Chapter 4: Methodology

4.1 Introduction

This chapter presents the methodology of the study. It describes the research design and methodological norms such as participants, instruments, and research procedure, comprising methods of data collection and analysis that address the research questions of the study. First, the mixed methods design used for the study is explained. Second, the methodological aspects such as participants and instruments are presented, and finally, the ethical considerations for the study are discussed.

4.2 Research design

A mixed methods design that comprises both quantitative and qualitative research methods was used for this study. Although quantitative and qualitative approaches were traditionally viewed as dichotomies, Northcutt and McCoy (2004) call for reconciliation in order to utilise the strengths of both for the benefit of a study. According to Ivankova and Creswell (2009) a mixed methods approach allows for a more complete understanding of the research problem, and gives the researcher an opportunity to obtain an overall picture and greater insights into the issue under investigation. The approach was primarily quantitative, based on questionnaire surveys, while the qualitative component was based on semi-structured interviews to add depth and scope to the study (Dörnyei 2007b; Dörnyei & Ushioda 2011:240; 241; Sandelowski 2003; Teddlie & Tashakkori 2003). This type of mixed methods design can therefore be characterised as a QUANqual design (Ivankova & Creswell 2009:138). First, an exploratory quantitative analysis was done to inform the intervention programme, after which a quantitative analysis was conducted to determine the efficacy of the intervention in raising affective levels in reading. Thereafter, qualitative analyses using interview responses on the teaching techniques were done. The results of the two types of analysis were drawn together to derive a nuanced understanding of the effectiveness of an affectively enriched reading intervention. The results of the interviews were to provide a useful supplement to the quantitative data and give a better understanding of the factors that influence students' learning within a socio-affective teaching approach in reading development.

The first set of quantitative data from the questionnaires was used to answer research Questions 1 and 2:

RQ1: What is the relationship between socio-affective factors and students' reading ability?

RQ2: Which socio-affective factor(s) best predict students reading ability?

The findings of research questions 1 and 2 together with the theoretical discussion were used to draw up the intervention programme in answer to research question 3:

RQ3: How can knowledge of socio-affective factors be used to design a more effective reading intervention?

The second set of quantitative data, produced by pre- and post-intervention questionnaires, assisted in answering research Question 4:

RQ4: How effective is a reading intervention programme that incorporates socio-affective factors?

Although students wrote pre- and post-intervention tests in academic reading, the results were not used for comparison, as the tests were not standardised and were compiled with the purpose of deriving a performance-based mark for the module. The results were merely used to select students for the interviews (cf. § 4.3.2). The details of the selection of students for the interviews are given in Chapter 8 where the qualitative data are discussed.

In addition to determining the validity of the construct underpinning the intervention and comparing data from the pre- and post intervention questionnaires to measure the effectiveness of the intervention, the researcher also sought to understand the students' experiences and perceptions of the efficacy of the intervention through semi-structured interviews. The next section presents the methodological norms (i.e. participants, measurement tools, data collection, data analysis) that comprise the present study.

4.3 Participants

Participants were first-year students at the University of Pretoria who had enrolled for the Academic Literacy and Academic Reading modules in 2009 and 2010. As the survey results were to guide the researcher in restructuring a programme to be implemented in 2010, it was decided that the 2009 students would be used for the survey on students' needs (phase 1). First, it would yield a large sample base, and second, it would provide

enough time for the researcher to analyse the results and restructure the reading programme for implementation in January 2010 (phase 3). The 2009 students who responded to the student profile questionnaire were registered for the same modules as the 2010 students who underwent the intervention, ensuring similarity in the student profile.

4.3.1 Phase 1 (2009 Exploratory survey)

Two groups of 2009 first-year students participated in this phase of the study. One group consisted of first-year students taking the compulsory Academic Literacy module. These students had been identified by the Test for Academic Literacy Levels (TALL) to be at risk or at high risk of failure, academically. Results of TALL are given in codes: students at level 1 are deemed to be at *High Risk*, and those at level 2 are *At Risk*. Students at level 3 are perceived to be at borderline level and are expected to rewrite the test in order to be placed at either level 2 or 4. Students at levels 1 and 2 are referred to as the *At Risk* group, and are required to take the compulsory Academic Literacy module to minimise the risk of failure. The total number of students who responded to the questionnaire from this group was 1168.

The other group also consisted of first-year students who were registered for an elective module, Academic Reading in 2009, to fulfil the language requirement for their faculties. A number of degree programmes from various faculties require students to register for a language-related module of 12 credits as part of their academic programme. This group of students, referred to as the *Low Risk* group, were identified by the TALL as having low or negligible risk of failure (level 4 – *Low Risk*; level 5 – *No Risk*), and were therefore given the option to choose any language module to meet the language requirement. The total number of students from this group who filled in the questionnaire was 1107. The combined total number of respondents was therefore 2258. This cohort of students (*At Risk* and *Low Risk*) participated in the exploratory study in phase 1.

4.3.2 Phase 3 (2010 quasi-experimental study)

The 2010 cohort of students that participated in the intervention in phase 3 was similar to the 2009 cohort and consisted of *At Risk* and *Low Risk* groups. For purposes of the quasi-experimental study each group, *At Risk* and *Low Risk*, comprised an intervention and a control class. In other words, four class groups participated in the study. As students selected their lecture times themselves, depending on the free timeslots on their timetables,

the students in each class were representative of all the first-year students registered for that module. The groups used for the study were not selected by any specific method, except that, as a matter of convenience, the researcher used the groups assigned to her for teaching. It was therefore a quasi-experimental study. In quasi-experiments, the investigator uses control and experimental groups, but does not randomly assign participants to groups. Instead, intact groups available to the researcher are used (Cresswell 2009:158-59). The intervention classes were chosen due to their relatively low numbers, in order to make marking less burdensome and for immediate feedback to be given. However, owing to the fact that students had the option to change classes in the first few weeks of lectures, the numbers in the intervention class of the *At Risk* group increased.

Although there were 323 students in the combined classes, only 195 questionnaires were used. The reason for the difference in the number of students in the classes and the number of questionnaires used for the study was that the responses had to be matched, and therefore those questionnaires that did not have corresponding pre-intervention and post-intervention versions were discarded. The 195 questionnaires consisted of 76 in the *At Risk* group (41 intervention, 35 control) and 119 in the *Low Risk* group (49 intervention, 70 control).

For the qualitative data, students in the intervention classes were selected on their performance in two tests on academic reading. They wrote a reading test at the beginning of the module, and another at the end of the module. The average for each test was calculated per group. From these two tests two high achieving students, two with average marks and two with low marks, were to be selected from the intervention groups (*At Risk* and *Low Risk*) for the interviews. Thus, there were supposed to be six students per group. However, due to the fluidity of the classes and the fact that the interviews could only take place at the end of the module this selection method was slightly altered. All the students who obtained the highest, lowest and average marks were identified in both pre- and post-tests and from both *At Risk* and *Low Risk* intervention groups. Forty-seven students were identified, but 40 students were interviewed. These students were contacted by e-mail and by phone, and a date and time that were suitable for them were arranged for the interviews. Students were interviewed individually, and the duration was approximately 45 minutes for each student.

4.4 Measurement tools

The measurement tools comprised questionnaires (Appendix 3) that consisted of a 5-point-Likert scale (positive to negative). The questionnaires comprised questions from Grabe and Stoller (2002:243) and Guthrie, Wigfield and VonSecker (2000:341), which were adapted to suit the context, and additional questions deemed necessary by the researcher were included. A pilot study conducted in 2008 (Boakye & Southey 2008) assisted in improving the questionnaires for validity and reliability. Items that were not compatible were deleted.

The questionnaires used for phase 1 comprised 65 questions (Appendix 3A), whereas the questionnaires for phase 3 comprised 54 questions (Appendix 3B). The questionnaires were divided into nine categories. For phase 1, these categories were used as independent variables in relation to students' literacy levels, which was the dependent variable. Students' reading proficiency or literacy levels were determined by the test for academic literacy levels (TALL). TALL is used to assess the literacy levels of students, in order to determine those who are at risk or high risk of failure, to be placed on academic literacy support programmes.

4.4.1 Phase 1 (2009 exploratory study on students' needs)

For the 2009 exploratory study on students' profiles, other variables (i.e. students' registered faculty, gender and home language) were included in the analysis. The nine categories consisted of eight socio-affective factors (*reading experience, social reading environment/social literacy, interest, attitude, self-efficacy, intrinsic motivation, extrinsic motivation, reading habits*); and a cognitive/metacognitive factor (*strategy use*) as laid out in the questionnaire, which is included in Appendix 3A. The constructs of the questionnaire items are discussed below.

4.4.1.1Reading experience

Questions in this category probed respondents' past experience with reading in the home, at school and on a personal level. It was expected that a positive past experience with reading would lead to a love for reading, which leads to frequent reading and engaged reading, and results in the development of reading proficiency, academic literacy and consequently academic achievement. A negative reading experience does not develop a

love for reading and therefore reading is burdensome and rarely undertaken, leading to low reading proficiency that spills over to low academic literacy and consequently poor academic performance. Six questions, comprising questions 1 to 6, contributed to this construct.

4.4.1.2 Reading in the social environment/social literacy

This category sought to elicit students' reading in the social context, with family members, friends and the wider community. It is expected that students who interact in social environments that have high positive literacy practices will be influenced to read, and thus become proficient readers. On the other hand, students who are raised in social environments with poor or inappropriate literacy practices will not develop a love for reading and will therefore not engage in frequent reading to become proficient readers. Thus, cultural and social practices could have negative or positive influence on students' reading habits and reading ability. Five questions, comprising questions 7 to 11, contributed to this construct.

4.4.1.3 Interest in reading

Students' reading for pleasure about topics that interest them, and the interest they have in reading as an activity, were elicited in this category. It was expected that students who have high interest in reading will read frequently and become engaged readers to reap the gains thereof. Five questions, comprising items 12 to 16, contributed to this construct.

4.4.1.4 Attitudes towards reading

The joy and pleasure that students derive from reading, the perceptions that they have of reading, and the ease with which they settle down to read, as well as the importance and usefulness of reading were elicited in this category to ascertain their attitude towards reading. A positive attitude is expected to translate into high self-efficacy that will increase students' motivation and provide the intention to read. Six questions, comprising items 17 to 22, contributed to this construct.

4.4.1.5 Self-efficacy

This construct refers to students' beliefs and perceptions of their successes in reading. Questions in this category were geared towards respondents' perception of their own reading capabilities, the challenges they encounter and the confidence they have in themselves as

readers. A positive perception augurs well for reading development. A negative perception relates to poor reading ability. Self-efficacy has been known to correspond with reading ability and academic performance. Ten questions, comprising items 23 to 32, contributed to this construct.

4.4.1.6 Intrinsic motivation

Students' curiosity in reading, their involvement and their preference for challenge in reading were elicited in this category. High intrinsic motivation is said to lead to frequent and engaged reading, which leads to many gains in reading ability. Low intrinsic motivation, on the other hand, leads to infrequent reading, poor reading ability and frustration level reading. Due to research findings on the relationship between motivation and reading ability, and the fact that Guthrie and Wigfield's (2000) model is based on motivation, the items in this category were almost double the average for other categories. Thirteen questions, comprising items 41 to 53, contributed to this construct.

4.4.1.7 Extrinsic motivation

This category dealt with motivation from external influence, such as recognition and competition. It was used to determine the level of external influences, such as praise and rewards, on students' motivation for reading. Although external influences are said to lead to temporal and superficial engagement, current studies have shown that extrinsic motivation can lead to positive achievement, especially if the external influence is internalised by the reader. Extrinsic motivation assists in increasing the amount and frequency of reading. Seven questions, comprising items 54 to 60, contributed to this construct.

4.4.1.8 Reading strategies

The types of strategies that students use for comprehension were elicited in this category. Proper orchestration of appropriate reading strategies leads to high reading comprehension and high self-efficacy. Reading strategies could involve processing (cognitive) or monitoring (metacognition) strategies. The majority of the questions in this section are centred on processing strategies. Appropriate use of strategies is crucial for successful academic reading at higher (tertiary) levels. Eight questions, comprising items 33 to 40, contributed to this construct.

4.4.1.9 Reading habits

Questions in this category tapped into the frequency with which students read, at the time of filling in the questionnaire, and the type of genres that they read; whereas questions on reading experience refer to past experience with reading from childhood, reading habits refer to current reading behaviour. Research has shown that positive reading habits develop reading ability. It is expected that students who have positive reading habits will be proficient readers, whereas those with negative reading habits will be poor readers. Five questions, comprising items 61 to 65, contributed to this construct.

4.4.2 Phase 3 (2010 quasi-experimental study)

Phase 3 consisted of questionnaires and interviews as measurement tools.

Questionnaires

The same questionnaire that was used for phase 1, the 2009 exploratory study, was used for Phase 3, the 2010 quasi-experimental study. The 2010 quasi-experimental study of phase 3 was used to answer the fourth research question, on the efficacy of the intervention. The aim was to elicit students' responses on their perceived affective levels, reading habits and strategy use before and after the intervention. However, the first two sections of the pre-intervention questionnaire (*past reading experience*, which included past school and childhood reading experiences, and *social literacy*, which included family and social reading experiences) were deleted from the post-intervention questionnaire, as the questions elicited fixed past experiences, and had no bearing on the intervention. The second (i.e. post-intervention) questionnaire therefore consisted of seven sections of 56 questions (Appendix 3B). The pre- and post-intervention questionnaires were thus compared on seven categories: *interest in reading, attitudes towards reading, self-efficacy* or *perceptions of reading capability, intrinsic motivation, extrinsic motivation, reading strategies* and *current reading habits.*

Interviews

In terms of the qualitative data, semi-structured interviews (cf. § 8.2.2) that allowed students the freedom to express open-ended views to questions were conducted. These questions centred mainly around the areas of motivational teaching techniques that were used for the intervention: *learning goal, relevant texts, teacher support, competence support/strategy instruction, autonomy, collaboration, praise and rewards, humanistic learning environment,* and *extensive reading.*

4.5 Data collection

The data collection was conducted in three phases. The exploratory phase 1 data were collected via a questionnaire survey from 2258 first-year students in 2009. The quasi-experimental phase 3 data were collected in 2010 – quantitatively through questionnaires, and qualitatively through interview sessions.

4.5.1 Phase 1 (2009 exploratory study on students' needs)

The questionnaires were distributed to the *At Risk/High Risk* students during one class period. Students who were not in class on the day did not participate. Due to incorrect or incomplete data not all 2258 responses were used. Some students left out certain sections of the questionnaire; therefore, the number (N) varied from section to section. The highest number was 1816 for the sections on *reading experience* and *self-efficacy*, and the lowest number 1812 for the section on *extrinsic motivation*. Permission was sought from Academic Literacy lecturers to distribute the questionnaires to their students towards the end of their class time. The students taking the Academic Reading module completed the questionnaire at the end of their 2009 semester examination.

4.5.2 Phase 3 (2010 quasi-experimental quantitative and qualitative studies)

Students completed the pre-intervention questionnaire during one class period in the first two weeks of the first quarter. The post-intervention questionnaire was completed after the intervention, at different times, by the two groups. The *Low Risk* group completed the post-intervention questionnaire during one class period in the last week of the first quarter (7 week module), whereas the *At Risk* group completed the post-intervention questionnaire during one class period in the last lecture week of the second quarter, which is the end of the first semester (14 week module). Due to incorrect or incomplete data, a number of questionnaires could not be used. Also, since the pre- and post-intervention questionnaires had to be matched, those that could not be matched were discarded. The unmatched questionnaires resulted from the fluidity of the classes. Although students in the intervention classes were advised not to change classes, if possible, one could not prohibit new students from joining the class. There was thus a large number of post-intervention questionnaires that could not be used because there were no matching pre-intervention

questionnaires. Class registers were kept, and the responses of students who had attended less than 50% of the classes were also discarded.

In relation to the qualitative data, the initial research protocol, as expounded in the research proposal for the study, interviews would be conducted in three phases – at the beginning, during and after the intervention - in the form of case studies. Selected students were to be interviewed on three different occasions to determine their perceptions after each phase of the intervention. However, due to the fluidity of the classes, this was not feasible, and therefore interviews were conducted once off, after the intervention at the conclusion of the modules. The advantage of scheduling the interviews at the conclusion of the modules was that students did not feel inhibited to express their views or try to please the researcher, since their work had already been graded, and therefore their responses would not have any positive or negative effect on their achievement in the modules.

4.6 Data analysis

The quantitative data were analysed statistically, whereas the qualitative data were analysed in a more narrative manner. This section discusses the exploratory, quantitative data as well as the quantitative and qualitative experimental data.

4.6.1 Quantitative data (Phase 1)

The phase 1 data comprising questionnaire responses were analysed quantitatively using analysis of variance tests (ANOVA) and Cumulative Logit analysis. As a statistical method, ANOVA is used for making simultaneous comparisons between means. It is used to determine differences between groups on some variable, and determines the impact independent variables have on the dependent variable. It is the initial step in identifying factors that are influencing a given data set. Whereas one-way ANOVA tests measure significant effects of one factor only, two-way ANOVA tests measure the effects of two or more factors simultaneously. Two-way ANOVA tests do not only assess two factors in the same test, but also indicate whether there is an interaction between the factors or parameters. Thus, the one-way ANOVA determines only the main effects, whereas the two-way ANOVA determines main effects and interactions. Since there were a number of independent variables (i.e socio-affective factors) in this study, and in answering research question 1 an investigation into the relationship between the dependent and independent

variables was required, a two-way ANOVA test was appropriate. Since the F test of the ANOVA does not indicate the differences within the variables, a post hoc Scheffé's test was used to determine which groups differ significantly within a variable (e.g. Faculty, Literacy levels). The Scheffé test is used to adjust significance levels in a linear regression analysis to account for multiple comparisons of all possible contrasts among the factor level means and not just the pair wise differences. It is useful in analysis of variance.

In addition to the ANOVA test, a Cumulative Logit analysis was applied to the data in order to determine the strongest predictor of students reading ability. Logit models estimate the probability of the dependent variable in relation to the predictor independent variables (i.e. the probability that some event happens or situation occurs in relation to another) (Torres-Reyna 2009). The probability or odds ratio of the set of socio-affective factors (i.e. predictor variables) in relation to the response variable of students reading ability, was determined by the test.

4.6.2 Quantitative data (quasi-experimental study)

Levene's test for variance was applied to the pre-intervention questionnaires to determine the homogeneity of the groups. The quasi-experimental data, comprising the pre- and post-intervention questionnaires, were analysed using t-tests, with effect sizes calculated. Both paired and independent t-tests were used for the analyses. A t-test compares two groups so that inferences could be made on the effect of an intervention. It is used to control for experimental variability. By analysing only the difference, the test corrects the sources of scatter. In other words, it compares the improvement (if any) of intervention and control classes to see if there are differences within and between the groups. The paired t-test was used to determine significant differences within the groups for pre- and post-intervention questionnaires, and the independent t-test was used to determine significant differences between the groups at the end of the intervention. Both t-tests were therefore appropriate to be used in evaluating the efficacy of the intervention.

4.6.3 Qualitative data

The qualitative data from the interviews were analysed using content analysis, by identifying main themes and patterns. The results of the interviews were to provide a useful supplement to the quantitative data and give a better understanding of the factors that influence students' learning within a socio-affective teaching approach in reading

development. Interviews were conducted with selected students from the intervention classes, and the responses were analysed qualitatively. The selection of participants for interviews was determined by their performance in the pre- and post-test on academic reading (§ 4.3).

The interview sessions were recorded as handwritten field notes and also tape-recorded and transcribed. The electronic versions were transcribed and tallied with the manual data. Summaries of the significant and relevant ideas were compiled from the two sources (see Appendices 7A and 7B). A summary of the transcriptions and written notes was preferred, as sometimes certain information provided "may not add meaning or value to the data" (Taylor-Powel & Renner 2003:2). Because the interviews became quite interactive, students sometimes provided lengthy responses that relay very little relevant information. Sometimes the relevant information that is sifted may relate to another construct and not specifically in answer to the question asked. As a result, some constructs do not have responses from all the students, and therefore the number of responses varied for each construct.

The summaries were analysed using content analysis. Taylor-Powell and Renner's (2003:2) five steps for applying content analysis to qualitative data were followed. The first step is to indicate the limitations and level of analysis. The second is to focus the analysis by (a) question or topic; or by (b) case, individual or group; or by both (a) and (b). The third step is to categorise the information by coding into identified themes or patterns, and the fourth step is to identify the patterns and connections within and between categories. The fifth and final step is to bring all the information together for interpretation.

Step 1: Limitation

The limitation concerning the data (i.e. the interviews being interactive and sometimes not yielding adequate relevant information) has been explained above.

Step 2: Focus the analysis

Data were organised both by teaching technique and by individual responses. In other words, under each teaching technique, each student's response was given. Then a summary of the responses for all the students was recorded for each teaching technique.

Step 3: Categorise information

Preset themes as well as emergent themes were used for coding. The summary of each student's response for each teaching technique was analysed by idea or theme. Categorisation was done using themes which relate to each teaching technique. Emerging themes that were significant, such as forming of friendships, were also included.

Step 4: Identify patterns and connections within and between categories

After summarising the responses, the key ideas were identified and counted. The occurrence of each theme/idea was recorded. The number of times a theme or key idea was stated or the number of students who referred to the theme/idea was counted and recorded. In coding the responses, categories were preset according to teaching techniques, the various responses to questions on a teaching technique were considered in addition to what the literature deems relevant under each teaching technique. Relationships and connections between ideas and themes were also checked for. To derive percentages, the number of students who referred to a particular theme or idea in relation to a specific teaching technique was calculated as a percentage of the total number of students who responded to questions relating to that teaching technique. For example, if the issue of explanations being a motivating factor with regard to *learning goal* was stated 9 times or by 9 students, then 9 is divided by the number of students who responded to questions on that teaching technique (e.g. 16) and multiplied by 100 to derive a percentage (56%).

Step 5: Interpretation – use themes and connections to explain the findings

The themes and connections were summarised and analysed. Next, the data were discussed and interpreted to explain the findings. The summaries of the interview responses are presented under the teaching techniques that were used in the intervention: *learning goal*, use of *relevant and significant texts, praise and rewards, competence support* in the form of strategy instruction, *teacher support, autonomy support,* and *collaboration.*

4.8 Research outline

The study was organised in four phases:

Phase 1: Obtaining and analysing data pertaining to socio-affective aspects and reading abilities, using a questionnaire and the TALL results (Research questions 1 & 2);

Phase 2: Using the results from phase 1 to design an intervention programme (Research question 3);

Phase 3: Implementing the intervention programme using a mixed methods design, which entails quantitative analysis of questionnaire data and qualitative analysis of interview data (Reseach question 4)

Phase 4: Evaluating and drawing conclusions from the results of the quantitative and the qualitative research, both separately and in relation to each other.

4.8.1 Phase 1: pre-intervention phase of research (research questions 1 and 2)

In this exploratory phase of the study, a questionnaire comprising three sections was completed by over 1,000 first-year students. The first two were to identify salient social and affective aspects pertaining to students' reading proficiency. The third section was to solicit students' use of reading strategies.

To examine the relationship between socio-affective factors and reading proficiency, a two-way ANOVA test was used to analyse the results of the socio-affective reading questionnaire and students' performance in TALL; and to identify salient socio-affective factors that best and strongly predict students' reading ability a Cumulative Logit (regression) analysis was performed, using the socio-affective reading questionnaire results and students' performance in TALL.

4.8.2 Phase 2: Designing and administering the intervention (Research question 3)

A socio-affective reading intervention programme was designed, based on survey results from the questionnaire on socio-affective factors and the theories expounded in the literature review, and implemented.

4.8.3 Phase 3: Cross intervention analyses (Research question 4)

First Levene's test for homogeneity was performed on the pre-intervention questionnaire responses to determine the comparability of the results. Then to determine the effectiveness of the intervention programme, quantitative analysis of pre- and post-intervention questionnaire responses from both intervention and control classes were done using t-tests. Paired t-tests were used to compare for differences within groups. Specifically, students' responses before and after the intervention were compared to determine if results changed after the intervention, and whether the change was statistically

significant. Independent t-tests, with effect sizes were also applied to test for differences between groups.

4.8.4 Phase 4: Evaluation and integration of analyses

As the study used a mixed methods design, primarily, explanatory, the results of the intervention were analysed and evaluated first quantitatively and then qualitatively. As suggested by Dörnyei (2010:240) and Ivankova and Creswell (2009) the two data sets should be integrated at some stage of the research process. The quantitative data is reported on in Chapter 7 and the qualitative data is reported on in chapter 8, and both sets of data are integrated in Chapter 9. A diagrammatic presentation of the processes is given in Figure 4.1 below.

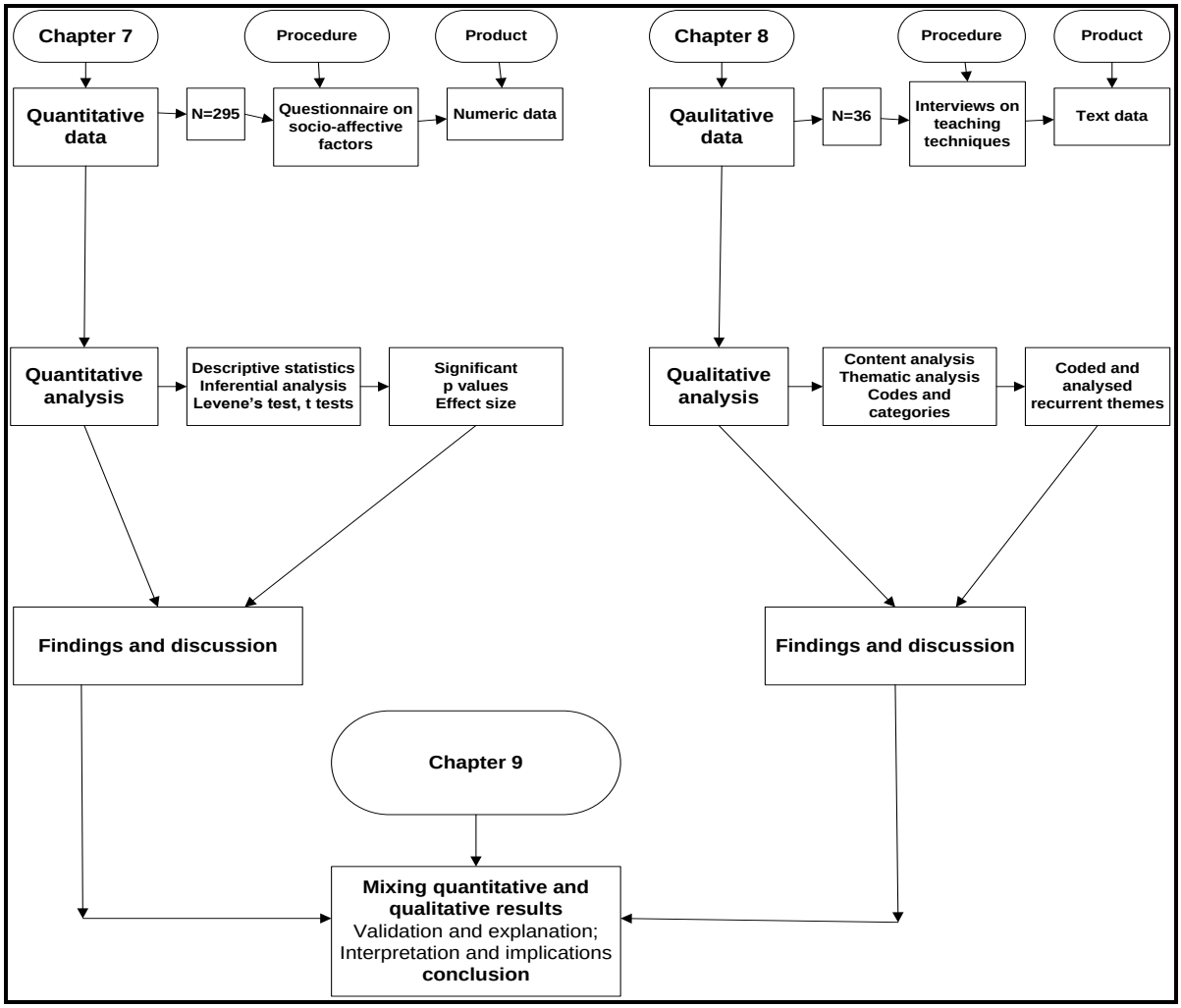

Figure 4.1: Schematic representation of the integration of quantitative and qualitative analyses

4.9 Ethical considerations

In line with Brown (2004:497) and Strydom (2002:68-73) measures were taken to ensure a fair research process in which participants were not disadvantaged. Since the research process involved tests and the use of test results, time in answering the questionnaires and the use of questionnaire answers, as well as interviews, appropriate measures were taken in each case. Informed consent forms were given to students, and further explanations were given before the onset of each activity. The informed consent forms sought students' consent for the anonymous use of their test results, questionnaire results and interview responses. Students were required to read and sign the informed consent section, which was included with the questionnaires (cf. Appendices 2A and 2B). The letter informed them about confidentiality, and assured them that they would not be disadvantaged in any way by their responses. On the other hand, students were requested to be sincere and truthful.

Students were told that the information was for research purposes only (to inform a recurriculation of the Academic Reading and Academic Literacy modules), and were also given the option to refuse participation. Consent was also sought from the lecturers who administered the questionnaires in their classes. In addition, ethical clearance was requested from the Research Proposal Committee of the Faculty of Humanities (cf. Appendix 1).

4.10 Conclusion

Having discussed the research design, and the methodological undertakings for the research, I conclude the chapter with a representation of the research outline, showing the relationships between the research questions and the data sources used to address these questions. The chapter in which each research question is discussed is mentioned, as shown in Figure 4.2 below.

Research questions		Data source	Analyses	Chapter
Research question 1	→	Questionnaire data	ANOVA test	Chapter 5
Research question 2	→	Questionnaire data	Cumulative logit	Chapter 5
Research question 3	→	Intervention	Programme	Chapter 6
Research question 4	→	Questionnaire data Pre-and post intervention	Paired and independent t-tests	Chapter 7
	↘	Interview responses	Discourse analyses	Chapter 8
		Integration of data		Chapter 9

Figure 4.2: Alignment of research questions, data source, analyses and chapters in thesis

Chapter 5: Exploration of students' socio-affective profile

5.1 Introduction

The previous chapter presented the methodology for the research, whereas Chapter 3 discussed socio-affective factors and presented Guthrie and Wigfield's (2000) framework for developing engaged reading. Their engagement model was adapted to suit a multilingual tertiary context. For example, the demands of academic reading at tertiary level and an L2 reading component were included. In addition, the importance of students' needs was acknowledged as an important component of the adapted model (Figure 3.3).

This chapter focuses on the results of the needs analysis that was conducted in the form of a survey. The first objective of this chapter is to report on the survey questionnaire and to use the information to answer the first and second research questions (§ 1.8). The second objective is to use the analysis of the survey to assist in designing a reading programme that incorporates socio-affective factors. The survey constituted phase 1 of the research study (cf. § 4.8). The survey results were used to obtain a deeper understanding of the students' profile in relation to their socio-affective levels in academic reading. The results offered insights that were used to implement the instructional framework and classroom activities/practices, as well as to corroborate research findings from other researchers.

5.2 The exploratory survey: Phase 1

The main aim of this phase of the research was to identify and analyse the socio-affective factors influencing students' reading ability using a survey questionnaire. The survey was undertaken to determine the relationship between each of the nine socio-affective factors, as the independent variables (socio-affective factors and strategy use), and the reading profile of the target group, specifically academic reading ability, as the dependent variable. In other words, the survey sought to identify the variables that individually or interactively clarify possible differences in the reading strategies, and the social and affective reading levels of two categories of first-year students as determined by results of the Test for Academic Literacy Levels (TALL) (i.e. *High/At Risk* and *Low Risk*) at the University of Pretoria, in answer to the first two research questions:

RQ 1: Is there a significant relationship between socio-affective factors and students' academic reading ability?

RQ 2: Which socio-affective factors strongly predict tertiary students' academic reading ability?

Although the main focus of the study is on academic reading ability (operationalised by TALL results), other variables, such as gender, students' registered faculty and first/home language were included to gain a better understanding of the students' profile for the purposes of designing an appropriate reading instruction programme.

RQ 1

1a) Is there a significant relationship between each of Guthrie and Wigfield's nine socio-affective factors and students' literacy levels?

1b) Is there a significant relationship between each of the nine socio- affective factors and students' home/first language?

1c) Are there significant relationships between each of the nine socio-affective factors, and the variables of gender and students' faculty of study?

5.3 Methodology

This section describes the participants, and administering of the questionnaire.

5.3.1 Participants

As the exploratory survey results on students' needs were intended to guide the researcher in restructuring a programme that meets students' needs, it was decided that the 2009 cohort of first-year students be used for the needs survey. It would yield a large sample base, and also allow enough time for the researcher to analyse the results and restructure the reading programme for implementation in January 2010. The 2009 students who responded to the questionnaire were registered for the same modules as the 2010 students who underwent the intervention, ensuring similarity in student profile. Two groups of 2009 first-year students participated in this section of the study. One group consisted of first-year students required to take the compulsory Academic Literacy module. These students had been identified by the TALL to be at risk or at high risk of failure, as a result of

lacking crucial academic literacy abilities. Results of the TALL are expressed in the format of codes: students at level 1 are deemed to be at extremely *High Risk* scores ranging between 0 to 45, whereas the performance of those on level 2 are slightly better scores ranging between 46 to 55, but are still deemed to be *At Risk.* The total number of students who responded to the questionnaire from this group was 1168.

The other 2009 group also consisted of first year students, but who were registered for an elective module, Academic Reading, to fulfil the requirement of their respective faculties. A number of Faculties require students to register for a language-related module worth 12 credits if they were identified by TALL as having little or no risk of failure (level 4 – low risk; level 5 – negligible or no risk). The total number of students from this group who filled in the questionnaire was 1107. The combined total number of respondents was therefore 2258.

5.3.2 Procedure

Since the questionnaire was distributed to the *At Risk/High Risk* students during class, students who were not in class on the day could not participate. Furthermore, not all 2258 responses were used due to incorrect or incomplete data. Some students left out certain sections of the questionnaire; and therefore, the number (N) varied from section to section. The highest number was 1816 for the section on *reading experience* and *perceptions of reading capabilities (self-efficacy)*, and the lowest number 1812 for the section on *extrinsic motivation*.

Permission was sought from Academic Literacy lecturers to distribute the questionnaires to their students towards the end of one class period. The students in the *Low Risk/No Risk* who were taking the Academic Reading module completed the questionnaires at the end of their 2009 June/semester examination. Students were informed about confidentiality, and assured that they would not be disadvantaged in any way by their responses and were asked to be sincere and truthful. They were told that the results would be used to inform a restructuring of the Academic Reading and Academic Literacy modules.

5.3.3 Measurement tool/instrument (questionnaire)

The questionnaire consisted of a 5-point-likert scale (positive to negative), comprising 65 questions divided into nine categories corresponding with the social and affective factors discussed under section 3.2 in Chapter 3 and again in 4.4.1. These categories were used as independent variables in relation to students' literacy levels, which was the dependent variable. Students' literacy levels were determined by TALL. Other variables were students' registered faculty, gender and home language. The nine categories consisted of eight socio-affective factors *(reading experience, social reading environment/social literacy, interest, attitude, perceptions of reading capabilities/self-efficacy, intrinsic motivation, extrinsic motivation, reading habits)*; and a cognitive/metacognitive factor (*strategy use*) as laid out in the questionnaire, which is included as Appendix 3A. The details pertaining to the categories in the questionnaire are discussed in detail with relevant literature in Chapter 4, under research instruments (cf. § 4.4).

5.3.3.1 Reading experience

Questions in this category probed respondents' past experience with reading in the home, at school and on a personal level. Six questions comprising questions 1 to 6 contributed to this construct.

5.3.3.2 Reading in the social environment/social literacy

This category sought to elicit students' reading in the social context, with family members, friends and the wider community. Five questions, comprising questions 7 to 11, contributed to this construct.

5.3.3.3 Interest in reading

Students' reading for pleasure about topics that interest them, and the interest they have in reading as an activity, were elicited in this category. Five questions, comprising items 12 to 16, contributed to this construct.

5.3.3.4 Attitudes towards reading

The joy and pleasure that students derive from reading and the ease with which they settle down to read, as well as the importance and usefulness of reading, were elicited in this category to ascertain students' attitude towards reading. Six questions, comprising items 17 to 22, contributed to this construct.

5.3.3.5 Self-efficacy

This construct refers to students' perceptions of their reading ability. Questions in this category were geared towards respondents' judgements of their reading capabilities, the challenges they encounter and the confidence they have in themselves as readers. Ten questions, comprising items 23 to 32, contributed to this construct.

5.3.3.6 Intrinsic motivation

Students' curiosity in reading, their involvement and their preference for challenge in reading were elicited in this category. Thirteen questions, comprising items 41 to 53, contributed to this construct.

5.3.3.7 Extrinsic motivation

This category dealt with motivation deriving from external influence, such as recognition and competition. Seven questions, comprising items 54 to 60, contributed to this construct.

5.3.3.8 Reading strategies

The types of strategies that students use for comprehension were elicited in this category. Reading strategies could involve processing (cognitive) or monitoring (metacognition) strategies. The majority of the questions in this section were centred on processing strategies. Eight questions, comprising items 33 to 40, contributed to this construct.

5.3.3.9 Reading habits

Questions in this category tapped into the frequency with which students at the time of filling in the questionnaire read, and the type of genres that they read. Five questions, comprising items 61 to 65, contributed to this construct.

5.4 Results

The results of the study, presented below, have been derived from responses to the questionnaire in relation to the above socio-affective variables. Statistically, the internal reliability of the nine groupings was obtained using a Cronbach's alpha measurement. Responses were consistent in each category (Cronbach's alpha not less than 0.7 for each category); therefore the aggregate responses for each socio-affective factor were used instead of responses to each individual question.

First, descriptive statistics are presented, followed by inferential statistics on the survey results in an attempt to answer the first and second research questions. The descriptive statistics give a general overview of the results, whereas the inferential statistics show the statistical relationships between the variables and provide answers to research questions 1 and 2.

5.4.1 Descriptive statistics

Table 5.1 presents the profile of the students with regard to the variables of gender, home language and registered faculty in relation to the dependent variable of literacy levels. As shown in the table below, there were almost twice as many females (N=1145) as there were males (N=671). This indicates that the females outnumbered the males registered for this module. The majority of the students were registered in the Faculty of Economics and Management Sciences (EMS) (N=896), with *Low Risk* students on literacy level 4 (N=806) comprising almost half of the total number of first year students who responded to the questionnaire. Students who spoke English (Eng) or Afrikaans (Afr) as a first language were almost equal in number (Eng N=486; Afr N=495). However, the indigenous South African languages (ISAL) speakers were in the majority (N= 650). Interestingly, but not surprising, the first language (L1) speakers of English or Afrikaans were mostly in the *Low Risk* group, at literacy level 4. In the *No Risk* group, literacy level 5, English first language speakers were the majority (N=125). Although ISAL students were on the whole in the majority, only 16 tested at level 5 (*No Risk*) and 136 at level 4 (*Low Risk*). The majority of the 650 ISAL students were in the *High Risk* and *At Risk* groups (levels 1 and 2). The distribution is shown in Table 5.1 below:

Table 5.1 Distribution of literacy groups

Literacy level	1 High Risk	2 At Risk	3 Borderline	4 Low Risk	5 No Risk	Total
Gender						
F	139	294	91	507	114	**1145**
M	81	145	57	299	89	**671**
Faculty						
EMS	69	163	57	490	117	**896**
EBIT	56	76	25	36	10	**203**
Humanities	52	116	43	141	30	**382**
Law	15	37	10	51	15	**128**
NAS	28	47	13	88	31	**207**
Home language						
English	18	36	9	298	125	**486**
Afrikaans	29	75	35	308	48	**495**
ISAL	140	272	85	137	16	**650**
Other	33	56	19	63	14	**185**
Total	**220**	**439**	**148**	**806**	**203**	**1816**

EMS: Economics and Management Sciences
EBIT: Engineering, the Built Environment and Information Technology
Humanities: Human Sciences
Law: Law
NAS: Natural and Agricultural Sciences

Tables 5.2 and 5.3 below provide summary statistics of literacy groups and language groups in relation to the nine socio-affective variables.

Table 5.2: Descriptive statistics (means and standard deviations) for literacy groups in relation to socio-affective variables

Literacy level	1 High Risk	2 At Risk	3 Borderline	4 Low Risk	5 No Risk
Factors	**Mean SD**	**Mean SD**	**Mean SD**	**Mean SD**	**Mean SD**
Experience	2.50 (0.87)	2.43 (0.75)	2.35 (0.87)	1.94 (0.67)	1.70 (0.55)
Social literacy	2.77 (0.81)	2.78 (0.73)	2.75 (0.72)	2.59 (0.73)	2.43 (0.81)
Self-efficacy	2.44 (0.77)	2.38 (0.72	2.19 (0.67)	2.09 (0.69)	1.75 (0.57)
Interest	2.09 (0.86)	2.14 (0.82)	2.17 (0.78)	2.08 (0.83)	1.75 (0.77)
Attitude	1.96 (0.75)	1.95 (0.72)	1.94 (0.69)	1.93 (0.67)	1.69 (0.61)
Int motivation	2.38 (0.68)	2.49 (0.66)	2.44 (0.62)	2.39 (0.69)	2.06 (0.64)
Ext motivation	2.61 (0.86)	2.58 (0.81)	2.62 (0.91)	2.85 (0.89)	2.77 (0.97)
Strategy use	2.25 (0.72)	2.37 (0.61)	2.35 (0.68)	2.53 (0.60)	2.47 (0.53)
Reading habits	2.65 (0.64)	2.62 (0.67)	2.62 (0.67)	2.64 (0.63)	2.48 (0.64)

Means with standard deviations (SD) in brackets are given for each socio-affective factor and literacy group. Means below 2 are considered low and rated positive, whereas means above 2 are considered high and rated negative.

With regard to the first row of Table 5.2, the means show an alignment with literacy groups. In other words, students with poor reading experience (high mean, indicative of negative responses) were in the *High/At Risk* group, whereas students who have had a

relatively better past reading experience (low mean, indicative of positive responses) were in the *Low/No Risk* group. This indicates that poor reading experience is related to low literacy levels, and rich reading experience corresponds with high literacy levels. The means for *social literacy, self-efficacy, current reading habits* and *attitude* were also aligned with the literacy groups. This shows that the poorer the social literacy, the lower the self-efficacy, and the more negative the reading habits or attitude of the students towards reading; the lower the literacy level. Similarly, the richer the social literacy, or the higher the self-efficacy, or the more positive the reading habits of students and their attitudes towards reading; the higher their literacy level and reading proficiency. The means for literacy levels 2, 3, 4 and 5 show that students' interests and intrinsic motivation were also aligned with their literacy levels. However, it is interesting to note that students at *High Risk*, level 1, had relatively higher interest (relatively lower mean, 2.09) than those *At Risk*, level 2, (M=2.14) and the borderline group on level 3 (M=2.17); and relatively higher intrinsic motivation (relatively lower mean 2.38) than those on level 2 (M=2.49), 3 (M=2.44), and 4 (M=2.39). Also worthy of note is the relatively better reported strategy use (shown by the relatively lower mean 2.25) of the *High Risk* students compared to the relatively poorer strategy use (shown by relatively higher means) indicated by the students in the other groups.

On the whole, besides the low mean figures (indicating positive responses for all the literacy levels) for the affective factor *attitude towards reading*, students' responses were negative, as shown in the high means that are above 2 for the other socio-affective factors. Students in the *No Risk* group, level 5, however, are distinct from students in the other literacy groups, as they indicated positive responses for four of the nine socio-affective factors: *experience, self-efficacy, interest,* and *attitude.*

Table 5.3 below presents the means and standard deviations for the socio-affective variables in relation to language groups.

Table 5.3: Descriptive statistics (means and standard deviations) for language groups in relation to socio-affective factors/variables

Language groups	English M (SD)	Afrikaans M (SD)	ISAL M (SD)	Other M (SD)
Factors				
Experience	1.81 (0.53)	1.88 (0.63)	2.54 (0.84)	2.25 (0.74)
Social literacy	2.57 (0.75)	2.53 (0.74)	2.82 (0.77)	2.67 (0.69)
Self-efficacy	1.99 (0.67)	2.18 (0.74)	2.28 (0.72)	2.25 (0.77)
Interest	2.06 (0.86	2.18 (0.89)	2.01 (0.75)	2.02 (0.83)
Attitude	1.92 (0.67)	2.01 (0.75)	1.85 (0.65)	1.87 (0.70)
Int motivation	2.32 (0.71)	2.47 (0.74)	2.38 (0.61)	2.33 (0.66)
Ext motivation	2.78 (0.93)	2.91 (0.93)	2.58 (0.81)	2.65 (0.85)
Strategy use	2.53 (0.57)	2.59 (0.64)	2.27 (0.62)	2.36 (0.59)
Reading habits	2.63 (0.63)	2.69 (0.68)	2.56 (0.63)	2.57 (0.60)

Means (M) with standard deviations (SD) in brackets are given for each socio-affective factor and language group

The means given in the table show that *attitude* is the only socio-affective factor that elicited positive responses in all language groups: the highest mean, least positive (2.01) for Afrikaans L1 students and the lowest mean, most positive (1.85) for the ISAL L1 group. Besides *attitude*, other socio-affective factors were distributed as follows: For the social factor *past reading experience,* English and Afrikaans students displayed positive responses (English mean: 1.88; Afrikaans mean: 1.88), whereas the ISAL and 'Other' groups displayed negative responses (ISAL mean: 2.54; 'Other' mean: 2.25). The standard deviation for English L1 speakers was .53 compared to the ISAL group that registered .84, indicating a more convergent response from the English L1 group, and a wider variation in the ISAL group. Responses to *social literacy* were negative across language groups. ISAL students were the most negative, displaying the highest mean of 2.82. English L1 students indicated the highest *self-efficacy*, whereas the ISAL group recorded the lowest.

Interestingly, the ISAL L1 speakers, the majority of whom were in the *At Risk* and *High Risk* groups, recorded the most positive interest in reading among the four language groups. Students' intrinsic motivation was low across all language groups. However, English L1 students displayed relatively higher motivation (lowest mean of 2.32). Students indicated very low extrinsic motivation across all language groups. ISAL L1 speakers showed relatively better extrinsic motivation (Lowest mean of 2.58). It seems that ISAL students are relatively more susceptible to extrinsic motivation than the members of English and Afrikaans groups. Surprisingly, students across all language groups scored

low on the cognitive/metacognitive factor of strategy use. In other words, all students indicated negative responses for strategy use. It is also surprising that the ISAL group, indicated the least negative strategy use compared to the other language groups. The theory that poor readers use few and inappropriate strategies, and proficient readers use a combination of strategies, did not seem to apply to this cohort of students. However, there may be other reasons for these unexpected results. These are self-report responses and it could also be that since weaker students are more likely to provide socially acceptable responses, these students may have been giving responses that they deemed to be acceptable. Self-reporting on strategy use is also not equivalent to effective strategy use.

On the whole, students indicated negative reading habits. Afrikaans L1 students displayed the most negative reading habits (M=2.69) and ISAL speakers the least negative (M=2.56). A probable reason for the Afrikaans students' negative reading habits could be from the kind of Afrikaans literature they read as children. Afrikaans students perceive Afrikaans texts read in school as old-fashioned, boring, biased and ideologically depressing (Grobbler, personal communication, August 2012)

English L1 students were the most positive on socio-affective factors, displaying means below 2.0 for three socio-affective factors. This group of students were also in the majority in the *No Risk* group, literacy level 5. Besides reading experience, Afrikaans L1 students were low on socio-affective factors compared to English LI students. Although one would expect the Afrikaans L1 group to display more positive affective factors than the ISAL group, since many of them were in the *Low/No Risk* group, their socio-affective ratings were lower than those of the ISAL group on five of the nine socio-affective factors. Besides attitude, the 'Other' group responded consistently negative on socio-affective factors and strategy use.

5.4.2 Inferential statistics

The results of the descriptive data given above in some way assisted in answering research question 1 (What is the relationship between socio-affective factors and students' academic reading ability?). However, inferential statistics give more definite results and are used together with the descriptive data above to answer question 1 and the sub-questions derived from it.

A two-way analysis of variance (ANOVA) was used to explore the relationship between the dependent variable, literacy groups/levels, and the independent variables, socio-affective factors. An ANOVA was also performed on the mediating variables: *gender, faculty, first language* and the nine independent variables of students' *reading experience, social literacy, interest, attitude, intrinsic* and *extrinsic motivations, self-efficacy, reading habits* and *strategy use.* Only two-way interactions were used, as three- and four-way interactions contained sparse data. The main effects of the significant results are discussed, together with the results of Scheffe tests, which were used for multiple comparisons. Graphical representations are used to further explain the interacting factors. A summary of the results are given and significant results (main effects and interactions) are discussed: first for literacy groups and language groups, thereafter for faculty and gender.

5.4.2.1 Reading experience

This factor proved to be statistically significant in relation to the dependent variable of literacy groups: $F(4)=4.92$, $p=0.0006$. Employing the Scheffe test, significant differences were found between *High/At Risk* (levels 1, 2, 3) and *Low/No Risk* (levels 4 and 5) students, but not within *High/At Risk* groups. The responses of *High/At Risk* students were negative (average mean 2.6) for *reading experience* compared to the *Low/No Risk* students on levels 4 and 5 (average mean 1.8). Responses of students on level 4 were also significantly different from the responses of those on level 5. This is understandable, as the margin for level 4 is much wider, with scores ranging from 55% to 74% (cf. § 4.3.1). On average, students on level 4 were less positive than those on level 5, who were most positive in their responses to *reading experience*. The results of a Scheffe test for multiple comparisons are shown in the Table 5.4 below.

Table 5.4: Scheffe groupings and mean scores for literacy levels in relation to reading experience

Scheffe Grouping	Mean	N	Literacy level/group
A	2.50	220	1 High Risk
A	2.43	439	2 At Risk
A	2.34	148	3 Borderline
B	1.93	806	4 Low Risk
C	1.70	203	5 No Risk

The results confirm the effect of previous reading experience on students' current reading ability. In other words, students whose past reading experience is poor demonstrate poor

academic reading ability at tertiary level. This is shown in their low academic literacy levels. On the other hand, students who had rich past reading experience are at a higher academic literacy level and are more likely to succeed at tertiary level. The results therefore show a relationship between past reading experience and academic reading abilities.

In relation to language groups and *reading experience*, the ANOVA test showed significant differences: $F(3)=28.41$, $p<.0001$. ISAL students indicated the most negative reading experience. English and Afrikaans L1 students had positive reading experiences, though English L1 speakers were more positive, as demonstrated by the mean scores in Table 5.5.

Table 5.5: Scheffe grouping and mean scores for first/home language in relation to reading experience

Means with the same letter are not significantly different			
Scheffe Grouping	**Mean**	**N**	**Home/first language**
A	2.54	650	ISAL
B	2.24	185	Other
C	1.87	495	Afrikaans
C	1.80	486	English

An interaction with faculty showed Afrikaans L1 speakers in the EBIT faculty to be the most positive. In the Law faculty students with English as L1 indicated the most positive reading experience, whereas Afrikaans L1 students in the same faculty indicated negative responses. Although the ISAL speakers in this group on the whole were the most negative, the variation between them and the L1 speakers of 'other' languages was most marked in the Humanities and Natural Science faculties. It is interesting to note that in the Law faculty the 'Other' group, consisting of languages outside South Africa, were more positive than the Afrikaans group. Also worthy of note is the fact that the ISAL L1 speakers, who were the most negative in all faculties, showed the least negative responses in the Law faculty. Since the females in the law faculty showed a markedly more positive response than the males, and ISAL students on level 5 were the most positive, it could be assumed that there were more level 5 ISAL L1 females than males in the Law faculty. The interactions are shown in Figure 5.1 below.

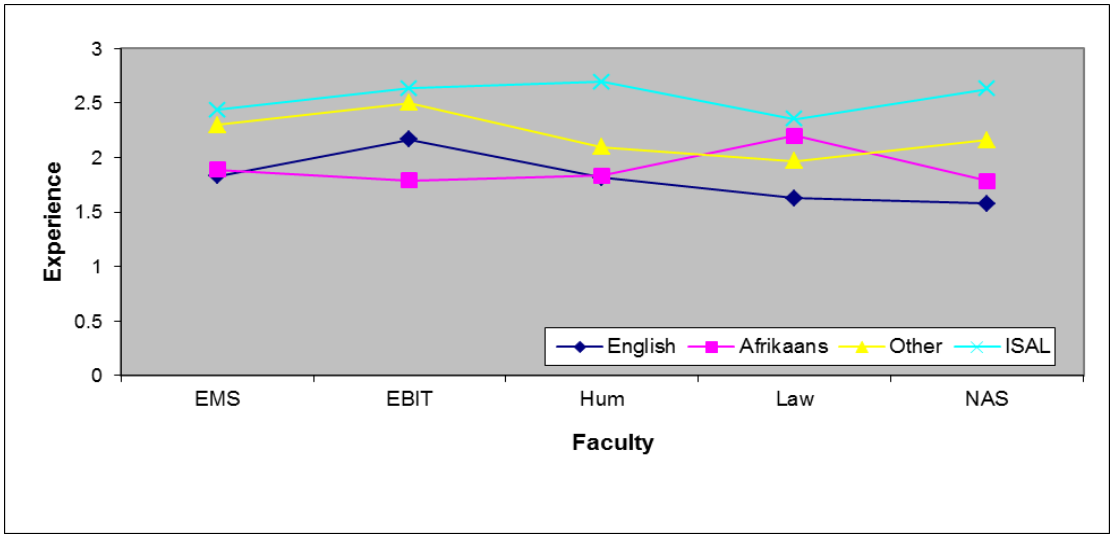

Fig 5.1: Interaction between faculty and home/first language with regard to students' reading experience

5.4.2.2 Social literacy/social reading environment

There seems to be no significant relationship between social literacy and reading ability, as ANOVA results did not show any statistical significance between students' literacy groups. However, significant results were shown for home language groups in relation to social literacy, which point to an indirect relationship between social literacy and reading ability. This is due to the fact that most ISAL speakers are in the *At Risk/High Risk* groups, and most Afrikaans and English L1 students are in the *Low/No Risk* groups. As a result, an underlying relationship between social literacy and reading ability (literacy levels) could be assumed. Statistically significant results were shown for social literacy and students' home language ($F(3)=4.08$, $p=0.0067$). That is, poor *social literacy*, as indicated by ISAL students, indirectly corresponds with poor reading ability.

Students were inclined to rate their social reading environment as poor (high means). However, ISAL L1 students were most negative, whereas Afrikaans and English L1 groups were less negative and significantly different from the ISAL L1 group. In sum, as shown by ANOVA test results, students were overall negative, indicating a generally poor social reading environment.

Interaction between L1 and faculty showed significant results: $F(12)=2.48$, $p= 0.0032$), and ISAL L1 students, especially those in the Humanities, were the most negative. These students indicated the lowest levels of social literacy. Since most students on levels 1 and 2

(*High Risk and At Risk*) are from the ISAL L1 group, it can be assumed that poor reading ability is associated with low social literacy.

5.4.2.3 Perceptions of reading capabilities (self-efficacy)

ANOVA analysis showed a statistically significant relationship between literacy groups and students' *self-efficacy:* $F(4)=8.84$, p <.0001. This significance points to a robust relationship between self-efficacy and reading ability: the lower the literacy level of the student, the lower the self-efficacy. Literacy levels of students interacted with their home language ($F(12)=1.77$, $p= 0.0473$). The significant main effects and interactions are discussed below.

First, students in the *High Risk* (level 1) and *At Risk* (level 2) groups were not statistically different from each other in their responses to self-efficacy. Likewise, the borderline group (level 3) showed similarities with the *At Risk* (level 2) and *Low Risk* (level 4) groups on this affective factor. The fact that level 3 students were similar to level 2 *(At Risk*) students and also to level 4 (*Low Risk*) students confirms the borderline status of level 3 students (cf. § 4.3.1). Level 5 (*No Risk*) students were statistically different from students on the other four levels, which confirms their relatively higher academic literacy levels, as they are deemed to be academically literate with no risk of failure.

These results confirm the levels of the academic literacy test in relation to students' reading ability, and also indicate that the levels of students' self-efficacy are aligned to their reading ability. Students on level 5 usually achieve 75% and above in TALL (cf. §4.3.1). From the survey, these students showed highly favourable levels of self-efficacy. Students on level 4 are in the majority (N= 807) and usually fall within a wide margin (approximately 53% – 74%) (cf. § 4.3.1) This means that students on level 4 share characteristics with those on level 5 (strong reading ability) and with those on level 3 (average reading ability). The wide range of students on level 4 could have contributed to their responses being significantly different from level 5, but similar to level 3.

Students on levels 1 and 2 are deemed to be *At Risk or High Risk* of failure academically, according to TALL. Survey results show these students to have the lowest levels of self-efficacy. In other words, students on both levels responded negatively to statements on perceptions of their reading capabilities. They indicated the poorest perceptions of reading

capabilities. The responses of these students to statements on their self-efficacy corresponded to their reading ability, as indicated by TALL. Specifically, the survey showed that students who indicated that they were struggling readers and had the poorest perceptions of their reading capabilities were those on level 1, followed by students on level 2, then 3, then 4 and finally 5, as shown in TALL results. A clear relationship exists between students' perceptions of their reading capabilities and their actual reading ability, as presented in their TALL results ($F(4)=8.48, p=<0001$). Students with poor reading ability have negative perceptions of their reading capabilities, and therefore low self-efficacy. The Scheffe grouping in Table 5.6 below and the corresponding means illustrate this hierarchical relationship.

Table 5.6: Scheffe grouping and mean scores for literacy levels in relation to self-efficacy

Means with the same letter are not significantly different				
Scheffe Grouping		**Mean**	**N**	**Literacy level/group**
	A	2.43	220	1 (High Risk)
B	A	2.37	439	2 (At Risk)
B	C	2.19	148	3 (Borderline)
	C	2.09	806	4 (Low Risk)
	D	1.75	203	5 (No Risk)

The responses on perceptions of reading capabilities in relation to literacy levels interacted with students' first language. Students who spoke an ISAL as home language and who were mostly in the *High Risk* group indicated the lowest levels of self-efficacy. Although on the whole, the *High Risk* group responded negatively to perceptions of their reading capabilities, English and Afrikaans L1 speakers in this group were less negative in their responses than ISAL speakers. However, among the *At Risk* students, the Afrikaans speakers were the most negative. It is interesting to note that for students on level 5 (*No Risk*) the ISAL group were the most positive in their responses to perceptions of their reading capabilities, compared to their Afrikaans and English counterparts. A marked difference is shown on level 3: the English L1 speakers showed markedly high perceptions of their reading capabilities in comparison with the other three language groups. The interactions relating to students' responses to their self-efficacy are shown in Figure 5.2 below.

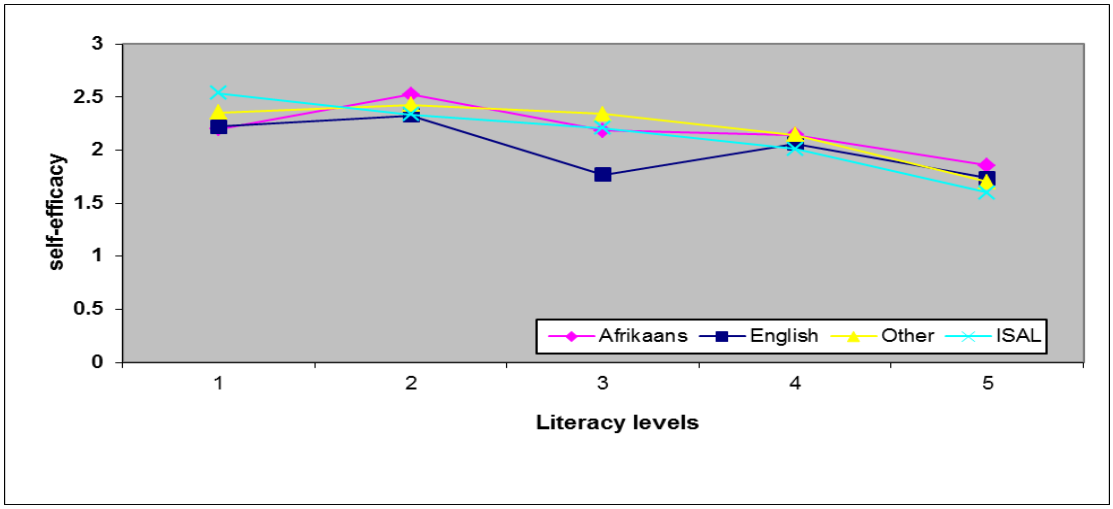

Fig 5.2: Interaction between literacy levels and students' home/first language in relation to their self-efficacy

5.4.2.4 Interest in reading

For this affective factor, the results of the ANOVA test showed that the relationship between students' interest in reading and their reading ability was statistically significant ($F(4)=5.14$, $p=0.0004$). Students on levels 1, 2, 3, and 4 were negative in their responses, indicating low interest in reading, whereas students on level 5 were positive, indicating high interest in reading. This shows that students who are on a high academic literacy level (75% +) are generally students who are interested in reading. Thus, interest in reading corresponds with high reading ability for this cohort of students. It is surprising that students on levels 2 and 3 have lower interest in reading than those on level 1. For students on level 1, the level of interest did not correspond with their reading ability as indicated by TALL test results. This confirms Schiefele's (1992:176) findings that cognitive process variables mediate the effect of interest on academic achievement. However, considering the literacy groups on the whole, students' interest in reading corresponds to their reading ability, as shown in the Scheffe test results and mean scores in Table 5.7 below.

Table 5.7: Scheffe grouping and mean scores for literacy groups and interest

Means with the same letter are not significantly different			
Scheffe Grouping	**Mean**	**N**	**Literacy level/group**
A	2.16	148	3 borderline
A	2.14	438	2 At Risk
A	2.08	220	1 High Risk
A	2.08	806	4 Low Risk
B	1.74	203	5 No Risk

Students' reading interest in relation to their home language was also statistically significant (F(3)=6.52, p=0.0002). On the whole, students responded in the negative (i.e. had low reading interest) across all language groups. However, Afrikaans L1 speakers had the lowest interest. The ISAL students were the least negative in their responses to reading interest. It is possible that interest in this regard may have been interpreted as aspirations. It is also possible that ISAL students may have given socially desirable answers, as weaker students have been shown to yield to desirability effects (Pretorius 2000:223). Surprisingly, the Afrikaans and English L1 speakers who indicated relatively better reading experiences, indicated lower interest than the ISAL group that had recorded negative reading experiences. These differences in home language groups showed significant interaction with faculty (F(12)=2.09, p=0.0148), in that there were marked differences in interest levels of different L1 groups in the Law faculty. For instance, the Afrikaans L1 students had the lowest levels of reading interest in the Law faculty and were markedly different from the ISAL group in this faculty. The ISAL Law group also had markedly lower interest levels than the English L1 group. The 'Other' L1 group had relatively higher interest levels compared to the L1 groups in this faculty. The distribution and interactions are shown in Figure 5.3 below.

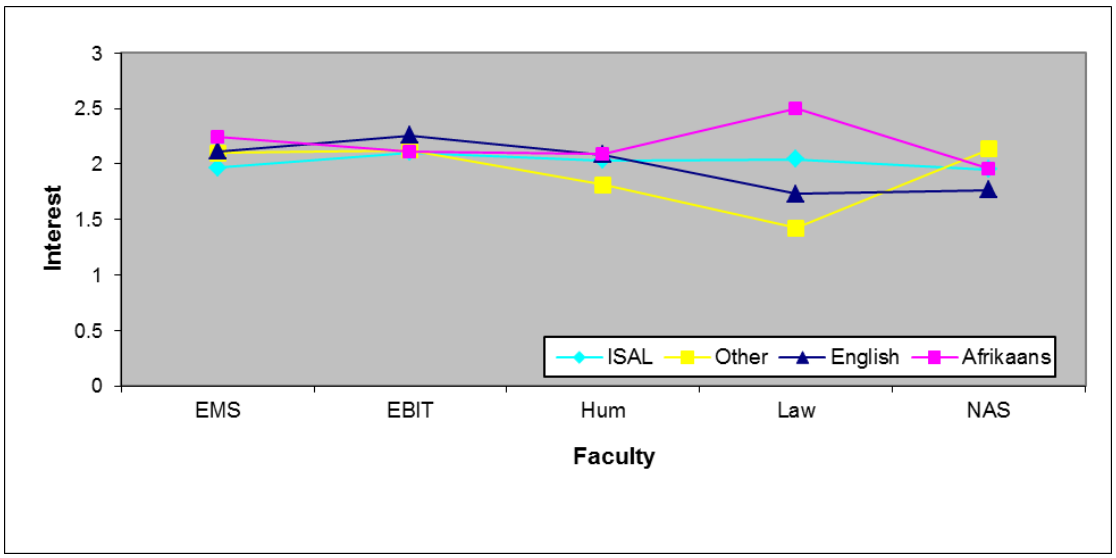

Fig 5.3: Interaction between students' faculty and their home language in relation to their interest in reading

5.4.2.5 Attitude towards reading

The ANOVA test for this factor did not show any significant results between literacy levels and students' attitude towards reading. There is therefore no direct relationship between reading ability and students' attitude towards reading for this cohort of students. However, statistically significant results were shown for home language groups and attitude ($F(3)=7.58$, $p < .0001$). As a result, an indirect relationship between literacy levels and attitude could be assumed. The Afrikaans L1 group demonstrated a negative attitude, whereas the other three L1 groups were positive in their attitude: ISAL L1 students were most positive and English L1 students least positive. The positive response from the ISAL L1 group, in contrast to the low reading ability of most ISAL students, could be associated with the mediating factor of intention, as explained by Mathewson. He states that "a positive attitude only results in reading if other influences favouring formation of positive intentions to read are present" (Mathewson 2004:1436). Another explanation could be the purposes which ISAL and Afrikaans L1 students attach to reading. These issues are discussed in more detail within the main discussion section.

The two-way ANOVA test showed interaction between first language and faculty, similar to that shown for interest. The responses were consistent across faculties, except for Law. Law students in the 'Other' group, together with English L1 group, indicated positive attitudes, and showed marked differences from the ISAL Law students, who showed fairly negative attitudes. The Afrikaans Law group, however, differed markedly from the other three L1 groups and indicated very negative attitudes towards reading. There seems to be no justifiable explanation for the negative attitude of the Afrikaans L1 speakers in the Law faculty, except that the negative attitude could have been levelled towards the reading of English texts, probably legal texts. This is an area for further investigation. The interactions are shown in Figure 5.4 below.

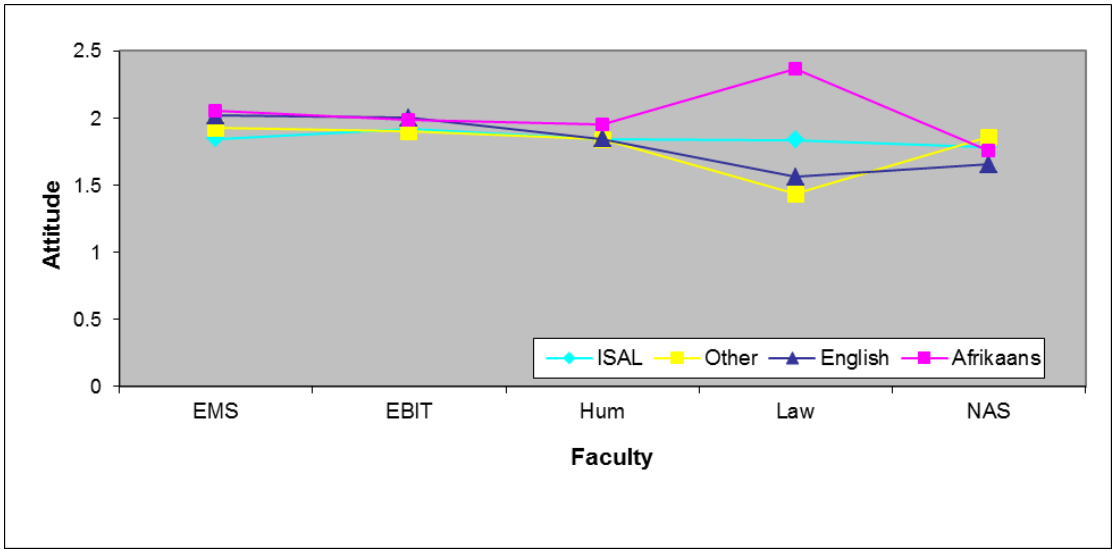

Fig 5.4: Interaction between students' faculty and home language in relation to their attitudes towards reading

5.4.2.6 Intrinsic motivation

As an important affective factor in this study, intrinsic motivation was shown to demonstrate a statistically significant relationship with reading ability: $F(1)=11.15$, $p<.0003$. The intrinsic motivational levels of the students were low for all literacy groups, as shown by the mean figures in Table 5.8 below.

Table 5.8: Scheffe grouping and mean scores for literacy codes on intrinsic motivation

Means with the same letter are not significantly different			
Scheffe Grouping	**Mean**	**N**	**Literacy level (group)**
A	2.49	439	2 (At Risk)
A	2.44	148	3 (Borderline)
A	2.39	805	4 (Low Risk)
A	2.37	220	1 (High Risk)
B	2.06	203	5 (No Risk)

Students on level 5 indicated the highest motivation among the groups. This group was significantly different from the other groups of students. Students on level 2 indicated the lowest motivation. It is interesting to note that students on level 1, extremely *High Risk*, indicated relatively higher motivation than students on levels 2, 3 and 4. This was unexpected, as poor reading ability is usually associated with low motivational levels, and vice versa. A possible reason for this unexpected result from level 1 students could be that

students may have misinterpreted the motivational questions or had given socially acceptable responses, as in their responses to reading interest. Another probable reason could be that although poor readers (as determined by TALL and also from their responses to reading experience, and self-efficacy), these *High Risk* students on level 1 have the desire and the motivation to improve on their reading proficiency. However, with regard to students on levels 2, 3, 4 and 5 a significant relationship exists between reading ability and intrinsic motivation, as shown by the hierarchical progression of the mean figures and the Scheffe test results in the above table. Except for students on level 1, the mean figures for the other groups showed that the lower the motivational level, the lower the reading ability, confirming the widely held view that low motivation corresponds with low reading ability. This refers to the 'Matthew effect', applied to reading ability by Stanovich (1986) and confirmed by Pretorius (2000) and others. In essence, the rich get richer and the poor get poorer in terms of reading ability – a cycle that is mediated by motivation.

Besides this direct relationship between reading ability and intrinsic motivation, students' first language also showed a relationship with motivation, indicating an indirect relationship between reading ability and motivation.

In relation to the L1, motivation was low for all language groups. However, the motivational level of ISAL and 'Other' L1 groups were significantly different from the Afrikaans and English L1 groups. Similarly, the Afrikaans L1 group and the English L1 group were significantly different from each other. Afrikaans speakers had the lowest motivation (again, this might be a response towards English texts, as a number of them receive tuition in Afrikaans and the questionnaire was in English). English L1 students reported the highest motivation compared to the other language groups. The Scheffe test for multiple comparisons shows these differences in Table 5.9 below.

Table 5.9: Scheffe grouping and mean scores for first language on intrinsic motivation

Means with the same letter are not significantly different				
Scheffe Grouping		**Mean**	**N**	**Home/first language**
	A	2.47	494	Afrikaans
B	A	2.37	650	ISAL
B	A	2.33	185	Other
B		2.31	486	English

5.4.2.7 Extrinsic motivation

ANOVA tests did not show a statistically significant relationship between extrinsic motivation and reading ability. Responses to statements on extrinsic motivation were statistically significant for home language (F3)=3.82, p=0.0096). Although overall responses were negative, indicating low extrinsic motivation among students, Afrikaans L1 students had the lowest extrinsic motivation followed by English L1. Both English and Afrikaans L1 students were significantly different from ISAL L1 students who had a relatively high extrinsic motivation. The mean figures and the Scheffe test results for the differences are shown below.

Table 5.10: Scheffe groupings and mean scores for first language on extrinsic motivation

Means with the same alphabet are not significantly different				
Scheffe Grouping		**Mean**	**N**	**First/home language**
	A	2.90	493	Afrikaans
B	A	2.78	485	English
B	C	2.64	185	Other languages
	C	2.57	649	ISAL

The consistent low motivational levels (intrinsic and extrinsic) shown by the students, especially Afrikaans students, point to the need for a reading programme that vigorously addresses this shortfall or inadequacy

5.4.2.8 Strategy use

Overall, the responses for this cognitive and metacognitive factor were negative. ANOVA tests did not show any statistically significant differences between reading ability and strategy use.

However, students' home language showed statistically significant differences with regard to strategy use (F(3)=9.07, p<.0001). Although students on the whole used poor reading strategies, the Afrikaans and English L1 students indicated a more inappropriate use of strategies than ISAL and 'Other' L1 groups. This may seem contradictory, as Afrikaans and English L1 groups indicated more favourable reading experiences, had better perceptions of their reading capabilities than the ISAL L1 group, and most of them were

on levels 4 and 5 (*Low or No Risk*). A possible explanation for proficient readers not using strategies explicitly is given by Brunfaut (2008). She found that students who use certain support strategies, such as underlining, annotating, etc., when reading academic texts, understand the texts less well than students who do not use them. She argues that potentially, there is a certain comprehension threshold, below which students apply support strategies. "Students who have crossed this threshold no longer apply them" (Brunfaut 2008: 402). However, questions for this study comprise not only support strategies, but processing and metacognitive strategies, which students are expected to use for successful comprehension of texts. Nevertheless, the responses, as shown in the mean results given in the table below, point to a general lack of appropriate strategy use, which should be addressed in reading instruction. Scheffe test results for multiple comparisons are shown in Table 5.11 below.

Table 5.11: Scheffe groupings and mean scores in strategy use for first language groups

Means with the same letter are not significantly different			
Scheffe Grouping	**Mean**	**N**	**Home/first language**
A	2.59	493	Afrikaans
A	2.53	486	English
B	2.35	185	Other
B	2.26	650	ISAL

The results show that on the whole this cohort of students use inappropriate reading strategies, as shown in the high mean figures.

5.4.2.9 Reading habits

ANOVA tests did not show a direct significant relationship between students' reading habits and their reading ability. However, responses to reading habits were statistically significant for home language groups ($F(3)=4.14$, $p=0.0062$). A statistically significant interaction was also shown between literacy levels and home language ($F(12)=1.91$, $p= 0.0294$), pointing to an indirect relationship between reading ability and reading habits.

On the whole, students demonstrated negative reading habits. Afrikaans L1 students reported the most negative reading habits, which were highly marked for levels 2 and 3, and which was significantly different from the ISAL and 'Other' groups. Although

students' reading habits were negative in all language groups, ISAL students on level 5 showed markedly better reading habits. A probable explanation to this could be that these students had done most of their reading in English and therefore those who reported positive reading habits possessed good reading skills in English. Since the ISAL group rarely read in their first language, those who indicated positive reading habits emerged with higher academic literacy levels. These are usually students who had attended private schools (received good reading instruction), and are from high SES families (rich literacy environment). The statistically significant results of students' reading habits are shown in Figure 5.5 below.

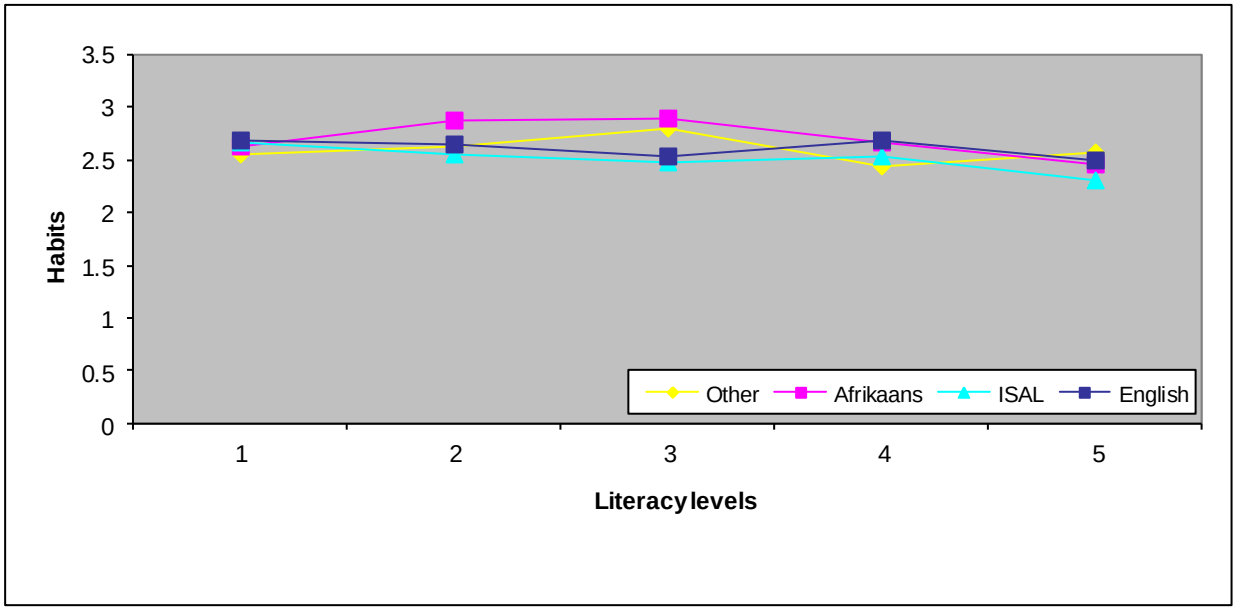

Fig 5.5: Interaction between literacy levels and home language in relation to their reading habits

The overall negative reading habits of students point to a need for positive reading habits to be developed – positive reading habits promote reading proficiency. Habits cannot be developed without the willingness of the participants. Thus a focus on the affective in reading instruction is highly relevant.

5.4.3 Summary statistics for gender and faculty

The previous section presented the analysis of students' reading ability in relation to their socio-affective levels in reading, and also presented an analysis of their home language in relation to the same factors. This section presents the analysis of students' registered faculty and their gender in relation to their socio-affective levels, in order to gain greater

insights into students' reading profile. These relationships are presented below, as shown by ANOVA test results.

5.4.3.1 Gender

ANOVA results showed that females indicated more positive socio-affective levels for reading than males. With regard to both past reading experience and social literacy, females were more positive than males: F(4)=31.94,p<.0001. These differences interacted with faculty and will be discussed under Faculty in § 5.4.3.2 below. On the affective factors of interest and attitude, gender was statistically significant: F(1)=20.6, p<.0001 and F(1)=18.21, p=<.0001, showing the females to be positive and the males negative. This ties up with their reading experience. As expected, the positive reading experience of the females culminated in positive attitudes towards reading, whereas the negative reading experience of the males translated into negative attitudes towards reading. This difference was most marked in the Law faculty. For the cognitive factor of strategy use, a significant relationship emerged with gender (F(1)=4.60, p=0.0322); the males being more negative than the females. In other words the females were less inappropriate in their strategy use than the males. As regards intrinsic motivation, there was a significant difference between males and females (F(1)=11.15, p=0.0009). Although both males and females indicated negative responses, the females were less negative. Their motivational levels were higher than those of the males. ANOVA test results showed that the females indicated better reading habits than the males, although, on the whole, students demonstrated poor reading habits. In relation to self-efficacy and extrinsic motivation, ANOVA test results did not show any statistically significant relationship with gender. The results are shown in Table 5.12 below.

Table 5.12: Means and significant values for gender and socio-affective variables

	Males (N= 671)	Females (N=1144)	P- value
Socio-affective factors	M	F	
Experience	2.25	2.07	<.0001
Social literacy	2.80	2.57	<.0001
Interest	2.29	1.93	<.0001
Attitude	2.07	1.82	<.0001
Reading habits	2.79	2.51	<.0001
Intrinsic motivation	2.49	2.32	0.0009
Strategy use	2.52	2.39	0.0322
Extrinsic motivation	-	-	0.3657
Self-efficacy	-	-	0.0718

5.4.3.2 Faculty

The relationship between the faculty in which students were registered, with *reading experience* was not statistically significant on its own, but interacted with gender: $F(4)=3.08$, $p<0.0153$ and first language: $F(12)=3.32$, $p<0.0001$. The details of the interaction between faculty and home language in relation to reading experience have been presented under *reading experience* in section 5.4.2.1. An interaction between faculty and gender showed a marked variation between males and females in the Law faculty: the males oriented towards negative responses whereas the females were oriented towards positive responses.

On the whole, students' responses on social literacy were negative in all faculties. An interaction between home language and faculty showed that ISAL L1 students in the Human Sciences were markedly most negative, whereas the Afrikaans L1 EBIT group was markedly the least negative. ISAL L1 students in the Law faculty were the least negative compared to ISAL L1 students in other faculties. English L1 speakers in the EBIT faculty were the most negative among the English L1 group, whereas those in Law were the least negative. The interaction is graphically presented in Figure 5.6 below.

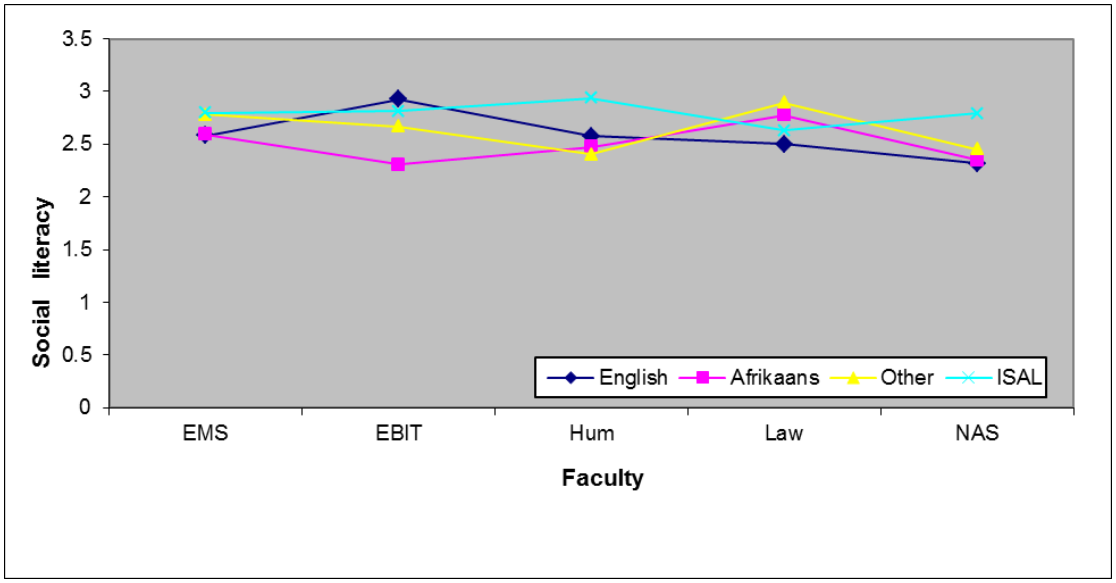

Fig 5.6: Interaction between faculty and students' first language with regard to their social literacy/reading environment

ANOVA tests also showed significant interaction between faculty and gender ($F(3)=4.08$, $p=0.0125$) for this social factor**.** Both males and females were consistently negative, though in the Law faculty females were markedly less negative than the males. The interaction between faculty and gender with regard to social literacy is shown in Figure 5.7 below.

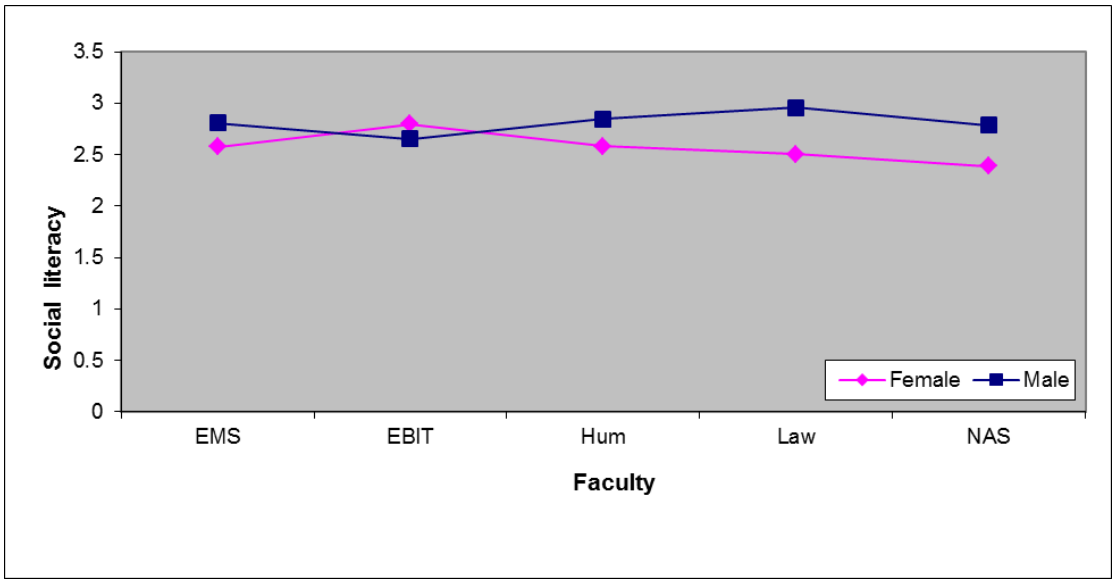

Fig 5.7: Interaction between students' faculty and gender with regard to their social reading backgrounds

Statistically significant differences were shown for different faculties and the use of strategies ($F(4)=2.48$, $p <.0001$). Results show that this cohort of first-year students was not applying appropriate strategies for academic reading. The Scheffe test for multiple comparisons showed that Law, Humanities and Natural Sciences students were not significantly different from one another in their strategy use, but were significantly different from students in the EBIT and EMS faculties. Students from these latter two faculties were also significantly different from each other. EMS students reported the worst strategies, whereas EBIT students reported the best reading strategies, relatively, as shown in the mean scores below. Law, Humanities and Natural Science students' responses fell between the two extremes. Admission point score (APS) and entrance requirements may have been the reason for these differences. For example, entrance requirements for EBIT were the highest for Language and Mathematics.

Table 5.13: Scheffe grouping and mean scores for faculty in relation to students' use of reading strategies

Means with the same letter are not significantly different				
Scheffe Grouping		**Mean**	**N**	**Faculty**
	A	2.49	896	EMS
B	A	2.45	128	Law
B	A	2.41	381	Humanities
B	A	2.35	206	Natural Sciences
B		2.29	203	EBIT

On *intrinsic motivation*, students responded negatively, indicating low intrinsic motivation. However, certain faculties were extremely negative. Responses according to faculty showed statistical significance: $F(4)=2.40$, $p=0.0485$. The mean figures for students' responses in relation to faculties showed that the EMS students had the lowest intrinsic motivation (mean 2.42), whereas students in the Faculty of Law could be considered the least negative (mean, 2.26). The overall negative responses to motivation point to the fact that the building of motivation in reading instruction is crucial.

ANOVA tests did not show statistically significant relationships between extrinsic motivation, interest, attitude, self-efficacy, and reading habits on one hand, and faculty on the other. A summary of the significant values are shown in Table 5.14 below.

Table 5.14: Summary of significant results of ANOVA: main effects and Interactions

Variables	**Indepen-dent variables**								
	Experience	Self-efficacy	Social literacy	Interest	Intrinsic Motivation	Extrinsic motivation	Reading Habits	Attitude	Strategy Use
Faculty					0.0485				0.0420
Gender	<.0001		<.0001	<.0001	0.0009		<.0001	<.0001	0.0322
Literacy level	0.0006	<.0001		0.0004	0.0003				
Home language	<.0001		0.0067	0.0002	<.0001	0.0096	0.0062	<.0001	<.0001
Interactions									
Gender/ Faculty	0.0153		0.0125						
Literacy level/ Faculty									
Home language/ Faculty	<.0001		0.0032	0.0148				0.0020	
Literacy level/Home language		0.0473					0.0294		

5.4.4 Summary of the results

This section provides a summary of both the descriptive and inferential statistics. In relation to *reading experience*, *social literacy* and *self-efficacy*, ISAL L1 students were the most negative. This indicates that most of the ISAL L1 students in this study had poor reading experiences at home and at school, impoverished social literacy environments and low perceptions of their reading capabilities. This confirms the link between social factors and affective levels (Bandura 1986; 2001; Giddens 2001; Grabe & Stoller 2002). Various researchers have pointed out that social factors influence students' affective levels, which has been confirmed in this study. Students who reported poor social reading experiences, also reported low self-efficacy, and those who indicated rich social reading experiences also indicated high self-efficacy.

All the students' affective levels in reading were low for all the affective variables. They had low interest in reading, low intrinsic and extrinsic motivation and negative attitudes. Interestingly, ISAL L1 students reported relatively higher levels of interest than students in other language groups. However, this higher level of interest is not realised in most of the ISAL students' reading ability or literacy levels. An explanation could be based on Schiefele's (1992:176) findings that cognitive process variables mediate the effect of interest on academic achievement, and that the level of interest produces outcomes through the use of these cognitive processes. In other words, high level of interest without the use of cognitive processing factors may not yield high academic reading achievements. An alternative explanation is that weaker readers may have produced socially acceptable responses, as indicated by Pretorius (2000:223).

Intrinsic motivation was the only factor that showed consistent significantly low levels for all variables: gender, faculty, home language and literacy groups. This indicates that regardless of their gender, faculty, home language or literacy levels, these students did not experience reading as a pleasurable activity. However, there were variations in their motivational levels. This supports Grabe and Stoller's (2002: 56-57; 242) assertion that L2 students have varying affective levels for reading. Although students at level 5 had relatively higher levels of intrinsic motivation the general picture was that this cohort of first-year UP students had low motivation (lowest mean above 2.5). This confirms other research findings that intrinsic motivation declines as students climb the educational ladder (Guthrie & Wigfield 2000:404). Considering the fact that at tertiary level the main

academic activities are reading and writing, this is a grave concern. The low motivation of students further strengthens the argument that reading instruction should incorporate affective components. Although, generally, students showed low extrinsic motivation ISAL students indicated the lowest motivational levels. This was expected, as this L1 group had also indicated the poorest reading experience and impoverished social literacy environments. This supports the view that social factors greatly influence students' affect and motivational levels (Bandura 1986; 2001; Giddens 2001, Grabe & Stoller 2002). However, attitude, which is also an affective variable and was expected to correspond with motivational levels of ISAL L1 students, showed different results. ISAL L1 students were the least negative among the respondent groups. Possible explanations are that students may have translated attitude into aspiration or that the complexity of attitude, as discussed by Mathewson (2004:1436), could be at play here. According to Mathewson, the three components of attitude (cognitive, affective and conative) should all be present to yield the effect of attitude on reading. The complexity in the attitude variable may have contributed to this unexpected result.

Negative reading habits were indicated by all the students, which meant that students do not read much, presumably due to the influence of the technology-driven 21st century, which is conducive to interacting with TV, computers and cell phones, instead of the printed word. Significant results, indicating a relationship between reading habits on the one hand, and L1 and literacy levels on the other, showed that Afrikaans L1 students had the most negative reading habits whereas ISAL L1 speakers on level 5 had the best reading habits among this cohort of students. This group of ISAL L1 speakers, as mentioned above, displays different reading characteristics from ISAL L1 speakers in the other literacy groups, probably because of their higher SES family background; pointing to the link between SES and reading ability. The fact that negative attitudes, when translated into behaviour, leads to negative habits, is confirmed here. Afrikaans L1 students indicated negative attitudes towards reading, which was further translated into negative reading habits. Appropriate use of strategies, which has cognitive, metacognitive and affective benefits, was seriously lacking in these students. Their responses to the questionnaire showed their inappropriate use of strategies irrespective of gender, home language or faculty. Explicit strategy instruction is crucial for this cohort of students. Strategy instruction builds self-efficacy, increases metacognition and conceptual use of strategies in reading (Guthrie, Wigfield & Von Secker 2000).

To summarise, the socio-affective variables that did not show significant results for reading ability from the ANOVA tests were *social reading environment, extrinsic motivation, attitude* and *strategy use*. The rest of the variables corresponded with reading ability, sometimes in a robust relationship. However, all the variables that did not show a direct relationship with reading ability showed a relationship with students' first language indicating an indirect relationship with reading ability, as literacy levels relate to L1 groups. Thus, it can be concluded that there is a direct relationship between reading ability and students' reading experience, self-efficacy, interest, and intrinsic motivation; whereas an indirect relationship exits for *social reading environment, extrinsic motivation, attitude* and *strategy use*. Thus ANOVA tests showed that all the independent variables – social, affective and cognitive/metacognitive – may have a direct or indirect relationship with the dependent variable of reading ability.

5.4.5 Strongest predictors of reading ability

In order to answer research question 2: *Which of the socio-affective factors strongly predict students' reading ability?* a Cumulative Logit (regression) analysis was applied, with literacy group as the dependent variable and socio-affective factors (i.e. experience, social literacy, etc) as the predictor variables. A total of 2160 cases were analysed and the overall model was significantly reliable: chi-square=562.3874, df=9, $p<0.0001$. The percentage concordant was 72%. In other words, overall 72% of the predictions were accurate. Table 5.15 gives the maximum estimates, the Wald statistics, and associated degrees of freedom and probability values for each of the predictor variables. The results show that *reading experience, self-efficacy, strategy use, intrinsi*c and *extrinsic motivation* reliably predicted students' literacy levels and therefore their reading ability. *Social literacy, interest, attitude* and *reading habits* were not significant in this analysis. The results are shown in Table 5.15 below.

Table 5.15: Cumulative Logit analysis results of predictor variables

Predictor	Estimate	Df	Wald chi-square	p-value
Experience	0.8257	1	179.4392	<.0001
Strategy use	-0.6411	1	72.6045	<.0001
Self-efficacy	0.0478	1	60.6281	<.0001
Extrinsic motivation	-0.2506	1	24.4961	<.0001
Intrinsic motivation	0.4027	1	19.1083	<.0001
Reading habits	-0.1336	1	2.6433	0.1040
Attitude	-0.1506	1	2.5817	0.1081
Interest	0.1219	1	2.3353	0.1264
Social literacy	-0.0279	1	0.1924	0.6609

The odds ratio can be interpreted as the effect of the variable on the odds of being in a lower rather than in a higher category. For example, the adjusted odds ratio for experience is 2.284, which indicates that as the average experience score increased by one unit, the odds of being in a lower category are more than twice the odds of being in a higher category. In other words, as the average responses of students increased for *experience*, the higher the probability that they would belong to a lower literacy level (i.e. *At Risk* or *High Risk*). Thus, the higher the average responses for a socio-affective variable, the lower the literacy level of the students.

The first five predictor variables strongly predict students' reading ability (p<.0001). In other words, the analysis shows that students' *past reading experience, use of strategies, self-efficacy, intrinsic* and *extrinsic motivation* strongly indicate their level of reading proficiency. That is, when these affective levels are high, reading proficiency is also high. The indication of this analysis to reading instructors is to improve students' affective levels concomitantly with cognitive instruction in order to achieve maximum results in developing their reading ability.

5.5 Discussion

This section discusses the results of the analyses and attempts to answer the first and second research questions from this data set. Thereafter, the implications for designing a reading programme that incorporates socio affective factors are discussed.

Regarding the first research question of whether there is a relationship between socio-affective factors (independent variables) and students' reading ability (dependent variable), both the descriptive statistics and the inferential analyses from the ANOVA tests showed

that a robust relationship exits between these two variables. The responses from the questionnaires were often aligned with students' literacy groups, indicating that socio-affective factors corresponded either positively or negatively with reading ability.

Students on level 5 showed positive reading experience, high self-efficacy, positive social literacy, and high interest in reading. These factors, as discussed in Chapter 3, are foundations for good proficient reading, and it is therefore not surprising that these students have the highest academic literacy levels (*No Risk*) as determined by TALL. This further confirms the reliability of the test in determining students' risk of failure. The relationship between reading experience, social and affective factors pertaining to reading on the one hand, and academic reading ability on the other, has been confirmed (cf. § 2.4)

Although students on level 4 are perceived to have low risk, the wide range of students within this group may have contributed to these students being significantly different from those on level 5. Their interest in reading was lower than that of students on level 5, but not significantly different from students on levels 1, 2 and 3, as shown in the Scheffe tests (Table 5.7). This justifies a separation of students on these two levels (4 and 5) in order for appropriate academic support to be given. Another recommendation will be to narrow the percentage range for level 4 so that only the higher percentage scores will be placed on level 4. This will show level 4 students to be similar in characteristics to those on level 5, which will make it more feasible for students on the two levels to be combined for academic support.

Similarly, for both *self-efficacy* and *reading experience* students on level 5 were statistically different from those on level 4. This shows that students on these two levels differ in some ways. As explained earlier the wide range within level 4 may have contributed to this difference. A separation of the two levels for instruction is highly recommended. Students on level 5 *(No Risk*) should be advised to take a more challenging ancillary module, whereas those on level 4 could register for a reading and writing support programme that is structured to meet their needs.

ISAL L1 students on levels 1 *(High Risk*) and 2 (*At Risk*) who were registered for the compulsory Academic Literacy module were consistently negative in their perceptions of their reading capabilities. Thus instruction for these students should also focus on

improving their self-efficacy. Explicit strategy instruction is said to improve self-efficacy, and therefore explicit instruction of various reading strategies, (both processing and monitoring strategies) should be given to these students on a continuous basis. Self-efficacy, which is the affective variant of metacognition, is known to be crucial for successful academic reading at higher (tertiary) levels (Mills et al. 2007). Thus instruction on metacognition should be done concurrently with the improvement of self-efficacy. The fact that self-efficacy and strategy use are two of the predictor variables for reading ability indicates their importance in reading instruction.

The consistent negative response of ISAL students to *reading experience* indicates that they were not exposed to reading as children and did not have a reading culture in the home or at school. For such students, it is even more crucial to have a reading programme that focuses on affect, and develops their love for reading to enable them to read frequently in order to develop the reading efficiencies that are lacking due to poor reading experience. Although ISAL L1 students in all faculties were consistently the most negative in their reading experience, those in the Law faculty were less negative and those in the Humanities faculty were most negative. These differences with the relationship between reading experience and reading ability in mind, indicate that ISAL students in the Humanities have lower reading ability and are therefore weaker academically than those in Law. It seems that the Admission Point Score (APS) may have contributed to this difference. Although, in 2009, the APS for Law was 24, an additional clause stated that students with APS of 28 and above would be considered first, and only when there is still space would those with APS between 24 and 27 be considered. On the other hand, apart from selection programmes such as Communication Pathology, Human Movement Science and Journalism, the other courses in the Humanities admit students with an APS of 26 and below. This implies that whereas most Law students would have obtained an APS of 28 and above, most of the students in the Humanities were admitted on an APS of 26 in 2009, placing their academic level lower than the Law students. Given that most Humanities subjects require extensive reading, these students may be facing huge challenges in reading texts in their subject fields. Reading instruction for these students should involve extensive practice and explicit strategy instruction based on generic texts as well as texts related to their subject fields. As indicated by a number of researchers and pedagogues, both generic and subject-specific texts have their place in reading instruction (Brunfaut 2008:37).

The low interest indicated by Afrikaans and English L1 students is in line with research that students' motivation and interest in reading declines as they climb the educational ladder (Guthrie and Wigfield 2000). Students who have had a good reading background would have already developed the efficiencies in reading, and would be able to apply these abilities to academic reading at tertiary level, even if their interest in reading is low. However, students who have had poor reading backgrounds, and are non-traditional students (§ 2.3.4.3) would not have developed the relevant skills to apply to tertiary level reading. Such students, therefore, stand at a vast disadvantage as they climb the educational ladder. Without the development of the relevant reading abilities, and having little or no interest in reading, these students do not engage in frequent reading to develop the required abilities. As a result, the gap between these poor readers and the proficient readers become even wider. Thus reading instruction that incorporates the affective is crucial for these students in order to develop their interest and love for reading; and motivate them to read frequently, become engaged readers and develop their reading abilities to cope with academic reading at tertiary level.

The highly positive response of ISAL students to the *Attitude* factor, given the poor reading experience, poor social reading environment and low intrinsic motivation, could be explained as follows: first, it could have been an expression of a positive desire to improve reading, since a number of these students are conscious of their reading challenges. Second, they may also have been unable to apply the cognitive processes that are needed to transform the effect of interest and attitude into reading achievement. Third, they may have provided socially acceptable responses, which is one of the weaknesses in self-reported questionnaire surveys. The negative attitude expressed by the Afrikaans students could be in relation to English texts, probably legal texts, as most of them indicated (through informal conversation) that they had done most of their extensive reading in Afrikaans.

On the whole, students' responses showed inappropriate use of strategies. These results raise concerns, as students in the Human and Social Sciences are assessed mainly on their attainment of meaning from the reading of texts, and therefore appropriate use of comprehension and critical reading strategies is crucial. Direct and explicit instruction in strategy use is necessary for all students, but more so for those in Law, EMS and

Humanities, as they showed the poorest use of strategies. Explicit instruction will also assist in developing and increasing self-efficacy.

The low motivational levels of the students point to the importance of applying motivational principles in reading instruction. The low motivation shown in students' responses is in line with research that intrinsic motivation declines with advancement in education**.**

In relation to the second research question, of which socio-affective factors best predict students' reading ability, the results of the Cumulative Logit analysis, illustrated in table 5.15, show that reading experience, self-efficacy, intrinsic and extrinsic motivation and strategy use, all strongly predict ($p<.0001$) students' reading ability. An intervention to improve students' reading ability should therefore incorporate these factors, as well as extensive reading to develop positive reading habits.

5.6 Implications of survey results for intervention instruction

As discussed above, a robust relationship exists between socio-affective factors and academic reading ability using TALL results. These relationships were determined by ANOVA tests on responses to a questionnaire survey. ANOVA tests showed that *experience, self-efficacy, interest* and *intrinsic motivation* all showed statistically significant relationships with reading ability. Indirect relationships were shown between reading ability and each of the five remaining factors. Although questionnaire surveys have their weaknesses (respondents may give socially desirable answers), most of the findings of this survey are in line with findings from previous research.

The second research aim was to identify the socio-affective factors that strongly predict students' reading ability. A Cumulative Logit analysis showed that, of the nine socio-affective factors only *attitude, interest* and *social literacy* did not predict reading ability. In other words, *past reading experience, strategy use, self-efficacy, intrinsic motivation, extrinsic motivation* and *current reading habits* all predicted students' reading ability.

It seems that for this cohort of students (*At Risk and Low Risk*), cognitive instruction alone may not be adequate for developing reading ability. A focus on the affective is crucial for

successful outcomes. Although social factors also showed significant relationships with reading ability, past reading experiences and social reading environments (home and previous schools) cannot be reversed by tertiary educators. Besides, social factors, as explained by psychological theories (Chapter 2), influence affective levels of individuals, which then manifest in their behaviour (reading ability). The focus at tertiary level should then be on addressing both cognitive and affective issues in reading development. This line of redress is adopted for this cohort of students whose low affective levels strongly correspond with their reading ability.

An important area that emerged from this survey is related to students' first language. This variable was statistically significant for all the socio-affective factors. It indicates that the students' first language corresponds with their social reading experience, their affective reading levels, reading habits and strategy use. Worthy of note is the significant interaction between first language and reading ability for self-efficacy. ISAL L1 students who were proficient readers (level 5) indicated high self-efficacy (the highest of all the groups), whereas ISAL students, identified as being at *High Risk* (level 1) indicated low self-efficacy (the lowest of all the L1 groups). Also, English L1 students indicated high levels of self-efficacy. The assumption here is that it is not the home language per se that influences students' self-efficacy and reading ability, but there seems to be a combination of factors that include SES, educational background, reading experience, social environment, and other socio-cultural factors associated with certain L1 groups that lead to poor reading ability. Given the low self-efficacy and poor reading ability of the majority of ISAL students, these students would need instruction that adequately and directly addresses their affective needs, while developing their cognitive reading abilities.

On the basis of these results, a reading programme that incorporates the affective to develop students' reading ability was designed. The programme, for purposes of intervention, was built on the existing reading programme for the relevant module(s) with enrichment to suit the affective needs of the students.

5.7 Conclusion

This chapter has shown that a robust relationship exists between socio-affective factors and reading ability, and that significant differences exists between academic groups in

terms of their socio-affective profiles and their academic literacy levels. It has also shown that a number of socio-affective factors, especially self-efficacy, strongly predict students' reading ability. The relationship between socio-affective factors and the mediating variables of students' home language, registered faculty and gender has also been discussed. The next chapter presents an instructional framework that was used to conduct the intervention programme aimed at developing students' reading ability through cognitive, and most importantly, affective means.