CHAPTER EIGHT

SUMMARY AND RECOMMENDATIONS

8.1 SUMMARY

Institutions of higher learning face a significant task in equipping large and diverse student populations as lifelong learners able to meet the needs of a challenging and changing labour market. The choice of a field of study and subsequent occupation is a major decision a student faces with implications not only for the student's success and well-being, but also for the country's economy. Institutions of higher education need to promote all aspects of student development, namely academic development, career development and personal development, in their task of providing high-level manpower.

The purpose of this study was to explore the relationship between vocational personality and learning style as aspects of student development and the broad aims of the study can be stated as follows:

- to integrate John Holland's model of vocational personalities and David Kolb's model of learning abilities and styles;
- to use subjects representing different cultural groups from two fields of study at the University of Pretoria in an empirical study to investigate the possible integration of the two models;
- to investigate the psychometric properties of two normative forms of Kolb's Learning Style Inventory.

The subjects used in the empirical part of the study were first-year university students registered for English courses for either a science or a human sciences degree. The study was thus placed in the context of student development. A literature study of student development was undertaken (see Chapter 2). Theories on student development were described and factors affecting student development were identified. Student development is represented by academic development, career

development and personal development. In this study Kolb's theory of experiential learning represents an aspect of academic development and Holland's theory of person-environment interaction represents an aspect of career development.

In order to develop a theoretical integration of Holland's model of vocational personalities and Kolb's model of learning abilities and styles a literature study on these two theories was done.

Holland's theory of vocational personalities and work environments was described in Chapter 3. The six personality types (Realistic, Investigative, Artistic, Social, Enterprising, Conventional) as well as concepts and assumptions central to the theory were described and some practical uses of the theory were highlighted. A criticism of the theory was given.

Kolb's theory of experiential learning and learning styles was described in Chapter 4. Characteristics of experiential learning and the four learning abilities (Concrete Experience, Reflective Observation, Abstract Conceptualization, Active Experimentation) and four learning styles (Diverger, Assimilator, Converger, Accommodator) were described. Some practical uses of the theory were highlighted and criticism of the theory was given. Special attention was paid to the literature on the Learning Styles Inventory (LSI), the instrument Kolb devised to assess learning abilities and styles. Kolb's theory has been well received, but criticism of the psychometric properties of the LSI, both the original 1976 version and the revised 1985 version, undermines the confident use of the LSI in research, educational and counselling situations. The LSI is an ipsative instrument. The usual statistical procedures used are not applicable to ipsative measures because of the lack of independence and negative correlations among items. Although an ipsative measure is designed to measure intra-individual differences, the limitations placed on the statistical analysis of data of ipsative measures makes it inappropriate for reliability and validity evaluation of the instrument. For these reasons two normative versions of the LSI were used in this study (see 6.3.3).

A theoretical integration of Holland's model of vocational personality types and Kolb's model of learning abilities and styles was proposed in Chapter 5. Information on Holland's personality types and Kolb's learning abilities and styles was brought

together. Research results in which both Holland and Kolb measurement instruments were used were reported and discussed in terms of the proposed integrated model. A description and visual representation of the integrated model was then presented (see 5.3 and Figure 5.1).

The research design and procedure for the empirical part of this study are described in Chapter 6. As stated above, the subjects used in the empirical part of the study were first-year university students registered for English courses for either a science (BSc) or a human sciences (BA) degree.

The psychometric properties of the two measures of learning style, the Learning Style Inventory (LSI) and the Learning Style Questionnaire (LSQ), were investigated. Item analysis of each instrument was done and the internal reliability of the four learning ability scales was determined using the alpha coefficient. The frequency distribution of the four learning styles for each instrument for the BSc and BA groups was determined.

The interaction of vocational personality type as measured by the Self-Directed Search (SDS) and learning abilities and styles as measured by the LSI and LSQ for the BSc and BA groups was investigated. Hotelling's T test was used to test for significant differences between the average profiles of these two groups. Discriminant analysis and factor analysis was then carried out. Intercorrelations for personality types and learning abilities for the two groups were determined. Frequency distributions of personality types and learning styles for the two groups were determined.

The results of the empirical study described in Chapter 6 were reported in Chapter 7.

The internal reliability of the LSI and LSQ was found to be relatively high. The bipolar dimensions (AC-CE and AE-RO) theorized by Kolb were confirmed for the LSQ and partially confirmed for the LSI. The presence of a response bias for both instruments was suspected. It would appear that the LSI was more successful than the LSQ in differentiating learning abilities and styles in the sample used.

Results pertaining to the proposed integrated model of vocational personality types, and learning abilities and styles were discussed in section 7.5. Although there were

some findings contrary to the proposed integrated model, most of the findings confirmed the model. It was decided not to modify the model as proposed in Chapter 5 in the light of the present research findings.

The theories and instruments used in this study show promise for use in further theory building, career counselling and academic advising. Recommendations arising from this study are presented in the following section.

8.2 RECOMMENDATIONS

The recommendations pertain to the two main aims of the study:

- to integrate John Holland's model of vocational personality types and David Kolb's model of learning abilities and styles; and
- to investigate the psychometric properties of two normative forms of Kolb's Learning Style Inventory, namely the Learning Style Inventory (LSI) and the Learning Style Questionnaire (LSQ).

Further research is needed to validate the proposed integrated model and to gather more information on the two normative measures of learning abilities and styles.

8.2.1 Further research to validate the proposed integrated model

The proposed integrated model of vocational personality types and learning abilities and styles (see Chapter 5) is based on the theories of John Holland (see Chapter 3) and David Kolb (see Chapter 4). These theories were developed in the context of North American cultures. In this study a multicultural student sample was used, but the under-representation of whites in the BA group (see Table 6.3) precluded an investigation of possible differences according to cultural group. The Coloured, Indian and Asian cultural groups were under-represented in both the BSc and BA groups. Gender could also not be used as a variable due to the under-representation of males in the BA group (see Table 6.2).

Further possible research should include sufficient subjects of diverse cultural groups

and both gender groups to investigate the validity of the model, particularly for the South African context. In this study only first-year students registered for English courses for degrees in science and the human sciences were included. Students in all fields of study and in different year groups need to be included as well. The LSI and LSQ would need to be translated to include Afrikaans-speaking students.

8.2.2 Further research to investigate the psychometric properties of the LSI and the LSQ

8.2.2.1 Suspected response bias

A five point Likert scale was used for the LSI (see Appendix B) where:

1 = Not at all like me
2 = Somewhat unlike me
3 = Neutral
4 = Somewhat like me
5 = Very much like me

Options 1 and 2 were endorsed at most by 35% of respondents. For 28 out of 48 items options 1 and 2 where used by 10% or less of respondents. The relatively high item means (see Table 7.2) reflect this. This could indicate a response bias with respondents favouring socially acceptable responses.

Each item of the LSQ (see Appendix C) consists of a word pair on a five-point semantic differential scale. Each of the two words in an item represent opposite learning abilities. A suspected response bias (see 7.2.4) favouring "logical" (Abstract Conceptualization) words above "feelings" (Concrete Experience) words, and favouring "active" (Active Experimentation) words above "passive/reflective" (Reflective Observation) words was noted.

Future possible research needs to monitor whether these normative instruments are susceptible to a response bias or whether this is a manifestation for this particular sample.

The majority of subjects in this study were not English first language speakers (see Table 6.1). These students may have experienced difficulty understanding the words used for the LSQ semantic differential scale, especially as the words are presented out of the context of a sentence. The relevance of the LSQ for subjects who are not English first language speakers needs to be established.

8.2.2.2 Reliability and validity

The same argument as stated in section 8.2.1 holds with respect to further possible research on the LSI and the LSQ. Further research should include sufficient subjects of diverse cultural groups and both gender groups to further investigate the reliability and validity of these instruments, particularly for the South African context. In this study only first-year students registered for English courses for degrees in science and the human sciences were included. Students in all fields of study and in different year groups need to be included as well. The LSI and LSQ would need to be translated to include Afrikaans-speaking students.

In this study the internal reliability of the two instruments was found to be relatively high. The test-retest reliability of the instruments needs to be established. Further investigation of the validity of the instruments for diverse samples needs to be undertaken.