

Psychological Strengths as Predictors of Postgraduate Students' Academic Achievement

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This study sought to predict students' Grade Point Average (GPA) from their personal sense of coherence, locus of control, hope and research self-efficacy. Participants were 429 postgraduate students at a large South African university (males = 86, females = 311, age range = 20 to 53, mean age = 30, SD = 6.77). They completed measures of sense of coherence, locus of control, hope orientation and research self-efficacy. Data were analysed using logistic regression. Results revealed that only research self-efficacy significantly predicted academic achievement. Although of small practical significance, it seems that students' beliefs about their own potential and abilities regarding research could influence their success to some degree. It is recommended that research self-efficacy, together with other psychological strengths, be further investigated as a predictor of academic success.

Keywords: Sense of coherence; locus of control; hope orientation; research self-efficacy; academic performance

According to statistics published by the South African Department of Education in 2010 regarding the results of higher education institutions in 2008 (Department of Education, 2010), only 35% of all students enrolling for postgraduate studies in South Africa (excluding master's and doctoral studies) attain their degrees. South Africa, as a multicultural, developing country, is aiming to broaden participation in higher education as one of the means of reducing the highly stratified race and class structure in the country (Frazer & Killen, 2005).

Factors affecting the academic performance of students have been shown to be complex and multidimensional (Jama, Mapesela & Beyleveld, 2008). These factors have been categorised by some as pre-enrolment factors and post-enrolment factors (Frazer & Killen, 2005). There is evidence to suggest that psychological wellbeing leads to improved academic achievement (Griffiths, Sharkey & Furlong, 2009; Howell, 2009). However, studies are needed on psychological strengths as predictors of academic achievement of postgraduate students in a non-Western society.

Sense of Coherence

Antonovsky (1987) defined sense of coherence as a global orientation that encompasses comprehensibility, manageability and meaningfulness. Comprehensibility is when an individual perceives information as ordered, structured and clear, rather than chaotic, disordered, random, accidental and unpredictable. Manageability is the extent to which people perceive that resources are at their disposal and are adequate to meet the demands imposed by stimuli. Meaningfulness refers to the degree of commitment one has to various life domains and the importance of shaping not only one's destiny, but also one's daily experiences. Sense of coherence acts as a buffer against the effects of stress (Antonovsky, 1993). Stressors are seen as positive and meaningful challenges which can be managed in ways that result in optimal outcomes. In the academic context,

sense of coherence has been reported to predict college achievement in Canadian students (Grayson, 2007).

Locus of Control

Rotter (1966) defined locus of control as the extent to which people either ascribe the responsibility for the occurrence of a specific reinforcement to themselves (these individuals are referred to as internals) or to luck, chance, fate or powerful others (these individuals are referred to as externals). According to Garson and Stanwyck (1997), locus of control can be described as the degree to which individuals believe that their behaviour has a direct impact on the outcomes. Robbins (2001) described locus of control as a personality attribute that divides people into two groups: those who believe that they are masters of their own fate and can control their destiny (internal locus of control) and those who see themselves as pawns of fate, where luck or chance plays a major role or powerful others influence their future (external locus of control). Locus of control influenced academic achievement (Bar-Tal & Bar-Zohar, 1977). In a South African study, Schepers (1995), found internal locus of control and autonomy to be associated with the academic success of college students. The question could therefore be asked if the results obtained by first-year and undergraduate students would hold true for postgraduate students as well.

Hope

Hope has been described as an important indicator of general psychological wellbeing (Seligman, Steen, Park & Peterson, 2005). It involves imagined actions to reach one's goals and using the energy to do so (agency thoughts), as well as the ability to find ways and routes to achieve set goals (pathway thoughts). Hope is indicative of a positive outlook and a belief in one's ability to find ways to solve problems and achieve goals (i.e. having inner resources) (Maree, Maree & Collins, 2008a). It encompasses an optimistic view of the future based on the be-

lief that the future holds promise and that goals will be reached. Maree, Maree and Collins (2008b) assessed the academic performance of 474 undergraduate psychology students at a residential South African university as a proxy for goal attainment. Academic performance in college students was predicted by an increase in agency and future vision, but a decrease in goal achievement resources (Maree et al., 2008b).

Research Self-Efficacy

Self-efficacy is the belief that one can accomplish what one wants to accomplish. Perceived self-efficacy is defined as someone's evaluation or judgement of their capabilities to organise and execute courses of action that are required to attain certain designated types of performances (Bandura, 2002). According to Bandura (1997), efficacy beliefs affect thought patterns, which can enhance or undermine one's performance. Individuals who have a high sense of efficacy view uncertain situations as presenting realisable opportunities. They visualise success scenarios, which provide positive guides for performance. Individuals who judge themselves as inefficacious see uncertain situations as risky and are inclined to visualise failure scenarios (Bandura, 1997). In this regard, self-efficacy expectations determine how much effort people will exert and how long they will persist in the face of obstacles and adverse experiences. High levels of self-efficacy enhance students' learning and their performance in examinations (Adeoye & Emeke, 2010; Jackson, 2002; Lane, Lane & Kyprianou, 2004).

Goal of the Study

The goal of the study was to determine if psychological strengths (i.e., sense of coherence, locus of control, hope and research self-efficacy) could be used as predictors of the academic achievement of postgraduate students in a non-western society. The following research question is addressed by this study: Do the psychological strengths of sense of coherence, locus of control, hope and research self-efficacy predict the grade point average of postgraduate students from a South African university?

Method

Participants and Setting

The study population consisted of all honours students registered for the course in research methodology at a distance education institution in 2009. An availability sample was taken from the population and 429 students responded to the questionnaires. Only 275 of these students' academic performance scores were available on the system. Descriptive information of the sample is provided in table 1.

The sample consisted mainly of females (72.5%) between the ages of 20 and 53 years of age, with a mean age of 30 years. Almost half of the participants were African (48.3%), whereas the remaining participants were white (21.7%), Indian (12.8%) and coloured (9.3%). In this sample, 69% of the students were working full-time, 9.6% worked part-time and only 13.8% were studying full-time. In total, 31% of the students indicated English as their home language.

Instruments

Data were collected on students' demographics, psychological strengths (i.e., sense of coherence, locus of control, hope and research self-efficacy) and academic achievement (GPA). The measures are described next.

Table 1
Characteristics of the Honours Students in the Sample

Category	Frequency	Percentage
Gender		
Males	86	20.0
Females	311	72.5
Not indicated	32	7.5
Age		
20–32	267	62.2
33–44	112	26.1
45–56	16	3.7
Not indicated	34	7.9
Culture group		
African	207	48.3
White	93	21.7
Indian	55	12.8
Coloured	40	9.3
Not indicated	31	7.2
Employment status		
Full-time student	59	13.8
Work part-time	41	9.6
Work full-time	296	69.0
Not indicated	33	7.7
Home language		
isiZulu	52	12.1
isiXhosa	34	7.9
Tshivenda	9	2.1
isiNdebele	4	.9
Sepedi	38	8.9
Sesotho	20	4.7
Setswana	28	6.5
isiSwati	5	1.2
XiTsonga	8	1.9
English	133	31.0
Afrikaans	58	13.5
Other	8	1.9
Not indicated	32	7.5

Orientation to life questionnaire. The short-form orientation to life questionnaire (OLQ-13), consisting of 13 items, was used to measure the construct "sense of coherence" (Antonovsky, 1987). This version of the OLQ includes five items measuring comprehensibility (e.g., 'Do you have the feeling that you are in an unfamiliar situation and do not know what to do?'), four items measuring manageability (e.g., 'Has it ever happened that people you counted on disappointed you?') and four items measuring meaningfulness (e.g., 'How often do you have a feeling that there is little meaning in the things you do in your daily life?'). Each item is answered on a seven-point Likert scale, with extremes that range from 1 = never to 7 = always.

Antonovsky (1993) reported alpha coefficients of the OLQ varying between 0.85 and 0.91. In South Africa, alpha coefficients of 0.83 (Strümpfer, Gouws & Viviers, 1998), 0.82 to 0.85 (Van Wijk, 2008) and 0.85 (Muller & Rothmann, 2009) were reported.

Locus of control questionnaire. The locus of control questionnaire developed by Rotter (1966) was used to measure the motivational orientation of the individual. This is a 29-item (including six filler items that do not contribute to the final score) forced-choice questionnaire and two scores are obtained respectively on the relative balance between internal and external orientation. Every item consists of two statements and respondents have to choose which statement best represents their personal opinions. One of the statements expresses the opinion that the consequences of behaviour (success or failure) are the result of one's own behaviour (internal locus of control), whereas the other statement indicates that consequences may be attributed to external influences beyond the control of the respondent. Rotter (1966) reported internal reliability coefficients that varied between 0.65 and 0.76. Cilliers and Kossuth (2004) reported an alpha coefficient of 0.65.

Hope Orientation Measure. Hope was measured by the hope orientation measure (HOME), which was developed by Maree et al. (2008a). This questionnaire consists of 57 items measuring goal achievement resources (23 items, e.g., 'I am able to think of many ways of achieving my personal goals'), ineffectuality (11 items, e.g., 'I would rather wait for a difficult situation to pass than doing something about it'), future vision (10 items, e.g., 'I hope to have a solid career one day'), despondency (6 items, e.g., 'I can name specific things that make me depressed about my future') and agency (7 items, e.g., 'I hope to perform well at the end of the year because I am doing my best'). Respondents are required to use the following 4-point scale when responding to the items: definitely false, mostly false, mostly true and definitely true. Maree et al. (2008a) confirmed the construct validity of the measure and reported internal consistency estimates ranging between 0.65 for agency and 0.91 for goal achievement resources.

Research self-efficacy. A self-developed questionnaire was used to measure the research self-efficacy of the participants. The questionnaire consists of 15 items that ask participants to rate their chances of succeeding in various tasks associated with conducting a research project (e.g., 'What are the chances that you could effectively identify appropriate measuring instruments to use in a research project?'). Response options range from 1 = 'no chance at all that I could do it effectively' to 5 = 'I am completely certain that I could do it effectively'. In the present study, the research self-efficacy questionnaire attained a Cronbach alpha value of 0.91.

Academic achievement. The average final score achieved at the end of the year for the honours courses that the students were enrolled for was chosen as the criterion for academic achievement in this study. This is in line with common approaches followed in this type of research and in similar studies conducted previously (Frazer & Killen, 2005). The dependent variable, the academic achievement score, was coded as a binary variable with scores of 50% and above categorised as pass and scores of 49% and below categorised as fail. This was done in order to be able to predict in which category students would fall, based on their demographic characteristics and psychological strengths. Table 2 provides reliabilities of study instruments with the study sample.

Table 2
Cronbach Alpha Values of the Measuring Instruments

	# of items	Cronbach α coefficient
Sense of coherence	13	0.77
Locus of control	29	0.68
Goal achievement resources	23	0.89
Ineffectuality	11	0.72
Future vision	10	0.61
Despondency	6	0.69
Agency	7	0.51
Research self-efficacy	15	0.91

Procedure

The questionnaires, as well as instructions on how to complete each, were included in the official study material of the students, which they received upon registration for the course in research methodology. Students were requested to submit the questionnaires with their first assignment. Students provided written consent to participate by signing and submitting a consent form with the completed questionnaires. By doing this, students understood that their individual results were to be used for training and research purposes as part of the bigger group's results. Students were required to indicate their student number on their questionnaires in order that their grade point average could be retrieved at the end of the year.

Data Analysis

The data was captured in Excel, imported into SPSS and the dataset was cleaned before proceeding with the analysis. The statistical analysis was conducted by means of the SPSS Program Version 17 (SPSS Inc., 2007). Thereafter, a logistical regression was performed to determine which of the significantly related independent variables (psychological strengths) could be used to predict the categorical dependent variable (academic achievement). Statistical significance was set at 0.05.

Results

Psychological Strengths as Predictors of and Academic Achievement of the Students

In order to determine which psychological strengths are related to the students' academic achievement scores, independent t-tests were conducted. The results are displayed in Table 3.

From Table 3 it can be seen that only research self-efficacy ($t(312) = -2.298, p < 0.05$) showed a statistically significant difference in terms of academic achievement. The practical significance of this difference was of small effect ($d = 0.24$).

Research Self-Efficacy as a Predictor of Academic Achievement

Only research self-efficacy was entered as a predictor. The results of the classification table are displayed in Table 4.

It can be seen from Table 4 that research self-efficacy is a significant predictor of academic achievement and, in this instance, 59.9% of cases were correctly predicted as passing or failing by using research self-efficacy as a predictor.

Table 3
Independent t-tests of Psychological Strengths and Academic Achievement

	Academic achievement	N	Mean	Std deviation	Std error mean
Sense of coherence	Fail	125	60.28	11.741	1.050
	Pass	172	61.13	11.104	0.846
Locus of control	Fail	122	8.23	3.399	0.307
	Pass	171	8.98	3.789	0.289
Goal achievement resources	Fail	122	3.38	0.339	0.030
	Pass	165	3.31	0.384	0.029
Ineffectuality	Fail	125	3.24	0.378	0.033
	Pass	170	3.26	0.410	0.031
Despondency	Fail	124	3.23	0.457	0.041
	Pass	174	3.22	0.588	0.044
Research self-efficacy	Fail	135	56.44	9.277	0.798
	Pass	179	58.64	7.710	0.576

		Levene's test for equality of variances		t-test for equality of means		
	Equal Variances	F	Sig.	T	df	Sig. (2-tailed)
Sense of coherence	assumed	0.265	0.607	-0.637	295	0.42
	not assumed			-0.631	258.421	0.44
External locus of control	assumed	1.687	0.195	-1.730	291	0.08
	not assumed			-1.762	276.160	0.07
Goal achievement resources	assumed	1.132	0.288	1.549	258	0.12
	not assumed			1.578	276.108	0.11
Ineffectuality	assumed	1.868	0.173	-0.319	293	0.75
	not assumed			-0.323	278.394	0.74
Despondency	assumed	6.858	0.009	0.205	296	0.83
	not assumed			0.214	293.690	0.83
Research self-efficacy	assumed	3.539	0.061	-2.298	312	0.02
	not assumed			-2.240	257.384	0.02

Discussion

The primary aim of this study was to determine whether the psychological strengths of sense of coherence, locus of control, hope and research self-efficacy could be used as predictors of academic achievement at postgraduate level.

In order to determine which psychological strengths were related to the categorical academic achievement score of the students, t-test analyses were conducted. Contrary to the research of Grayson (2008) with undergraduate students, it was found that sense of coherence is not significantly related to the academic achievement of postgraduate students included in this research. Contrary to the findings of previous research regarding the relationship between locus of control and academic achievement of undergraduate students, locus of control was not significantly related to the academic achievement scores of postgraduate students in the present study. However, this finding appears to lend some support to the findings of Findley and Cooper (1983), who reported that the relationship between lo-

cus of control tended to be less significant in older students. Hope could not be associated with the academic achievement of the postgraduate students participating in the present study.

Research self-efficacy predicted academic achievement. Results of previous studies (Adeoye & Emeke, 2010; Jackson, 2002; Lane et al., 2004), were therefore corroborated by the results of this study. It should however be noted that the findings of the current study are statistically significant, but only of small practical significance and should therefore be considered as tentative.

This study has certain limitations. An availability sample was taken of students studying at a particular higher education institution in the discipline of industrial psychology. As a result, it is not possible to generalise the findings of the present study to other postgraduate students in other fields of study or at other institutions. Furthermore, previous training in research methods was not controlled for. Previously obtained competencies might have influenced students' self-efficacy beliefs. Future studies

Table 4

Logistical Regression – Classification Table of Research Self-Efficacy as Predictor

Observed			Predicted		% Correct
			Fail	Pass	
Step 1	Average pass_2010	Fail	17	107	13.7
		Pass	10	158	94.0
Overall percentage					59.9

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1a	SE_total	0.028	0.014	3.929	1	0.047	1.028
	Constant	-1.307	0.819	2.543	1	0.111	0.271

Note. ^a The cut value is .500; ^b Variable(s) entered on Step 1: SE_total

should take this into account. Further research is also needed to show how the research self-efficacy beliefs of students could be cultivated, at both undergraduate and postgraduate levels. In addition, future research could explore additional strengths like perseverance and love of learning as possible predictors of academic achievement.

References

- Adeoye, H., & Emeke, E. A. (2010). Emotional intelligence and self-efficacy as determinants of academic achievement in English language among students in Oyo State senior secondary schools. *Ife Psychologia*, *18*(1), 206–220.
- Antonovsky, A. (1987). *Unravelling the mystery of health: How people manage stress and stay well*. San Francisco, CA: Jossey-Bass.
- Antonovsky, A. (1993). The structure and properties of the Sense of Coherence Scale. *Social Science and Medicine*, *36*, 725–733.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Bandura, A. (2002). Social foundations of thought and action. In D. F. Marks (Ed.), *The health psychology reader* (pp. 94–106). London, England: Sage.
- Bar-Tal, D., & Bar-Zohar, Y. (1977). The relationship between perception of locus of control and academic achievement: Review and some educational implications. *Contemporary Educational Psychology*, *2*, 181–199.
- Cilliers, F., & Kossuth, S. P. (2004). The reliability and factor structure of three measures of salutogenic functioning. *South African Journal of Labour Relations*, *28*(2), 59–76.
- Department of Education. (2010). *Education statistics in South Africa 2008*. Pretoria, South Africa: Government Printer.
- Findley, M. J., & Cooper, H. M. (1983). Locus of control and academic achievement: A literature review. *Journal of Personality and Social Psychology*, *44*(2), 419–427.
- Frazer, W., & Killen, R. (2005). The perceptions of students and lecturers of some factors influencing academic performance at two South African universities. *Perspectives in Education*, *23*(1), 25–40.
- Garson, B. E., & Stanwyck, D. J. (1997). Locus of control and incentive in self-managing work teams. *Human Resources Development Quarterly*, *8*, 247–258.
- Grayson, J. P. (2007). Sense of coherence, problem freedom and academic outcomes of Canadian domestic and international students. *Quality in Higher Education*, *13*(3), 215–236.
- Grayson, J. P. (2008). Sense of coherence and academic achievement of domestic and international students: A comparative analysis. *Higher Education*, *56*, 473–492.
- Griffiths, A. J., Sharkey, J. D., & Furlong, M. J. (2009). Student engagement and positive school adaptation. In R. Gilman, E. S. Huebner, & M. J. Furlong (Eds.), *Handbook of positive psychology in the schools* (pp. 197–211). New York, NY: Routledge.
- Howell, A. J. (2009). Flourishing: Achievement-related correlates of students' well-being. *The Journal of Positive Psychology*, *4*(1), 1–13.
- Jackson, J. W. (2002). Enhancing self-efficacy and learning performance. *Journal of Experimental Education*, *70*(3), 243–254.
- Jama, M. P., Mapesela, M. L. E., & Beylveld, A. A. (2008). Theoretical perspectives on factors affecting the academic performance of students. *South African Journal of Higher Education*, *22*(5), 992–1005.
- Lane, J., Lane, A. M., & Kyprianou, A. (2004). Self-efficacy, self-esteem and their impact on academic performance. *Social Behavior and Personality*, *32*(3), 247–256.
- Maree, D. J. F., Maree, M., & Collins, C. (2008a). Constructing a South African Hope Measure. *Journal of Psychology in Africa*, *18*(1), 167–178.
- Maree, D. J. F., Maree, M., & Collins, C. (2008b). The relationship between hope and goal achievement. *Journal of Psychology in Africa*, *18*(1), 65–74.
- Muller, Y., & Rothmann, S. (2009). Sense of coherence and employees' perceptions of helping and restraining factors in an organisation. *South African Journal of Industrial Psychology*, *35*(1), 1–10.
- Robbins, S. P. (2001). *Organizational behaviour* (9th ed.). Englewood Cliff, NJ: Prentice Hall.

- Rotter, J. (1966). Generalized expectations for internal versus external control of reinforcements. *Psychological Monographs: General and Applied*, 80(1), 1–28.
- Schepers, J. M. (1995). *Die lokus van beheer vraelys: Konstruksie en evaluering van 'n nuwe meetinstrument. [The locus of control questionnaire: Construction and evaluation of a new measuring instrument]*. Departement van Menslikehulpbronbestuur, Randse Afrikaanse Universiteit, Johannesburg, South Africa [Department of Human Resources, University of Johannesburg, South Africa].
- Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist*, 60(5), 410–421.
- SPSS Inc. (2007). SPSS 17.0 for Windows [Computer software]. Chicago, IL: SPSS.
- Strümpfer, D. J. W., Gouws, J. F., & Viviers, M. R. (1998). Antonovsky's Sense of Coherence Scale related to negative and positive affectivity. *European Journal of Personality*, 12, 457–480.
- Van Wijk, C. (2008). The resilience of naval specialists: Their sense of coherence and its relationship with measures of personality. *South African Journal of Psychology*, 38(4), 737–751.