Psychological mindedness and academic achievement of psychology students in a tertiary education environment

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Hons BA (Psychology)

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To my parents, James and Annatjie Beets.

ACKNOWLEDGEMENTS

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To God be all the glory!

SUMMARY

Title:

Psychological mindedness and academic achievement of psychology students in a tertiary education environment.

Keywords:

Psychological mindedness, academic achievement, psychology, student(s), tertiary education.

Summary:

Traditionally, intelligence has been viewed to be the best predictor of academic achievement in tertiary education institutions. However, research has found the relationship between intelligence and academic achievement to be rather weak and emotional competence is suggested to be a better measure of academic achievement. Even though emotional intelligence (EQ) is the most well-known measure of emotional competence, research on the relationship between academic achievement and EQ has yielded mixed results. EQ further also has limitations which attracts criticism. As a result of these criticism, psychological mindedness (PM), a concept closely related to EQ, is used in this study as a measure of emotional competence. Advantages of PM in comparison to EQ is that it is more comprehensive and also that its nature and meaning are more clear.

The objectives of this study were to determine whether there is a correlation between PM and academic achievement, and also whether there are differences in demographics (academic year, gender, race, degree or diploma enrolled for) in relation to both PM and academic achievement respectively.

A cross-sectional survey design was used and 211 undergraduate students enrolled for psychology as module, at the Potchefstroom Campus of the North-West University participated. A biographical questionnaire as well as the Psychological Mindedness Scale (PMS) was administered during the scheduled class times for undergraduate Psychology modules, and informed consent have been obtained before the academic records of the participants were drawn from the Student Administration System. In order to be able to interpret the data, correlations, t-tests and a one-way analysis of variance (ANOVA) were calculated.

This study has found a positive correlation between PM and academic achievement, but no difference in PM between students of various academic years, genders, races and degrees or diplomas enrolled for, respectively. Thus, even though there is a relationship between PM and academic achievement, other factors that are not related to PM may also play a role.

It is recommended that a questionnaire that captures the mood of participants are included when further studies are done on the relationship between PM and academic

achievement. A further recommendation is that large and diversified samples are used. The above-mentioned recommendations may result in the achievement of more accurate results that may be generalisable.

With regard to further studies, it is recommended that the five factors included in the PMS be analysed separately as this may give an indication of exactly which factors in the scale correlates the best with academic achievement. If this is known specific attention may be given to the development of these factors amongst students who are struggling academically.

Word count: 428

OPSOMMING

Titel:

"Psychological mindedness" en akademiese prestasie van psigologie studente in 'n tersiêre onderwysomgewing.

Sleutelwoorde:

"Psychological mindedness", akademiese prestasie, psigologie, student(e), tersiêre onderwys.

Opsomming:

Intelligensie is tradisioneel as die beste aanduider van akademiese prestasie aan instellings vir tersiêre onderrig gesien. Navorsing het egter bevind dat die verband tussen intelligensie en akademiese prestasie redelik klein is, en dat emosionele vaardigheid skynbaar 'n beter maatstaf van akademiese prestasie is. Hoewel emosionele intelligensie (EQ) die bekendste maatstaf van emosionele vaardigheid is, het navorsing oor die verband tussen akademiese prestasie en EQ gemengde resultate gelewer. Boonop het EQ ook ander beperkinge wat kritiek uitlok. As gevolg hiervan word "psychological mindedness" (PM), 'n konsep wat nou verwant is aan EQ, in hierdie studie as 'n maatstaf van emosionele vaardigheid gebruik. Voordele van PM, in vergelyking met EQ, is dat dit meer omvattend is en ook dat die aard en betekenis daarvan duideliker is.

Die doelstellings van hierdie navorsing was om vas te stel of daar 'n korrelasie tussen PM en akademiese prestasie bestaan, en ook of daar verskille in demografie (akademiese jaar, geslag, ras, graad of diploma waarvoor ingeskryf) betreffende PM en akademiese prestasie, onderskeidelik, voorkom.

'n Dwars-deursnit-opname-ontwerp is gebruik en 211 voorgraadse studente wat vir psigologie as module aan die Potchefstroomkampus van die Noordwes-Universiteit ingeskryf was, het deelgeneem. 'n Biografiese vraelys sowel as die "Psychological Mindedness Scale" (PMS) is tydens die geskeduleerde klastyd vir voorgraadse psigologiemodules afgeneem, en ingeligte toestemming is verkry voordat die akademiese rekords van die deelnemers uit die Studente Administrasie Stelsel getrek is. Ten einde die data te ontleed, is korrelasies, t-toetse en 'n eenrigting-ontleding van variansie (ANOVA) bereken.

Hierdie studie het bevind dat daar 'n positiewe korrelasie tussen PM en akademiese prestasie bestaan, maar geen verskille kon tussen PM en studente van verskillende akademiese jaargroepe, geslag, ras of graad of diploma waarvoor ingeskryf gevind word nie. Met ander woorde, selfs al bestaan daar 'n verband tussen PM en akademiese prestasie, kan ander faktore wat nie met PM verband hou nie, ook 'n rol speel.

Daar word aanbeveel dat 'n vraelys wat die gemoed van studente ondervang, ingesluit word wanneer verdere navorsing oor die verband tussen PM en akademiese prestasie gedoen

word. ’n Verdere aanbeveling is dat groot en gediversifiseerde steekproewe gebruik word. Bogenoemde aanbevelings mag tot die verkryging van meer akkurate en veralgemeenbare resultate lei.

Wat verdere navorsing aanbetref, kan dit dalk voordelig wees om ook die vyf faktore wat in die skaal ingesluit is, afsonderlik te ontleed, aangesien dit ’n aanduiding kan gee van presies watter faktore in die skaal die beste met akademiese prestasie korreleer. Voortspruitend hieruit kan spesifieke aandag dan gegee word aan die ontwikkeling van dié faktore onder studente wat akademies onderpresteer.

Aantal woorde: 422

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PREFACE

The article format was chosen for purposes of this dissertation, which forms part of the requirements for the Masters degree in Research Psychology.

The article has been written for the journal, *Acta Academica.* **The manuscript as well as the bibliography has been compiled according to the adapted Harvard referencing style as well as other requirements as specified for contributions to this journal.**

PERMISSION TO SUBMIT

We, the co-authors hereby give consent that Soretha Beets may submit the manuscript entitled, Psychological mindedness and academic achievement of psychology students in a tertiary education environment, for the purpose of a dissertation. It may also be submitted to *Acta Academica* for publication.

_____	_____
Dr AW Nienaber	Prof KFH Botha
Supervisor	Co-supervisor

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MANUSCRIPT

Psychological mindedness and academic achievement of psychology students in a tertiary education environment.

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ABSTRACT

This study aimed to determine whether there is a correlation between psychological mindedness (PM) and academic achievement. A cross-sectional survey design was used and 211 undergraduate psychology students from the Potchefstroom Campus of the North-West University participated. A biographical questionnaire as well as the Psychological Mindedness Scale (PMS) was administered and the academic records of the participants were drawn. The data were analysed by calculating correlations, t-tests and an analysis of variance (ANOVA). The study has found that although there is a correlation between academic achievement and PM, other factors may also play a role in the academic achievement of undergraduate university students. Limitations and recommendations were indicated.

Word count: 108

UITTREKSEL

Hierdie studie was daarop gemik om vas te stel of daar ’n korrelasie tussen “psychological mindedness” (PM) en akademiese prestasie is. ’n Dwars-deursnit-opname-ontwerp is gebruik en 211 voorgraadse Psigologiestudente aan die Potchefstroomkampus van die Noordwes-Universiteit het deelgeneem. ’n Biografiese vraelys asook die “Psychological Mindedness Scale” (PMS) is afgeneem, en die akademiese rekords van die deelnemers is getrek. Die data is ontleed deur die berekening van korrelasies, t-toetse en ’n analise van variansie (ANOVA). Die navorsing het bevind dat, alhoewel daar ‘n korrelasie tussen akademiese prestasie en PM is, ander faktore ook ’n rol in die akademiese prestasie van voorgraadse studente kan speel. Beperkinge en aanbevelings is aangedui.

Woordtelling: 107

1. INTRODUCTION

The main objective of this study is to determine the relationship between academic achievement and psychological mindedness (PM). Traditionally, educational institutions have viewed intelligence to be the best predictor of academic achievement. According to O'Connor & Paunonen (2007: 973) the relationship between academic achievement and intelligence is weaker than expected, especially in a tertiary education environment. In addition, Diseth (2002: 228) found a lack of relationship between intelligence and academic achievement. Academic achievement may thus depend on more than just intelligence (Farsides & Woodfield 2002: 1238, Kapp 2000: 151, Naderi *et al* 2009: 110, Ochse 2003: 67, Zeegers 2004: 53-54) as students with high cognitive abilities are sometimes outperformed by students with lower cognitive abilities. Kapp (2000: 152) cites that "as work becomes more complex and collaborative, emotional competence will distinguish those who flourish from those who falter".

In recent years, emotional intelligence (EQ) has been used to measure emotional competence. According to Salovey & Mayer (1990: 189) EQ can be defined as: "the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use the information to guide one's thinking and actions". EQ is valuable in the sense that it provides individuals with a greater understanding of the self (Hunter 2004: 604) and others. It might also assist individuals in understanding the difficulties inherent in social situations (Hunter 2004: 604). EQ is important in the educational environment as it might, among other things, ease the learning process and increase the tendency of success (Vandervoort 2006: 6).

Qualter *et al* (2007: 15) states that EQ is viewed to be important in the prediction of academic achievement. Parker *et al* (2004: 169) have also found EQ to be significant in predicting academic achievement if variables related to EQ are compared in groups displaying various levels of academic achievement. In contrast, Barchard (2003: 856) states that cognitive ability and personality are better predictors of academic achievement than emotional intelligence, while Austin *et al* (2007: 689) have found no association between EQ and academic achievement. Mixed results have thus been found regarding the relationship between EQ and academic achievement.

In addition to these contradicting results regarding EQ and academic achievement, EQ has limitations which attracts critique. According to Murphy & Sideman (2006: 38-45) the reasons for these are as follows: Firstly, there is no consensus on the meaning and nature of EQ. Secondly, EQ's importance, in relation to more traditional concepts, for example, cognitive ability or intelligence, is undecided. Thirdly, the applicability or relevance of EQ measurements is uncertain. EQ measures are rarely used for real life decisions and claims about its benefits may be exaggerated. Fourthly, there are cultural clashes between EQ sceptics and enthusiasts

as a result of incompatible assumptions, different audiences, different goals, different values and different criteria.

In summary, previous research regarding the relationship between EQ and academic achievement has found mixed results, and EQ attracts a lot of controversy. As a result of these another measure of emotional competence is considered for this study.

Closely related to EQ, PM has evolved as important in the psychology of emotion and inter- and intrapersonal awareness. Appelbaum (1973: 36) initially defined PM as "a person's ability to see relationships between thoughts, feelings and actions, with the goal of learning the meanings of the experience and behavior". This definition thus includes cognitive, affective and motivational components (Hall 1992: 132) as well as interest and ability (Hall 1992: 134, Shill & Lumley 2002: 132) and the focus is on the individual (Conte *et al* 1996: 250) and thus self-awareness (Beitel *et al* 2004: 740).

The definition developed by Farber (1985: 170) differs from the above-mentioned in the sense that PM is seen as an interest in or disposition to think about phenomena in psychology, rather than an ability to understand it accurately (Hall 1992: 135), and also that "others" are included (Beitel *et al* 2004: 740, Conte *et al* 1996: 250-251).

In the definition provided by Hall (1992: 139-140) both interest and ability are included, but ability is limited by interest, and interest and ability limit the occurrence of behaviour that is psychologically minded (Hall 1992: 135-136). In line with the definition of Appelbaum (1973: 36), the definition of Hall (1992: 139-140) only focuses on the individual.

Conte *et al* (1996: 258) see PM as "an attribute of an individual that presupposes a degree of access to one's feelings, a willingness to try to understand oneself and others, a belief in the benefits of discussing one's problems, an interest in the meaning and motivation of one's own and others' thoughts, feelings, and behavior, and a capacity for change". This definition is the most comprehensive and includes the self and others, as well as cognitive, affective and motivational components. Even though PM is seen as a characteristic that may lead to certain desired outcomes, both interest and ability are also included in this model.

The latest definition by Nyclíček & Denollet (2009: 32) is in line with the definition provided by Hall in 1992. According to this definition, the affective component is more important than the intellectual component (Nycliček & Denollet 2009: 32) as understanding behaviour intellectually is usually at the expense of learning about it in an affective way (Hall 1992: 137). Nyclíček & Denollet (2009: 32) state that PM is thus a personal (individual) characteristic that not only reflects interest but also ability, and that it can be changed by meaningful external sources.

Even though PM is a much older concept than EQ, it seems to be more comprehensive, as it includes cognitive, affective and motivational components and may be seen as a characteristic, an interest and ability, with a focus on both the individual and others. PM may

thus be a more accurate measure of emotional competence than EQ, which is seen to be rather narrow in focus. According to Fagan & Squitiera (2002: 101), characteristics that may be associated with PM are possessed by students who are academically strong. There might thus be a relationship between PM and academic achievement.

Academic achievement can be seen as success in the academic environment. This success may have different meanings and can vary from merely passing a module to obtaining a distinction or to graduate. In higher education, various factors can have an impact on students' academic achievement (Zeegers 2004: 35) as students are different in various ways (Kaighobadi & Allen 2008: 427). They will, for example, have various intelligence levels, behaviours, life styles, study skills and habits, experiences, backgrounds and demographics. Even though intellectual variables significantly predict academic achievement, the inclusion of non-intellectual variables (*demographics* for example gender, race, age, degree or diploma enrolled for; *behavioural factors,* for example the amount of time spent for preparation; and *personality,* for example motivation and confidence) are important, as it increases predictability (Kaighobadi & Allen 2008: 427). Although demographics will be investigated in relation to academic achievement, behaviour factors and personality fall outside the scope of this study. As demographics may have an influence on academic achievement and academic achievement may be influenced by PM, the relationship between demographics and PM will be investigated.

The correlation between PM and academic achievement as well as the differences in demographics (academic year, gender, race and degree or diploma enrolled for), in relation to both PM and academic achievement will thus be investigated. This study is significant and important, as it is the first to investigate the relationship between PM, academic achievement and demographics. Increased knowledge regarding the factors influencing academic achievement may be beneficial in pointing students in the right direction, identifying students who need assistance and assisting them in the ways needed in order for them to be able to achieve academically.

2. OBJECTIVES

The main objective of this study is to determine whether there is a relationship between PM and academic achievement. The specific objectives are firstly to determine whether there is a correlation between PM and measures of academic achievement, and secondly to determine whether students' PM and academic achievement differ on the grounds of demographics (academic year, gender, race and degree or diploma enrolled for).

3. RESEARCH METHOD

3.1. Research Design

A cross-sectional survey design was chosen for this study. In this type of design, according to Huysamen (2001: 98), participants from different age groups are measured on two or more variables at more or less the same time. A cross-sectional survey design aims to not only describe the characteristics of a population, but also the differences between various populations (Shaughnessy *et al* 2009: 152).

3.2. Participants

The participants were 211 undergraduate students (degree or diploma) enrolled for a psychology module or modules, at the Potchefstroom Campus of the North-West University (See Table 1 on p10). From this sample 67 (31.75%) were 1st years, 61 (28.91%) were 2nd years and 83 (39.34%) were 3rd years. Most students were in the age groups 19 years (17.06%), 20 years (23.22%) and 21 years (33.65%). Regarding gender, 166 (78.67%) females and 45 (21.33%) males participated in the study. Ethnically, the participants were divided as follows: 170 (80.57%) were white, 34 (16.11%) were black and 7 (3.32%) were coloured. Of the participants 133 (63.03%) were enrolled for the Bachelor of Arts (BA) degree, 43 (20.38%) for the Bachelor of Science (BSc) degree, 17 (8.06%) for the Bachelor of Social Work (BSW) degree, 8 (3.79%) for the Bachelor of Education (BEd) degree and 10 (4.74%) for other Bachelors degrees.

3.3. Data collection (Measuring Instruments)

Data on PM was obtained by means of the Psychological Mindedness Scale (PMS), while data on academic achievement was obtained from the academic records of the participants. Each participant also completed a biographical questionnaire. Each of these measures will be described below.

3.3.1. The Psychological Mindedness Scale (PMS) (Conte *et al* 1990)

The PMS consists of 45 items and is a self-report measure of PM. Items include statements like "I am always curious about the reasons why people behave as they do" and "Usually, if I feel an emotion, I can identify it". On each item participants needed to choose between four possible

options: strongly agree, agree, disagree, and strongly disagree, with a higher score indicating greater PM.

In a sample of 256 psychiatric outpatients PMS has shown good internal consistency (Cronbach alpha = 0.87) and temporal stability (r (20) = 0.92) (Beitel & Cecero 2003: 167, Beitel *et al* 2004: 743, Cecero *et al* 2008: 109, Conte *et al* 1996: 252). In a non-clinical sample Shill & Lumley (2002: 142) have found the PMS to have acceptable internal consistency (Cronbach alpha = 0.8). In the current study a Cronbach alpha coefficient of 0.87 was found for the sample used.

3.3.2. Academic Achievement

Participants' academic achievement was measured in three ways: the average of the final marks obtained by participants in their 1st main module (AMM1); the average of the final marks obtained by participants in their 2nd main module (AMM2); and the average of the final marks obtained by participants over all their modules (AAM).

Students usually take two main modules. For purposes of this study psychology was used as main module 1 and the remaining main module as main module 2. For participants who did not take psychology as main module, either one of the two main modules taken was used as main module 1 (this was the case for 7% of the participants) and the remaining main module as main module 2. Some participants did generic degrees (for example, BEd) where almost all the modules taken were main modules from the same subject group, while others did degrees or diplomas with only one main module. For these participants there is thus only one main module. The average for these main modules was included under AMM2 as the researchers wanted AMM1 to largely reflect the averages obtained for psychology.

Using AMM1, AMM2 and AAM are a sound way of measuring academic achievement, as examination papers make up at least 50% of the final mark for any modules and all examination papers are moderated (either internally and/or externally depending on the academic year group).

3.3.3. Biographical data

A biographical questionnaire was developed with the aim of obtaining information regarding the participants' age, gender, race, degree or diploma enrolled for and academic year.

3.4. Procedure

Questionnaires were administered during the scheduled class times for undergraduate psychology modules. At the start of the lectures students were asked to participate in the study and they were briefly informed on the objectives of the study and what participation entailed. The students who agreed to participate received a consent form, a biographical questionnaire and the PMS. Signed consent forms served as an indication that participants had not only agreed to participate given the objectives of the study and the nature of participation, but had also granted permission to the researchers to access their academic records. The questionnaires took approximately 20 minutes to be completed. Participants failing to supply all the needed information have been excluded from the study. Academic records of the participants were drawn from the North-West University's Student Administration System, without identifying participants in any way. The data obtained from the questionnaires, as well as the relevant data from the academic records were captured in a Microsoft Excell Spread Sheet.

3.5. Data analysis

Data were analysed by the Statistical Consultation Service at the Potchefstroom Campus of the North-West University with the STATISTICA computer program (StatSoft 2009). Descriptive statistics were calculated for PM and the biographical variables.

A Cronbach alpha was calculated for the PMS to determine its internal reliability. According to Spatz & Kardas (2008: 108), a Cronbach alpha must be 0.8 or higher in order for a measure or scale to be seen as having acceptable reliability.

Correlations were calculated between age, the number of modules taken (NM), AMM1, AMM2, AAM and PM. As the obtained data was normally distributed, Pearson correlations were calculated. This not only indicated that NM was negatively related to all other variables, but also that the ages of the participants had almost no relation with all the other variables. Partial correlations, where the effect of NM was partialled out, were thus calculated. Age, as a variable, was also not included in the calculation of partial correlations, as it did not have a relation with any of the variables. According to Steyn (2009: 3), a correlation of 0.1 is seen as small, while a correlation of 0.3 is seen as medium and a correlation of 0.5 as large.

For this study only the largest two groups in the variables, race and degree or diploma enrolled for, were used for analyses as the remaining groups were rather insignificant with regard to frequency. T-tests, where the means of two groups are compared, were thus performed for gender, race and degree or diploma enrolled for. A one-way analysis of variance (ANOVA), where the means of more than two groups are compared, were performed for

academic year. The above-mentioned tests were done in order to obtain p values (statistical significance of the difference between groups) and d values (practical significance of the differences between groups). Practical significance is also referred to as effect size or Cohen's d. Cohen (1988: 25-26) has classified effect sizes as follows: a d value equal to approximately 0.2 indicate a small effect, while a d value of approximately 0.5 indicates a medium effect, and a d value of 0.8 or larger a large effect.

3.6. Ethical considerations

This study was approved by the Ethics Committee of the North-West University (Approval number: 06K20). The information provided to the participants with regard to the study was true and correct and they were informed on what participation entails and how the data obtained will be used. Participation was voluntary and written informed consent was obtained. The information obtained were coded and thus handled totally confidential.

4. RESEARCH RESULTS

The Cronbach alpha coefficient as well as the frequencies and the means and standard deviations of PM for all the biographical variables are presented in Table 1.

Table 1: Descriptive statistics for PM and the biographical variables (n=211)

Item	Category	Frequency	Percentage	PM	
				Mean	Standard Deviation
Total for PM (Cronbach α = 0.87)				131.59	11.84
Academic Year	1st	67	31.75	130.21	12.30
	2nd	61	28.91	131.41	12.83
	3rd	83	39.34	132.84	10.67
Age	18	10	4.74	128.33	11.62
	19	36	17.06	128.44	9.71
	20	49	23.22	133.31	13.78
	21	71	33.65	133.35	11.14
	22	17	8.06	130.82	11.44
	23	12	5.69	124.00	13.99
	24 and older	16	7.58	134.19	9.15
Gender	Female	166	78.67	132.09	11.51
	Male	45	21.33	129.76	12.96
Race	Black	34	16.11	129.03	9.69
	White	170	80.57	132.19	12.09
	Other	7	3.32	129.57	14.97
Degree	Bachelor of Arts (BA)	133	63.03	130.99	12.42
	Bachelor of Science (BSc)	43	20.38	133.90	11.82
	Bachelor of Social Work (BSW)	17	8.06	131.82	10.16
	Bachelor of Education (BEd)	8	3.79	131.88	10.25
	Other	10	4.74	128.78	6.32

As indicated in Table 1, the PMS had a Cronbach alpha of 0.87 and can be seen as internally reliable. It can thus be deducted that the PMS measured PM consistently in this study.

As the data were normally distributed, Pearson correlations, as indicated in Table 2, were calculated.

Table 2: Correlations between age, NM, academic achievement and PM

	Age	NM	AMM1	AMM2	AAM	PM
Age	1.00					
NM	-0.04	1.00				
AMM1	-0.04	-0.28**	1.00			
AMM2	-0.00	-0.15*	0.67***	1.00		
AAM	-0.01	-0.22*	0.81***	0.90**	1.00	
PM	0.08	-0.09	0.37**	0.20*	0.31**	1.00

NM = Number of Modules
AMM1 = Average of Main Module 1
AMM2 = Average of Main Module 2
AAM = Average over all modules
PM = Psychological Mindedness
r = correlation - * if r≥0.1 (small), ** if r≥0.3 (medium), *** if r≥0.5 (large)

Age showed no significant correlations with any variables (Table 2) and were thus not included in further analysis. As NM showed negative correlations with all the other variables (Table 2), its effect needed to be partialled out in order to obtain more accurate results. Partial correlations between only AMM1, AMM2, AAM and PM were thus calculated in the next step and are indicated in Table 3.

Table 3: Correlations between academic achievement and PM

	AMM1	AMM2	AAM	PM
AMM1	1.00			
AMM2	0.66***	1.00		
AAM	0.80***	0.90***	1.00	
PM	0.36**	0.19*	0.30**	1.00

AMM1 = Average of Main Module 1
AMM2 = Average of Main Module 2
AAM = Average over all modules
PM = Psychological Mindedness
r = correlation - * if r≥0.1 (small), ** if r≥0.3 (medium), *** if r≥0.5 (large)

PM correlated positively with AMM1, AMM2 and AAM. The highest correlation was between PM and AMM1 (r=0.36), followed by the correlation between PM and AAM (r=0.30), and the correlation between PM and AMM2 (r=0.19). While the correlations between PM and both AMM1 (r=0.36) and AAM (r=0.3) were medium, the correlation between PM and AMM2 (r=0.19) was low. From all the variables tested, AMM1 (mostly psychology) thus correlated the best with PM.

Table 4 indicates the differences between the means of two groups with regard to gender, race and degree enrolled for.

Table 4: T-tests for the differences in NM, AMM1, AMM2, AAM and PM between genders, races and degrees

	Gender						Race						Degree					
	Female		Male				White		Black				BA		BSc			
	M	SD	M	SD	p	d	M	SD	M	SD	p	d	M	SD	M	SD	p	d
NM	13.32	3.08	13.89	2.30	0.24	0.19	13.03	2.92	15.41	2.20	<0.001*	0.82+++	13.67	2.51	11.58	2.33	<0.001*	0.83+++
AMM1	67.49	10.20	65.82	9.44	0.36	0.16	68.48	10.14	61.94	8.61	<0.001*	0.64++	66.41	10.70	70.05	7.47	0.07	0.38+
AMM2	64.80	13.14	59.91	11.19	0.02*	0.37+	64.72	13.26	58.91	10.42	0.02*	0.44+	62.07	14.24	66.95	10.50	0.04*	0.34+
AAM	65.88	11.54	60.02	10.20	<0.001*	0.51++	65.80	11.79	59.62	9.18	<0.001*	0.52++	62.87	12.21	69.21	9.83	<0.001*	0.52++
PM	132.09	11.51	129.76	12.96	0.24	0.18	132.03	12.09	129.03	9.69	0.15	0.26+	130.91	12.42	133.91	11.82	0.18	0.23+

NM = Number of Modules
AMM1 = Average of Main Module 1
AMM2 = Average of Main Module 2
AAM = Average over all modules
PM = Psychological Mindedness
M = Mean
SD = Standard Deviation
p = statistical significance - * if $p<0.05$
d = practical significance - + if $d\geq0.2$ (small effect), ++ if $d\geq0.5$ (medium effect), +++ if $d\geq0.8$ (large effect)

From Table 4 it can be seen that there was no statistically or practically significant difference between male and female students regarding PM ($p=0.24$, $d=0.18$), NM ($p=0.24$, $d=0.19$) and AMM1 ($p=0.36$, $d=0.16$). Male and female students differed significantly, statistically and practically, on AMM2 ($p=0.02$, $d=0.37$) and AAM ($p<0.001$, $d=0.51$), with female students performing better than their male counterparts on both variables. The practical significance for AMM2 is of a small effect, while it is of a medium effect for AAM. These indicate that the difference between the averages of male and female students was larger for AAM than for AMM2.

There was no statistically significant difference between black and white students regarding PM ($p=0.15$), while the practical significance was small ($d=0.26$). Statistically, black students have taken significantly more modules than white students ($p<0.001$) with a large practical effect ($d=0.82$). Statistically, white students obtained significantly higher scores than black students on AMM1 ($p<0.001$), AMM2 ($p=0.02$) and AAM ($p<0.001$). The practical significance was of a medium effect for AMM1 ($d=0.64$) and AAM ($d=0.52$), and of a small effect for AMM2 ($d=0.44$). These indicate that the difference between black and white students was the largest for AMM1, followed by AAM and then AMM2.

There was no statistically significant differences between students enrolled for BA and BSc degrees regarding PM ($p=0.18$). With regard to practical significance, the effect was small ($d=0.23$). With regard to NM, BA students have statistically taken significantly more ($p<0.001$) modules than BSc students. The practical significance was large ($d=0.83$). The difference between the means of AMM1 for students who studied BA and BSc respectively, was not statistically significant ($p=0.07$) and the effect size was small ($d=0.38$). Statistically, BSc students performed significantly better ($p=0.04$) than BA students concerning AMM2. The effect size, however, was small ($d=0.34$). Statistically BSc students also performed significantly better ($p<0.001$) concerning AAM. The effect size was medium ($d=0.52$), indicating that the difference between the means of BA and BSc students were larger for AAM than for AMM2.

Table 5 indicates the differences between the means of three groups with regard to academic year.

Table 5: ANOVA for differences in NM, AMM1, AMM2, AAM and PM between the various academic year groups

	Academic year 1 (Mean)	Academic year 2 (Mean)	Academic year 3 (Mean)	MSE	p	d_{12}	d_{13}	d_{23}
NM	13.72	14.64	12.34	7.75	<0.001*	0.33+	0.50++	0.83+++
AMM1	66.84	66.37	67.93	101.44	0.70	0.05	0.11	0.16
AMM2	59.33	62.58	68.07	153.13	<0.001*	0.26+	0.71++	0.44+
AAM	60.62	63.42	68.71	121.14	<0.001*	0.25+	0.73++	0.48+
PM	94.79	93.60	92.16	140.38	0.40	0.10	0.22+	0.12

NM = Number of Modules
AMM1 = Average of Main Module 1
AMM2 = Average of Main Module 2
AAM = Average over all modules
PM = Psychological Mindedness
p = statistical significance - * if p<0.05)
d = practical significance - + if d≥0.2 (small effect), ++ if d≥0.5 (medium effect), +++ if d≥0.8 (large effect)
d_{12} = difference between academic year 1 and academic year 2
d_{13} = difference between academic year 1 and academic year 3
d_{23} = difference between academic year 2 and academic year 3

According to Table 5, there was no statistically significant difference between students from various academic years regarding PM (p=0.4). While there was no practically significant difference regarding PM between first years and second years (d_{12}=0.10) and also between second years and third years (d_{23}=0.12), the practical significance of the difference between first and third years was small (d_{13}=0.22). There was no statistically or practically significant difference between students from various academic years regarding AMM1 (p=0.7, d_{12}=0.05, d_{13}=0.11, d_{23}=0.16). Statistically, students from various academic years differed significantly on NM (p<0.001), AMM2 (p<0.001) and AAM (p<0.001). For NM the practical significance of the difference between the first and second year was small (d_{12}=0.33), while it was medium (d_{13}=0.50) for the difference between the first and third year, and large (d_{23}=0.83) for the difference between the second and third year. For AMM2 the practical significance of the difference between the first and second year was small (d_{12}=0.26), while it was medium (d_{13}=0.71) for the difference between the first and third year, and again small (d_{23}=0.44) for the difference between the second and third year. For AAM the practical significance of the difference between the first and second year was small (d_{12}=0.25), while it was medium (d_{13}=0.73) for the difference between the first and third year, and also again small (d_{23}=0.48) for the difference between the second and third year.

5. DISCUSSION OF RESEARCH RESULTS

The objectives of this study were to determine whether there is a correlation between PM and academic achievement, and also whether there are differences in demographic variables (academic year, gender, race, degree or diploma enrolled for) in relation to both PM and academic achievement respectively.

PM correlated positively with all the measures of academic achievement. AMM1 showed the highest correlation with PM, followed by AAM and then AMM2. It may be that PM correlates with academic achievement, as students with a high PM will probably be, as indicated by Conte *et al* (1996: 258) and Nycliček & Dennolet (2009: 32), interested in, and understand not only the meaning and motivation behind emotions (affective aspects), thoughts (cognitive aspects) and behaviour (motivational aspects), but also the relationships between them. As the correlations between PM and the measures of academic achievement were of a small to medium nature it can be deducted that even though PM correlates with academic achievement, other factors may also be important.

PM did not differ significantly for students of various academic years, genders, races and degrees or diplomas enrolled for, respectively. With regard to gender, the results of this study are in contrast with those of Shill & Lumley (2002: 139), who have found that female students obtained higher scores on PM than male students. However, Shill & Lumley (2002: 140) also found no differences between black and white students with regard to PM. Having certain demographics is thus not an indication of either a high or low PM.

The negative correlation between NM and the measures of academic achievement indicates that the more modules students take the lower their academic achievement. This is to be expected as less time per module is then available. As PM and academic achievement have a positive relationship with one another, it may be deducted that students with a high PM will not enroll for an extra module or modules if this will affect their academic achievement adversely. This is probably because they are more sensitive on an emotional level (Conte *et al 1996: 285)* and have the ability to affectively sense that an extra module or modules may lead to difficulties in terms of a too heavy workload.

Age showed a very low correlation with the measures of academic achievement. A study done by Frischenschlager *et al* (2005: 60) also did not show any correlation between the age of students and their academic achievement. Other studies concluded that the academic achievement of older or mature-aged students is better (Kaighobadi & Allen 2008: 433, Sheard 2009: 198), while Vaez & Laflamme (2008: 191) have found that younger students perform better academically. Results regarding the relationship between age and academic achievement are thus mixed. As, in this study, age showed no statistically significant correlation with academic achievement and there is a correlation between PM and academic achievement it

may be deducted that, in this study, age does not play a role in either academic achievement or PM.

Students' academic achievement in psychology (AMM1) is consistent, irrelevant of their academic year. From AMM2 and AAM, it is clear that the higher a student's academic year, the higher the student's academic achievement. This may be explained by students putting in more effort the closer they come to the completion of their studies and also by the decreasing number of modules students take as they progress from one academic year to the next, provided that modules are not failed and thus carried over to the next year. With regard to academic year, this study has thus found that academic achievement, excluding the achievement in psychology, increased with academic year. This is in contrast with PM which is not affected by academic year. A possible explanation for this may be that not many of the courses that students take are aimed at increasing PM, while students learn more competencies that assist them to achieve academically as they progress from one academic year to the next.

There is no gender difference in the averages obtained for psychology (AMM1). This is in line with the statement of Leman (1999: 234) that male and female students perform more or less equally in the social sciences. However, male and female students did differ significantly on AMM2 and AAM, with female students performing better. In this study female students thus have a tendency to academically achieve better than their male counterparts. This finding is in line with those of Sheard (2009: 198) and those of Kaighobadi & Allen (2008: 433). This may be explained by females having better work habits and language abilities (Dayioğlu & Türüt-Aşik 2007: 256) and also by their higher commitment (Sheard 2009: 198). In contrast, research done by Frischenschlager *et al* (2005: 59) indicates that male students are more successful. Vaez & Laflamme (2008: 191) have also found that male students complete their degrees in a shorter time span and thus perform better academically. Results with regard to the difference in the academic achievement between male and female students are thus mixed. According to Leman (1999: 234) the subject (course) that a student studies may play a role in explaining gender differences in academic achievement and students of a certain gender may thus tend to perform better in some courses. It may be that PM is not affected by gender as it partially depends on personality characteristics, interests and abilities that may be found in both male and female students.

There were differences between the races with regard to the measures of academic achievement, with white students tending to perform better academically. Similarly, Kaighobadi & Allen (2008: 433) have found that the academic achievement of white students is higher than those of other race groups. According to Leman (1999: 241), students of Indian origin perform best, while black students tend to under-perform. In this study black students might have performed poorer than white students, as they have a tendency to enroll for more modules. With regard to race, this study has thus found that, while white students tend to achieve better

academically, PM is not affected by race. This may be explained by white students probably having a background that is more advantageous in the tertiary education environment while competencies associated with PM can be learned in any environment.

Students enrolled for BA and BSc degrees respectively, did not show any difference with regard to the average performance in psychology (AMM1), but they did show differences with regard to AMM2 and AAM, with BSc students performing better. Students enrolled for BSc degrees thus have the tendency to academically achieve better than students enrolled for BA degrees, excluding the academic achievement in psychology. The better overall achievement of BSc students may be explained by them taking fewer modules than BA students. This is in contrast with PM which is not affected by the degree or diploma a student has been enrolled for. The latter may be explained by students choosing a degree or diploma based on, amongst others, their field of interest, and not based on their emotional competencies.

In summary, this study has found the following: The higher a student's PM, the higher a student's academic achievement. PM did not differ for students of various academic years, genders, races and degrees or diplomas enrolled for, respectively. Academic achievement showed correlations with academic year, gender, race and degree or diploma enrolled for respectively. Third year, white, female students studying towards BSc degrees thus have a tendency to achieve better academically than other groups. Thus, even though there is a correlation between PM and academic achievement other factors that are not related to PM also play a role.

A limitation of this study is that the PMS is a self-report measure. It thus measures how participants see themselves and not how they are viewed by others. Another limitation is that the results of this study cannot be generalized to the South African population as a homogenous sample (undergraduate students from one university) was used. The sample used for this study was also rather small and lacks diversity.

It is recommended that further studies on PM and academic achievement include a questionnaire that captures the mood of participants and also that a larger and more diversified sample be used. It is also recommended that the five factors included in the PMS scale be analysed separately, as this may give an indication of exactly which factors in the scale correlates the best with academic achievement. If this is known, specific attention may be given to the development of these factors amongst students who are struggling academically, by for example, developing and presenting intervention programs on PM. As higher PM is associated with better academic achievement, such a program might not only assist students in developing certain beneficial psychological skills but will also help them to improve on their academic results.

6. BIBLIOGRAPHY

Appelbaum S A

1973. Psychological mindedness: word, concept and essence. *International Journal of Psycho-Analysis* 54: 35-46.

Austin E J, P Evans, B Magnus & K O'Hanlon

2007. A preliminary study of empathy, emotional intelligence and examination performance in MBChB students. *Medical Education* 41(7): 684-689.

Barchard K A

2003. Does emotional intelligence assist in the prediction of academic success? *Educational and Psychological Measurement* 63(5): 840-858.

Beitel M & J J Cecero

2003. Predicting psychological mindedness from personality style and attachment security. *Journal of Clinical Psychology* 59(1): 163-172.

Beitel M, E Ferrer & J J Cecero

2004. Psychological mindedness and awareness of self and others. *Journal of Clinical Psychology* 61(6): 739-750.

Cecero J J, M Beitel & T Prout

2008. Exploring the relationship among early maladaptive schemas, psychological mindedness and self-reported college adjustment. *Psychology and Psychotherapy: Theory, Research and Practice* 81(1): 105-118.

Cohen J

1988. *Statistical power analysis for the behavioral sciences.* 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates.

Conte H R, R Plutchik, B B Jung, S Picard, B Karasu & A Lotterman

1990. Psychological mindedness as a predictor of psychotherapy outcome: a preliminary report. *Comprehensive Psychiatry* 31(5): 426-431.

Conte H R, R Ratto & T B Karasu

1996. The psychological mindedness scale: factor structure and relationship to outcome of psychotherapy. *Journal of Psychotherapy Practice and Research* 5(3): 250-259.

Dayioğlu M & S Türüt-Aşik

2007. Gender differences in academic performance in a large public university in Turkey. *Higher Education* 53(2): 255-277.

Diseth A

2002. The relationship between intelligence, approaches to learning and academic achievement. *Scandinavian Journal of Educational Research* 46(2): 219-230.

Fagan R & P Squitiera

2002. The relationship between personality characteristics and academic success in Law School. *Evaluation and Research in Education* 16(2): 95-103.

Farber B A

1985. The genesis, development, and implications of psychological mindedness in psychotherapists. *Psychotherapy* 22(2): 170-177.

Farsides T & R Woodfield

2002. Individual differences and undergraduate academic success: the roles of personality, intelligence and application. *Personality and Individual Differences* 34(7): 1225-1243.

Frischenschlager O, G Haidinger & L Mitterauer

2005. Factors associated with academic success at Vienna Medical School: prospective survey. *Croatian Medical Journal* 46(1): 58-65.

Hall J A

1992. Psychological-mindedness: a conceptual model. *American Journal of Psychotherapy* 46(1): 131-140.

Hunter B

2004. The importance of emotional intelligence. *British Journal of Midwifery* 12(10): 604-605.

Huysamen G K

2001. *Methodology for the social and behavioural sciences.* Cape Town: Oxford University Press Southern Africa.

Kaighobadi M & M T Allen

2008. Investigating academic success factors for undergraduate business students. *Decision Sciences Journal of Innovative Education* 6(2): 427-436.

Kapp C A

2000. Emotional intelligence and success in post-graduate studies: a pilot study. *SAJHE/SATHO* 14(3): 151-160.

Leman P J

1999. The role of subject area, gender, ethnicity and school background in the degree results of Cambridge University undergraduates. *The Curriculum Journal* 10(2): 231-252.

Murphy K R (ed)

2006. *A critique of emotional intelligence: what are the problems and how can they be fixed?* Mahwah, NJ: Lawrence Erlbaum Associates.

Murphy K R & L Sideman

2006. *The two IE's*. Murphy (ed) 2006: 37-58.

Naderi H, R Abdullah, H T Aizan, J Sharir & V Kumar

2009. Creativity, age and gender as predictors of academic achievement among undergraduate students. *Journal of American Science* 5(5): 101-112.

Nyklíček I & J Denollet

2009. Development and evaluation of the balanced index of psychological mindedness (BIPM). *Psychological Assessment* 21(1): 32-44.

Ochse C

2003. Are positive self-perceptions and expectancies really beneficial in an academic context? *SAJHE/SATHO* 17(1): 67-73.

O'Connor M C & S V Paunonen

2007. Big five personality predictors of post-secondary academic performance. *Personality and Individual Differences* 43: 971-990.

Parker J D A, L J Summerfeldt, M J Hogan & S A Majeski

2004. Emotional intelligence and academic success: examining the transition from high school to university. *Personality and Individual Differences* 36(1): 163-172.

Qualter P, K J Gardner & H E Whiteley

2007. Emotional intelligence: review of research and educational implications. *Pastoral Care* March: 11-20.

Salovey P & J D Mayer

1990. Emotional intelligence. *Imagination, Cognition and Personality* 9(3): 185-211.

Shaughnessy J J, E B Zechmeister & J S Zechmeister

2009. *Research methods in psychology*. 8th ed. Boston: McGraw-Hill.

Sheard M

2009. Hardiness commitment, gender, and age differentiate university academic performance. *British Journal of Educational Psychology* 79(1): 189-204.

Shill M A & M A Lumley

2002. The psychological mindedness scale: factor structure, convergent validity and gender in a non-psychiatric sample. *Psychology and Psychotherapy: Theory, Research and Practice* 75(2): 131-150.

Spatz C & E Kardas

2008. *Research methods in psychology: ideas, techniques and reports*. Boston: McGraw-Hill.

StatSoft Inc

2009. STATISTICA (data analysis software system). Version 9.0. www.statsoft.com.

Steyn H S (jr)

2009. *Manual: Effect size indices and practical significance*. Potchefstroom: North-West University. http://www.puk.ac.za/opencms/export/PUK/html/fakulteite/natuur/skd/manual/Chapter_5.pdf.

Vaez M & L Laflamme

2008. Experienced stress, psychological symptoms, self-rated health and academic achievement: a longitudinal study of Swedish university students. *Social Behavior and Personality* 36(2): 183-196.

Vandervoort DJ

2006. The importance of emotional intelligence in higher education. *Current Psychology: Developmental, Learning, Personality and Social* 25(1): 4-7.

Zeegers P

2004. Student learning in higher education: a path analysis of academic achievement in science. *Higher Education Research and Development*, 23(1): 35-56.