centred approach that will enhance lifelong learning.

The researcher wishes to conclude with the following quotation by Beaty (1997:8) to all facilitators of learning in higher education and specifically health sciences:

*We should not rely solely on our natural process of reflecting on experiences, but actively seek ways to ensure that reflection itself becomes a habit, ensuring our continuing development as a professional in higher education.*



## CHAPTER 6

# RESEARCHER'S REFLECTIONS ON THE RESEARCH PROCESS

### 6.1 INTRODUCTION

As an educator I untwisted a willingness to adopt a reflective approach towards health science education in order to improve my professional competence. It is extremely difficult to encourage students to learn reflectively unless the educator embodies such an approach.

For me it is essential to look for ways in which to further my knowledge and expertise and to adapt or modify my role as facilitator of learning. This internal motivation led to this research study and it became clear that in order to do so would require time and commitment.

The reflective lessons I have learnt from this research journey are rich and varied. Those offered in the next section concern my reflection on the research process.

### 6.2 CRITICAL REFLECTION

The following aspects relating to the research process followed materialised during the completion of the thesis:

- The finalisation of my research proposal was difficult because of my inexperience as a researcher.
- The process to get institutions of higher learning orientated, motivated and committed to participate in the research study was extremely difficult – I experienced academia as insecure and scared to open up their educational domain of practice.
- The planning and organisation of the 10-week reflective cycle was a logistical challenge – the reality is that two groups of students (e.g. 1<sup>st</sup> and 3<sup>rd</sup> years) per institution were involved, with each group and each institution having its own specific academic calendar and activities; this required intensive and detailed planning of reflective activities.
- The orientation sessions for the research participants at the four institutions had to be planned carefully – participating students and clinical staff specifically were from five provinces as far as Polokwane, Kimberley and Bloemfontein.
- The guidance of observers at two of the four institutions was time-consuming and intense – clinical staff members do not necessarily have the knowledge and experience required for a project of this nature.
- The lack of motivation and commitment of students to keep a reflective journal for 10 weeks was daunting. The students were all employer students working in clinical facilities and studying at the same time.

- The analysis and integration of data were challenging due to the vast amounts of data (Pilot study questionnaire, observations, structured interviews and questionnaires).
- The absence of information regarding the students' and staff members' learning styles and thinking preferences had a negative impact on one of the research questions.
- Presenting the research in a second language created challenges of its own.

Having done some critical reflection on the process of research, I identified the following positive aspects:

- The enthusiastic cooperation of some learning institutions to improve health science education to be more learning-centred was prominent.
- The interaction with students and staff members of other institutions during the reflective cycle of the research strengthened existing relationships; the researcher fostered an increased awareness of the demands that facilitators of learning in higher education are facing.
- The enthusiasm of the majority of participating role players in radiography education that became apparent when the value of critical reflection as a learning strategy was realised at the end of the 10-week reflective practice cycle, was encouraging.

- The realisation that this research study has the potential to stimulate other learning programmes within health science education to engage in action learning research of this nature to enhance effective and lifelong learning.
- The research project challenged me to overcome personal barriers in order to grow intellectually.
- Through the research I realized that I am even more challenged to take cognizance of the research done on learning style flexibility and to develop ways of facilitating learning, which I normally would avoid.
- The realization of the importance of communication and the implication thereof on understanding, remembering and learning is now more clear.
- I became aware of my own thinking preferences and the implications thereof for my own teaching/training practices.
- As a health science facilitator I realized the value of critical reflection as process and underlying skill, necessary to achieve specific outcomes.
- The fact that I can construct my own meaning on how students learn and how I myself like to learn will also help me to monitor my own professional development.

### 6.3 CONCLUSION

At the conclusion of this research study and having engaged in critical reflection myself, I once again realised that to develop excellence in higher education is a learning process in itself.

In the context of contemporary higher education I would like to conclude with the quote by Schön (1982:66), who says:

*“Every facilitator of learning must, by regarding every imperfection in the student’s comprehension not as a defect of the student, but as a defect in his own instruction, endeavor to develop in himself the ability of discovering new methods”.*