

The results reveal that there are strong internal correlations between the subtests of the PTEEP test confirming that the various constructs measured by the test are related. More specifically, however, the results reveal a correlation between the Genre subtest of the PTEEP test and academic success ($p = 0.2645$) at the 0.05 confidence level. Thus highlighting that a relationship between academic success and the Genre construct does exist. As a result of the existence of a relationship it may be suggestive that Genre is a better measure of academic literacy than the other PTEEP subtests. Furthermore, there is no correlation between any of the other PTEEP clusters and academic success. It should be noted that including the total score of the PTEEP test might have affected the results, as the subscales of this test formed part of the regression analysis. When the predictors are highly correlated with each other, the regression equation is very unstable from one sample to another. It is clear from Table 8 that the scores of the subscales correlated highly with the total PTEEP score.

The results also show that the correlation between the PTEEP total scores and first year final mean academic score is very weak and not statistically significant ($r = 0.002$: NS). Thus even though the general overall PTEEP score for the present study's sample is 47.46% and the first year mean academic score is 51.60%, are close percentage wise, there is no significant relationship between them. In a study by Mulder (2004) at the University of the Witwatersrand, it was also found that there was no significant relationship between the PTEEP test and academic success ($p = 0.06$). This contradicts many of the previous studies that have attested to the relationship between the PTEEP test and academic performance (c.f. Cliff, 2003b; Yeld, Cliff & Hanslo, 2002; Van der Walt, 2001).

In a further analysis of the relationship between the overall PTEEP score and academic success, the next table, Table 9, contains results of a regression analysis performed with the first year academic score as the dependant variable and all the PTEEP cluster scores as well as the overall score as explanatory variables.

Table 9

Regression analysis with 1st yr academic score as dependant variable

	Unstandardised		Standardised		
	Coefficients		Coefficients		
	B	Std. Error	Beta	t	p-value
(Constant)	50.829	13.594		3.739	0.000
Vocabulary	0.023	0.156	0.036	0.148	0.883
Metaphor	-0.123	0.181	-0.147	-0.681	0.499
Extrapolate	-0.164	0.211	-0.150	-0.777	0.440
Sentences	-0.166	0.222	-0.275	-0.747	0.458
Relations	0.124	0.440	0.169	0.281	0.780
Genre	0.187	0.089	0.342	2.107	0.040*
Essential	0.099	0.700	0.097	0.141	0.888
Numerical	0.006	0.169	0.009	0.036	0.972
Own Voice	-0.099	0.557	-0.177	-0.178	0.859
Overall					
PTEEP	0.142	1.880	0.139	0.076	0.940

Model Summary

R = 0.367

R Square = 0.135

Model F (p-value) = 0.810 (0.620)

Dependent Variable: 1st Year Average Score

The results from Table 9 indicate that the overall model is not statistically significant ($F = 0.810$, $p = 0.620$). Furthermore all of the predictor variables except Genre ($p = 0.04$) are not statistically significant. The B value associated with the Genre Cluster suggest that for every unit increase in the students' Genre score, first year academic scores increase by 0.187 units, while holding all other variables constant. Thus it can be postulated that Genre is one of the better measures of academic literacy within the PTEEP test. With Genre – which is the students' ability to perceive 'audience' in text and purpose in writing, including an ability to understand text register (formality/informality) and tone (didactic/informative/persuasive/etc.) – having a positive relationship

with academic success, it is suggestive of a good measure of language and cognition under the umbrella of academic literacy as mentioned earlier. It is also suggestive that the cognitive skills which the Genre cluster is testing are further focused on and developed by courses undertaken by students' within the Faculty of Humanities.

With regards to the rest of the results obtained from Table 9, the PTEEP as an academic literacy test does not appear to be a good predictor of academic success, as there was no other statistical difference found. This, once again contradicts many of the previous studies that have attested to the predictive validity of the PTEEP and academic success (c.f. Cliff, 2002; Yeld, Cliff & Hanslo, 2002; Van der Walt, 2001). For example, Van der Walt (2001) conducted a study on the predictive value of the PTEEP in comparison to a HSRC language proficiency test and found that the PTEEP proved to be a good predictor of academic performance, accounting for 30% of the variance at a 99% confidence level. The results from the present study, however, can not confirm Van der Walt (2001) and the others' findings.

As mentioned at the beginning of this study, academic success for the purpose of this research was defined as a mark over 50%. The data from the University (as mentioned in the Data Coding section, in Chapter 5 of this study), however, codes the students' overall results with C, P and F. 'P' means that that particular student has passed all of the elected subjects/modules. 'C' means Credit; the student did not pass all the elected subjects/modules, and is either allowed to proceed in the following year, or is excluded from the following year unless they appeal for a readmission. An 'F' means an outright fail for that academic year (in this case for the year 2004), with no readmission to the following year. With this in mind further descriptive and statistical analysis was done using the university's codes for the overall result to ascertain whether any change in the relationship between the overall PTEEP results and the first year students' final academic results could be seen on this basis.

Table 10

University coding for overall results

	Frequency	Percentage
ACADEMIC SUCCESS		
Below 50%	21	33.33
Above 50%	42	66.67
Total	63	100.0
OVERALL RESULT		
C	37	58.7
P	23	36.5
F	3	4.8
Total	63	100.0

Table 10 shows that even though 66.67% of the present study's sample was considered academic successful, and 33.33% not academically successful, only 4.8% had an outright fail, and 23% passed all subjects required. Of the 58.7% considered "Credit", it is not clear how many were allowed to proceed to the following year (second year), how many needed to appeal for re-admission, and how many of those appeals were actually carried through.

The next four tables (Tables 11, 12, 13 and 14) contain cross tabulations and chi-square tests of the PTEEP Cluster group and academic success. These analyses were done in order to condense the results and assess the relationship between the PTEEP academic literacy test and academic success. Table 11 and 12 defines academic success as achieved with a mark above 50% and not achieved with a mark below 50%, while Table 13 and 14 define academic success according to the university coding (C, P, F).

Table11

PTEEP and Academic Success Cross Tabulation

PTEEP		Academic Success		
Percent		Below 50%	Above 50%	Total
60+	Count	2	5	7
	% within PTEEP Group	28.6%	71.4%	100%
	% within Academic success	9.5%	11.9%	11.1%
	% of Total	3.2%	7.9%	11.1%
50-59	Count	6	12	18
	% within PTEEP Group	33.3%	66.7%	100%
	% within Academic success	28.6%	28.6%	28.6%
	% of Total	9.5%	19.0%	28.6%
40-49	Count	5	10	15
	% within PTEEP Group	33.3%	66.7%	100%
	% within Academic success	23.8%	23.8%	23.8%
	% of Total	7.9%	15.9%	23.8%
30-39	Count	4	8	12
	% within PTEEP Group	33.3%	66.7%	100%
	% within Academic success	19.0%	19.0%	19.0%
	% of Total	6.3%	12.7%	19.0%
20-29	Count	0	5	5
	% within PTEEP Group	.0%	100.0%	100%
	% within Academic success	.0%	11.9%	7.9%
	% of Total	.0%	7.9%	7.9%
less than 20	Count	4	2	6
	% within PTEEP Group	66.7%	33.3%	100%
	% within Academic success	19.0%	4.8%	9.5%
	% of Total	6.3%	3.2%	9.5%
	Count	21	42	63
Total	% within PTEEP Group	33.3%	66.7%	100%
	% within Academic success	100.0%	100.0%	100%
	% of Total	33.3%	66.7%	100%

The analysis of the cross tabulation from the above table (Table 11) follows:

Table 12

Chi-Square Test for results from Table 11

	Value	df	p-value (2-sided)
Pearson Chi-Square	5.571(a)	5	0.350
Likelihood Ratio	6.901	5	0.228
Linear-by-Linear Association	.376	1	0.540
N of Valid Cases	63		

7 cells (58.3%) have expected count less than 5. The minimum expected count is 1.67.

It is evident from the above two tables that there is no significant relationship between the overall PTEEP variables and Academic performance as defined by the present study to be achieved from 50% onwards. ($\chi^2 = 5.571$, $p = 0.350$). This further confirms the results that there is no correlation between the overall PTEEP results and the final first year academic performance.

The next two tables describe the results of the PTEEP categories and the university coding used as a measure of academic performance (Table 13) and the analysis from these results (Table 14).

The results from Table 13 and Table 14 both show no difference in the way that academic success is interpreted; as a mark above 50% as in the present study or as an university coding of C, P, or F. Once again the p-value from Table 14 is greater than 0.05, hence, there is no significant relationship between the Overall PTEEP percent and the Overall University coding of C, P or F ($\chi^2 = 11.588$, $p = 0.314$).

Table 13

PTEEP and Overall University result cross tabulation

PTEEP		Overall University Result			Total
Percent		C	P	F	
60+	Count	7	0	0	7
	% within PTEEP Group	100.0%	.0%	.0%	100%
	% within Overall Result	18.9%	.0%	.0%	11.1%
	% of Total	11.1%	.0%	.0%	11.1%
50-59	Count	9	8	1	18
	% within PTEEP Group	50.0%	44.4%	5.6%	100%
	% within Overall Result	24.3%	34.8%	33.3%	28.6%
	% of Total	14.3%	12.7%	1.6%	28.6%
40-49	Count	6	7	2	15
	% within PTEEP Group	40.0%	46.7%	13.3%	100%
	% within Overall Result	16.2%	30.4%	66.7%	23.8%
	% of Total	9.5%	11.1%	3.2%	23.8%
30-39	Count	7	5	0	12
	% within PTEEP Group	58.3%	41.7%	.0%	100%
	% within Overall Result	18.9%	21.7%	.0%	19.0%
	% of Total	11.1%	7.9%	.0%	19.0%
20-29	Count	3	2	0	5
	% within PTEEP Group	60.0%	40.0%	.0%	100%
	% within Overall Result	8.1%	8.7%	.0%	7.9%
	% of Total	4.8%	3.2%	.0%	7.9%
less than 20	Count	5	1	0	6
	% within PTEEP Group	83.3%	16.7%	.0%	100%
	% within Overall Result	13.5%	4.3%	.0%	9.5%
	% of Total	7.9%	1.6%	.0%	9.5%
Total	Count	37	23	3	63
	% within PTEEP Group	58.7%	36.5%	4.8%	100%
	% within Overall Result	100.0%	100.0%	100.0%	100%
	% of Total	58.7%	36.5%	4.8%	100%

The analysis of the above table (Table 13) follows:

Table 14

Chi-square test for results from Table 13

	Value	df	p-value (2-sided)
Pearson Chi-Square	11.588(a)	10	0.314
Likelihood Ratio	14.608	10	0.147
Linear-by-Linear Association	.062	1	0.804
N of Valid Cases	63		

13 cells (72.2%) have expected count less than 5. The minimum expected count is .24.

In summary, no overall relationship between the PTEEP test and academic success has been found, except between the Genre subtest and academic success. It can further be said that the PTEEP as an academic literacy test is not a good predictor of academic success. Whether academic success is defined as achieved with a mark above 50% or whether it is defined according to the university coding of overall results, does not affect the result, that no relationship exists.

The results found of some significance are as follows:

- The results in Table 6 suggest that the average overall PTEEP scores for the students registered for Bachelor of Arts in Social Work (5 yrs) – AF401 were significantly less than those obtained by students registered for Bachelor of Arts in Dramatic Art (5 yrs) – AF800 and Bachelor of Arts (3 yrs) – AB000 respectively.
- From Table 7 above it can be seen that all the male results are higher than all the female results. However, even though the means for the different scores do differ for males and females, the differences are not statistically significant. Thus it is evident that gender does not appear to play a significant role in either the overall PTEEP score, or the prediction of academic success.
- From Table 8, the results show that the correlation between the PTEEP total scores and first year final mean academic score is very weak and not statistically significant ($r = 0.002$: NS). Furthermore there

is a relationship between Genre and academic success but no significant correlation between any of the other PTEEP clusters and academic success.

- The results from Table 9 indicate that all of the predictor variables except Genre ($p = 0.04$) are not statistically significant. The B value associated with the Genre Cluster suggests that for every unit increase in the students' Genre score, first year academic scores increases by 0.187 units, while holding all other variables constant. Thus it can be postulated that Genre has a positive relationship with academic success and is one of the better measures of academic literacy within the PTEEP test.

The next section addresses the last research question of the present study, which is what role or contribution cognitive developmental theory can make in better understanding the cohort of students entering higher education and how a future academic literacy test should be structured.

6.3. Cognitive developmental theory in higher education and entrance testing

As mentioned in Chapter Three, cognitive developmental theory proves to be relevant to this study in order to better understand the cognitive development and functioning of university students. Furthermore, theory also plays a role in informing interventions such as bridging and foundation courses in order to increase students' chances of success. Thus, even though the PTEEP is said to incorporate the "scaffolding approach", an adapted version of Vygotsky's (1987) ideas about the "zone of proximal development", there seem to be some concern around these claims. In theory it is ideal to promote that the PTEEP academic literacy test has characteristics of what a good test should look like, and incorporates various theoretical ideas. However, in practice, a few recent studies (e.g. Mulder, 2004) are beginning to show that the PTEEP test is not testing what it claims to measure – the student's ability to succeed in higher education.

Taking this into consideration, it may be helpful to look back at the cognitive developmental theory of young adulthood to point us in the direction of a more comprehensive, reliable academic literacy entrance test. It is not in the scope of the current study to develop a new or better academic literacy test, however, it would be more helpful to point out some theoretical literature that could aid the stimulation of ideas for a more practical test.

With this in mind a review of the literature discussed in Chapter Three as well as the researcher's comments about the significance of certain concepts will be given in order to answer the current research question. As mentioned earlier, Vygotsky (1987), for example, was interested not only in the development of the mind in the social context, but also in the historical development of the community's knowledge and understanding (Craig, 1996). In his view we develop understanding and expertise primarily through an apprenticeship with more knowledgeable learners. We are not only allowed to participate, we are guided in this participation, which enables us to understand more and more about our world and to develop an increasing number of skills. According to Vygotsky (1978), children acquire basic literacy skills while interacting with their parents, siblings, teachers, and peers. It would thus be helpful, keeping Vygotsky's (1987) "zone of proximal development" in mind, to know more about this interaction with parents, siblings, teachers and peers. It would give more hints as to how the student is able to use developing ideas through an apprenticeship with more knowledgeable learners. This is also the context in which higher education takes place, and is, therefore, crucial in looking at the students' experiences of learning from others in order to know whether they have the ability to further develop this skill. In other words assessing the level of potential development, as determined by the kind of problem solving the child could do under adult guidance or in collaboration with a more capable peer (Vygotsky, 1978). This is also the environment in higher education where students' can seek for themselves, ask for help when needed, use help offered, and incorporate these ideas into their own frame of reference.

The scaffolding approach, based on the principles of dynamic assessment, is an approach said to be adopted by the PTEEP in its attempt to provide opportunities for candidates to engage in activities that both encourage and reveal concept and skill development. The researcher agrees that this is an important concept to be tested. However, there seems to be gaps in the PTEEP test in being able to carry this approach through in practice.

Cognitive abilities do continue to develop throughout life, thus emphasizing the importance of looking for underlying ability of students entering higher education and the importance of using the principles of dynamic testing. As mentioned earlier, it is clear that education and experience affect cognitive development in adulthood (Craig, 1996). It seems logical that an entrance test should at least be able to test whether students have attained a basic adolescent cognitive level as described by Piaget's (1970) 'formal operational thought'. This is characterised by three main ideas, the capacity to combine all variables and find a solution to a problem; the ability to conjecture what effect one variable will have on another; and the ability to combine and separate variables in a hypothetical-deductive fashion ("If X is present, then Y will occur") (Gallagher, 1973). It also involves thinking about possibilities as well as comparing reality with things that might or might not be, in other words the ability to formulate, test and evaluate hypotheses. Formal operational thought can be characterized as a second-order process. The first order of thinking is discovering and examining relationships between objects. The second order involves thinking about one's thoughts, looking for links between relationships, and manoeuvring between reality and possibility (Inhelder & Piaget, 1958). In young adulthood, however, there is a greater emphasis on application, rather than acquisition of knowledge, which is an idea of what an entrance test should focus on. For example, the trend of looking toward a more dialectical thought basis (ideas stimulate opposing ideas), leading to more contemplation of contradictions, pros and cons. Klaus Riegel (1975, 1984) emphasizes the understanding of contradictions as the important achievement of adult cognitive development. In other words, the idea is not only to think through abstract thought (formal-operational) but to reflect on the total process and outcome of their interaction (dialectical/systemic). Once again, it is not

compulsory for all first year students to function or operate in the dialectical orientation only, but it is necessary for them to be able to access that mode of functioning in order to eventually obtain academic success.

Cognitive development as Perry (1970) traces it is helpful to understand as the ideal way in which the higher education environment should exist. It seems necessary to look at an overview of Perry's (1970) positions in this light. The first "stages" students interpret the world and their educational experiences in authoritarian, dualistic terms (for example, from their schooling background), they are seeking truth and knowledge. The world can be divided into good and bad, right and wrong (Position 1). The faculty's role in higher education is to teach them, and they would learn by hard work (Craig, 1996). These students, however, are often confronted with differences in opinion, uncertainty and confusion (Position 2). Perhaps professors presented subject matter in a way that encouraged students to learn the answers for themselves, or perhaps professors themselves had not found the right answers yet. Gradually, in the face of various points of view, students begin to accept and even respect a diversity of opinion (Position 3) which is a higher order cognitive skill that may correlate with Riegel's (1975, 1984) dialectical view. They begin to adopt the perspective that people have the right to different opinions, and they begin to understand that one person can see the same thing in two different ways, depending on the context (Position 4 and 5). The relativistic perspective, however, eventually gave way to the need to make some commitment of personal belief or personal affirmation (Position 6). The students first make these initial commitments in a testing, exploratory fashion (Position 7), but eventually work out for themselves commitment to and responsibility for a particular set of values, point of view, and lifestyle (Position 8 and 9). The students thus move from a basic dualism (e.g. truth versus falsehood) to tolerance for many competing points of view (conceptual relativism) to self-chosen commitment and responsibility. Thus moving through these positions would seem not only ideal for ultimate academic success but ideal in being able to carry out one's life values, creating a well-rounded student.

As discussed in Chapter Three, in different adults different cognitive abilities increase. Specific disciplines are associated with specific reasoning skills. This is why, for example, psychology majors tend to develop probabilistic reasoning, while humanities majors tend to develop conditional logic (Lehman & Nisbett, 1990). Thus it would make sense that students applying for different faculties do not all need to be tested in a generic way. In other words, it would seem unfair to test a potential Humanities student for cognitive skills not required for a Humanities degree (for example, mathematic/numerical ability that may be needed in a Science or Commerce degree). A generic test across the board is always easy for communication purposes; however, specific testing could be added as an addition to generic skills testing, streamlining the students' entering a specific Faculty, and not disadvantaging those who do not need to have a particular baseline of skills that are not further developed in their course of higher education.

6.4. Summary

The results of the present study show that there is no relationship between the PTEEP academic literacy test and academic success, and furthermore, the PTEEP academic literacy does not appear to be a good predictor of academic performance. Furthermore, with the ideas in mind as a way of understanding and using the cognitive development of young adulthood in higher education, the conclusion of this research will next be discussed, together with limitations relevant to the present study and recommendations for future research.