Martina Kotzé & Rita Niemann

Psychological resources as predictors of academic performance of first-year students in higher education

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This article aims to determine whether psychological resources (hope, optimism and resilience) can be potential predictors of academic performance. A cross-sectional survey design was used and the sample consisted of 789 first-year students in Industrial Psychology. The measuring instruments included the State Hope Scale (SHS), the Life Orientation Test-Revised (LOT-R), and the Adult Resilience Indicator (ARI). The results of the simple multiple regression analysis showed that state hope, and specifically pathways, and three dimensions of resilience were statistically significantly related to academic performance, whereas optimism was not a statistically significant predictor of academic performance.

Sielkundige bronne as voorspellers van akademiese prestasie van eerstejaarstudente in die hoëronderwys

Die doel van die artikel is om te bepaal of die positiewe sielkundige hulpbronne (hoop, optimisme en veerkragtigheid) potensiële voorspellers van akademiese prestasie kan wees. 'n Dwarssnitontwerp is gebruik in die uitvoering van die studie. Die steekproef het 789 eerstejaarstudente in Bedryfsielkunde ingesluit en die State Hope Scale (SHS), Life Orientation Test-Revised (LOT-R) en die Adult Resilience Indicator (ARI) is as meetinstrumente gebruik. Die resultate van die eenvoudige meervoudige regressie-analise het getoon dat daar statisties-beduidende korrelasies tussen hoop, spesifiek die subskaal, alternatiewe roetes tot doelwitbereiking ('pathways') en akademiese prestasie bestaan het, asook tussen drie dimensies van veerkragtigheid en akademiese prestasie. Optimisme was nie 'n voorspeller van akademiese prestasie nie.

Prof M Kotzé, UFS Business School & Prof S M Niemann, School of Higher Education Studies, Faculty of Education, University of the Free State, P O Box 339, Bloemfontein 9300; E-mail: kotzem@ufs.ac.za & niemannr@ufs.ac.za.

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SUN MEDIA BLOEMFONTEIN

The latest policy brief of the South African Human Sciences Research Council (HSRC) (2008: 5) reveals that approximately 30% of the students enrolled in higher education drop out in their first year of study. This report also indicates that South Africa's general graduation rate of 15% is one of the lowest in the world. Other studies by Snyder & Forsyth (2002: 820) show that even highly talented students in higher education often fail to achieve at levels that are consistent with their academic potential, and may lower their academic expectations, or drop out prior to graduating.

Many students, first-year students in particular, face challenges to their well-being and academic performance during their introduction to higher education.[1] These challenges may include factors such as adaptation to campus life, having to function more independently in a more autonomous and less supportive environment, dealing with financial concerns, managing time effectively, handling administrative problems, and managing the loss and formation of old and new friendships and/or romantic relationships.[2] In addition, perceptions of excessive academic demands and workload, due to a continuous schedule of examinations, assignments, and practical work over the course of an academic year, often lead students to emotional ups and downs (Law 2010: 196), stress, and even burnout, preventing them from actualising their full academic potential and advancing in their studies (Bernhard 2010: 31, Pritchard *et al* 2007: 15; Vaez & Laflamme 2008: 183).

Research by Pritchard *et al* (2007) and Ross & Morrison (2004) indicates that intelligence and ability are not the only determinants of students' academic performance, meaning that the identification of predictors of academic performance may have important implications for dealing with stressful and challenging situations in their academic career (Basson 2006; Snyder & Forsyth 2002: 820). Siddique *et al* (2006: 667) state that research relating to performance in stressful situations warrants an understanding of the psychological resource capital that may influence performance in such situations. It seems meaningful, therefore, to investigate those psychological factors that

1 See Bernhard 2010: 31; Cushman & West 2006: 23; Dyrbye *et al* 2008: 334; Law 2010: 196; Morgan & De Bruin 2010: 182.

2 See Cushman & West 2006: 23; Dyrbye *et al* 2005: 1613; Law 2010: 196; Moffat *et al* 2004: 482; Negga *et al* 2007: 823; Ross *et al* 2006: 584; Willcock *et al* 2004: 774.

keep students on track and in pursuit of their educational goals, despite several difficulties (Snyder *et al* 2002: 820). The field of positive organisational behaviour (POB), based on positive psychology (Seligman & Csikszentmihalyi 2000: 5), may offer some insight into the impact of various psychological resource capacities on students' performance in academic and learning situations. Luthans (2002: 59) defines POB as "the application of positively oriented human resource strengths and psychological capital that can be measured, developed, and effectively managed for performance improvement". Over the past few years, increasing recognition has been given to the value of positivity in strengthening the psychological resources of individuals and in improving their performance (Luthans *et al* 2008: 819). Within this context, POB is concerned with the performance impact of positive psychological resource capacities, and attempts to give a renewed emphasis to the importance of a positive approach in performance (Youssef & Luthans 2007: 775).

Luthans and colleagues drew on the positive psychology literature to identify hope, resilience and optimism as being especially, but not exclusively, relevant to POB (Youssef & Luthans 2007: 775). These three positive psychological capacities have been identified as uniquely essential for managing and adapting other resources to achieve favourable outcomes (Thoits 1994: 143), and may be important for performance beyond what may be accounted for by any one of them (Youssef & Luthans 2007: 775). In terms of the development of potential, each of these elements of resource capital can be considered 'state-like' rather than a fixed trait. The positive psychology literature proposes that positive traits and states do share some common characteristics conceptually and empirically, whereas empirical research supports their distinctiveness, to a large extent. On a trait-state continuum, characteristics that are more stable over time and across situations, including traits such as intelligence, conscientiousness and extraversion, would be found closer to the trait end of the continuum, while state-like psychological resources such as hope, optimism and resilience would be found closer to the state end of the continuum. These state-like psychological capacities tend to be malleable and open to development. Trait-like (or, at least, closer to the trait end of the continuum) constructs only lend themselves to lifelong development, rather than to shorter developmental

interventions, as in the case of state-like constructs (Avey *et al* 2006: 10, 13). The positive psychological capacities of hope, optimism and resilience specifically meet the definition and criteria requirements of POB in the sense that they are positive state-like psychological constructs that can be developed. In addition, these constructs are based on theory and research, and can be measured by means of valid measuring instruments (Youssef & Luthans 2007: 775).

Within this context, this study aims to determine whether the positive psychological resource capacities of hope, optimism and resilience can also be regarded as predictors of performance in academic settings. Thus, for the purposes of this study, a group of first-year students completed instruments measuring their hope, optimism and resilience in order to examine their role in their academic performance. In this article, the predictive value of these three psychological constructs in terms of academic performance will be discussed on the basis of the results of the empirical investigation. Since these psychological capacities share several self-directed motivating mechanisms and processes, as well as salient distinctions that may have an impact on performance (Youssef & Luthans 2007: 779), a brief overview of these psychological capacities will be given.

1. Theoretical overview

1.1 Hope

Hope is described as a cognitive set that is based on a reciprocally derived sense of successful goal-directed determination (agency) and planning (pathways) to meet the envisaged goals (Snyder *et al* 1991: 571). Snyder, a clinical psychologist, and his colleagues (Snyder 1994: 11 & 2000: 11; Snyder *et al* 1991: 570; Snyder *et al* 1991: 285) based their theory of hope on three basic mental components, namely goals, willpower (agencies), and waypower (pathways). Goals are viewed as something that individuals want to obtain (such as an object) or attain (such as an accomplishment). Goals are the anchors of the hope theory as they provide direction and an endpoint for hopeful thinking (Snyder 2000: 11). Willpower (agency) is the expectancy and motivation that individuals have for attaining these desired goals, and

are the driving forces in hopeful thinking. Snyder (1994: 5) describes willpower (agency) as "a reservoir of determination and commitment that we can call on to help move us in the direction of the goal to which we are attending at any given moment. It is made up of thoughts such as 'I can', 'I'll try', 'I'm ready to do this', and 'I've got what it takes'". Waypower (pathways) complements willpower by providing psychological resources that help find multiple alternative pathways to the goal. Pathway thoughts refer to the routes we take to achieve our desired goals, and the individual's perceived ability to produce these routes (Snyder 2000: 11). These alternative pathways of thinking help individuals achieve goals, despite the presence of obstacles (Luthans *et al* 2008: 821, Peterson & Luthans 2002: 3). Therefore, people who are high in hope possess the uncanny ability to pursue desired goals and to generate multiple pathways to accomplish these goals. This psychological resource continuously provides hope that the goal will be accomplished (Avey *et al* 2008: 53).

Yet it is not sufficient, in terms of hope, merely to have pathways or agency thinking, as neither willpower nor waypower alone is sufficient to produce high hope (Peterson & Luthans 2002: 4; Snyder 1994: 5-8). The combination of both types of thinking activates the person either to engage or to disengage with the desired goal (Snyder 2000: 9). As barriers may block the attainment of the desired goals, individuals can either give up or use their pathway thoughts to create new routes. When confronted with blockages, people who are higher in hope perceive that they can use their alternate routes and have the requisite agentic thinking to activate themselves. For individuals to achieve their goals, the personal sense of willpower (agency thinking) should be accompanied by waypower thoughts (pathways). Those who possess both willpower (agency) and waypower (pathways) for goals exemplify high hopefulness (Snyder 1994: 10). Thus, hope is the sum of the mental willpower (agency) and waypower (pathways) that individuals have in terms of their goals (Snyder 1994: 11). Hope theory proposes that goals themselves do not produce behaviour, but rather people's views of themselves. If people regard themselves as being agents capable of initiating (agency) and implementing (pathways) actions in pursuing valued personal goals (going to college, for instance), they will produce mastery-oriented responses rather than helpless-oriented responses (Snyder & Forsyth 2002: 820).

As such, hopeful thinking will not only facilitate success during unimpeded goal pursuits, but can also be particularly helpful in the face of impediment (Snyder 2000: 11-2). Individuals who have a high hope view barriers as challenges to overcome, and use their pathway thoughts to plan alternative routes to their goals (Snyder 2000: 10).

Given that hope reflects an adaptive, goal-directed type of thinking, such thoughts are important to all students (Curry & Snyder 2000: 245). Applying the hope of students in the academic environment, the willpower dimension (agency) enables them to recognise and set goals that lead them to attain desired performance outcomes (Luthans *et al* 2008: 819). Similarly, the ability to generate multiple pathways to goals and to solve problems relating to academic performance may give students a sense that they have control over their environments (Snyder *et al* 2002: 820). Students who have a high hope benefit by staying very focused on their goals. Their thinking is 'on task', and they attend to the appropriate cues in specific learning and testing environments. These students also find multiple pathways to reach their goals and willingly try new approaches. On the other hand, students who have a low hope adhere to one approach, and do not try other avenues when stymied (Snyder & Forsyth 2002: 820). Students who make different predictions concerning the actions they take are also likely to make different decisions about which goals to pursue, what strategies to use in working toward those goals, and whether to persist when facing obstacles (Hazlett *et al* 2011: 91).

Various studies demonstrated that hope is positively related to academic achievement (Ciarrochi *et al* 2007: 1161; Snyder & Lopez 2002: 823). A study by Curry *et al* (1997: 1265) indicated that hope significantly predicted semester grade averages beyond cumulative grade point average and overall self-worth, whereas, in a 6-year longitudinal study, including first-year college students, Snyder *et al* (2002: 823) found that individual differences in hope predicted better overall grade point averages, and that students who have a high hope compared with those who have a low hope were also more likely to have graduated, and not to have been dismissed over this 6-year period. Chang (1998: 953) states that students who have a high hope have greater problem-solving abilities and employ fewer disengagement strategies for coping with stressful academic situations than those who have a low hope. In addition, Snyder &

Lopez (2002: 823) concluded that students who have a high hope also benefit, because they tend to keep focused on their goals and attend to the appropriate cues in specific learning and testing environments. On the other hand, it appears that students who have a low hope have difficulty with the input of information (studying) because of their distracting, task-irrelevant thoughts and detrimental negative feelings.

In light of the above, it may be hypothesised that students who measure higher on state-hope may perform better academically.

1.2 Optimism

Scheier & Carver (1985: 220 & 1992: 201) state that individuals tend to be either generally optimistic or generally pessimistic. Optimism is defined as a generalised expectancy that the future will be good, whereas pessimism is the generalised expectancy that the future will be bad (Hayes & Weathington 2007: 567). Optimists often appear to be optimistic 'in general', in that their positive expectations are not limited to a particular behavioural domain or class of settings. Similarly, pessimistic persons often give the appearance of being universally glum (Scheier & Carver 1985: 220). Optimism and pessimism influence people's subjective experiences when confronting problems and they influence the actions in which people engage when attempting to deal with these problems. When optimists confront adversity, they expect positive outcomes, resulting in a mix of feelings that is relatively positive. Pessimists, on the other hand, expect negative outcomes which should yield a greater tendency to negative feelings (Rothmann & Essenko 2007: 138). If individuals take an optimistic approach to difficult situations, they may be better able to adjust and overcome challenges. Therefore, an individual's level of optimism may be directly related to whether s/he will continue or relent when faced with a difficult task (Hayes & Weathington 2007: 567).

According to Carver & Scheier (2002: 288), expectancy-value theories underlie optimism and pessimism. Expectancy-value theories include two conceptual elements, namely behaviour and expectancy. Behaviour is organised around the pursuit of goals. Goals are states or actions that people view as either desirable or undesirable. People attempt to match their behaviours with what they perceive as

desirable, and to keep away from what they perceive as undesirable. The more important a goal is to someone, the greater its value will be with regard to the person's motivation. Expectancy refers to a sense of confidence or doubt about the attainability of the goal value. If people lack confidence, there will be limited actions. When people are confident about an eventual outcome, effort will continue, even in the face of adversity.

In light of the above, higher levels of optimism should aid students in having more positive expectations of outcomes in the academic environment (McIntosh *et al* 2004: 60). Students taking an optimistic approach to difficult situations may be better able to adjust and overcome challenges, especially during their first year in higher education, because positive expectations also seem to predict better reactions during transitions to new academic environments. Optimistic students report lower levels of psychological stress and loneliness as well as higher levels of social support and psychosocial and physical well-being (Chemers *et al* 2001: 56). Alternatively, students who generally expect negative outcomes would tend to avoid the situation, and withdraw from continued coping efforts based on their presumed futility, thus decreasing the likelihood of positive outcomes such as academic performance (McIntosh *et al* 2004: 60).

Optimism is also commonly equated with hope (Peterson & Luthans 2002: 4), but research indicates that hope produces unique variance beyond optimism in the prediction of criteria variables, while the factor structure of these two constructs differs (Gallagher & Lopez 2009: 548; Snyder *et al* 2002: 118). Snyder & Forsyth's (2002: 251) theory of hope and Scheier & Carver's (1985: 219) theory of optimism share the underlying perspective that virtually all human behaviour can be understood in terms of goal pursuits. Both theories suggest that dispositional positive expectancies are critical in understanding and explaining how individuals pursue and achieve goals. The theories diverge, however, in the roles they assign to personal agency and pathways thinking (Gallagher & Lopez 2009: 548; Snyder *et al* 2002: 118). According to Snyder *et al* (2002: 118), the major difference in the models of optimism and hope is that optimism emphasises agentic goal-related thinking, whereas hope emphasises the mutual contribution of agentic and pathways goal-directed thoughts. Optimism focuses on more generalised expectancies (for example,

I will achieve my goal) and places less emphasis on how or why the goal is attained (Carver & Scheier 2002b: 288), whereas hope theory places a greater emphasis on the presence of personal agency related to goals ('the will') as well as the identification of strategies to achieve those goals ('the ways'). For example, if an individual is concerned about his/her performance in an academic examination, the ability to identify a concrete plan for success (in other words, pathways thinking) while having the motivation to implement this plan (in other words, agency thinking) may be more adaptive than merely believing that things will somehow turn out well (in other words, optimism). An optimist may believe that things will turn out as s/he wants, but does not possess the pathways necessary to pursue and acquire the goals (Snyder & Forsyth 2002: 821). This difference in the importance placed on personal agency provides the foundation for understanding how hope and optimism may contribute independently and differentially to positive outcomes. Kleumper *et al* (2009: 220) investigated the effects of optimism as a supple, state variable and found that state optimism is a potentially powerful indicator of certain outcomes such as task performance and affective commitment. Sethi & Seligman's (1993: 257) study showed that optimism can change over time as a result of the influence others have on them in their church.The relationship between optimism and performance in academic settings has received mixed support in the literature (Siddique *et al* 2006: 674). Some studies confirmed the relationship between optimism and academic performance (Chemers *et al* 2001: 55; El-Anzi 2005: 95; Ruthig *et al* 2007: 115), while other studies found no predicted pathway between optimism and academic results (Bennedsen & Caspersen 2008: 1; Nes *et al* 2009: 1902; Robbins *et al* 1991: 761). Moreover, a growing body of literature has explored the critical difference between optimism and 'unrealistic optimism' (Davidson & Prkachin 1997, for instance) and so-called "informed" and "uninformed" optimism (Svanum & Bigatti 2006: 14). Siddique *et al* (2006: 675) state that unrealistic optimists may not perceive threatening possibilities as plausible, and thus may not expend coping efforts, while Svanum & Bigatti (2006: 14) state that uninformed optimism relates to overestimation that is, to a large extent, a consequence of inadequate self-assessment or assessment of course demands, student immaturity, and possibly wishful thinking.

In light of the above, it is hypothesised that the degree of optimism students experience may influence their academic performance.

1.3 Resilience

Although various definitions of resilience have been proposed, resilience is generally described as an ability of individuals to cope successfully and to adapt to situational discontinuities and risk environments;[3] to overcome or 'bounce back' from disadvantaged circumstances, risk, and adversity,[4] and to draw on inner strengths, skills, and support in order to maintain psychological well-being and health, despite risks, threats, and adversity (Johnson & Wiechelt 2004: 657; Ferguson & Zimmerman 2005: 399; Johnson & Howard 2002: 50).

Ferguson & Zimmerman (2005: 399) state that resilience refers to the process of overcoming the negative effects of risk exposure, coping successfully with traumatic experiences, and avoiding the negative trajectories associated with risks. Consequently, resilience implies avoiding the problems associated with being vulnerable by making use of protective mechanisms. Such mechanisms can be located either externally (extrinsic) to, or internally (intrinsic) in the individual. Internal protective mechanisms are called assets, such as coping skills and competence, whereas external protective factors are called resources and can be found in the social or external environment of the individual, such as parental support (Visser 2007: 84). Thus, a key requirement of resilience is the presence of both risks and promotive or protective factors that either help bring about a positive outcome or reduce or avoid a negative outcome (Ferguson & Zimmerman 2005: 399, Visser 2007: 83). For purposes of this article, resilience refers to both internal and external protective factors that assist individuals in overcoming or avoiding the negative trajectories associated with risks.

3 See Griffith 2007; Hjemdal *et al* 2006: 84; Johnson & Howard 2002: 50; Luthans *et al* 2007: 541; Mandleco & Peery 2000: 101; Miller 2003: 239; Ong & Bergeman 2004: 226.

4 See Arehart-Treichel 2005: 14; Ferguson & Zimmerman 2005: 399; Johnson & Howard 2002: 50; Johnson & Wiechelt 2004: 657; Tusaie & Dyer 2004: 3; Youssef & Luthans 2007: 775.

Several researchers emphasise the notion that resilient people not only expect and maintain good, positive outcomes, but also tend to regard life's challenges as opportunities for proactive learning, growth, and development.[5] According to Walsh (2003: 1), resilience does not mean bouncing back unscathed, but rather struggling well, working effectively through, and learning from, adversity, and attempting to integrate the experience into the fabric of the individual's life. Individuals who are regarded as resilient usually succeed in transcending stressful situations and flourish, even beyond their previous state of equilibrium.

According to Youssef & Luthans (2007: 779), there are several unique characteristics that distinguish resilience from hope, optimism and other positive capacities. Resilience refers to the need to take both proactive and reactive measures in the face of adversity. Reactively, resilience uniquely cannot be divorced from the potential destructive impact that setbacks, traumas, and even positive but overwhelming events can have on even the most hopeful and optimistic individuals. The capacity for resilience promotes the recognition and acknowledgement of such impact, allowing the affected individual the time, energy and resource investment to recover, rebound and return to an equilibrium point. Proactively, resilience also allows for the use of setbacks as 'springboards' or opportunities for growth beyond that equilibrium point. The focus of resilience also goes beyond the simply additive sum of one's assets and risk factors. It incorporates the adaptational processes and mechanisms that combine assets and risk factors in a cumulative, interactive pattern.

Initially, the resilience construct was applied to positive mental health outcomes, despite psychological stressors. Only in later years did the focus on academic success evolve out of this tradition, when resilience was also related to positive educational outcomes (Morales 2008: 197). Martin & Marsh (2009: 353) define academic resilience as referring to "a student's capacity to overcome acute or chronic adversities that are seen as major assaults on educational processes".

5 See Hjemdal *et al* 2006: 84; Kruger & Prinsloo 2008: 241; O'Rourke 2004: 267; Siebert 2005: 118; Strumpfer 2003: 69; Theron 2004: 317; Youssef & Luthans 2007: 775.

Academic resilience research is thus regarded as the study of high educational achievement, despite the presence of risk factors that normally signify low academic performance (Morales 2008: 197). In light of the above, the aim of this study was to explore whether hope, optimism, and resilience can be predictors of the academic performance of a group of first-year students. In order to achieve the aim of the study, the following hypotheses were set:

- Null hypothesis 1: There are no statistically significant relationships between hope, resilience and optimism, and the academic performance of a group of first-year students.
- Alternative hypothesis 1: There are statistically significant relationships between hope, resilience and optimism, and the academic performance of a group of first-year students.
- Null hypothesis 2: The independent variables (hope, resilience and optimism) do not contribute statistically significantly to the variance in the academic performance of a group of first-year students.
- Alternative hypothesis 2: The independent variables (hope, resilience and optimism) each contribute statistically significantly to the variance in the academic performance of a group of first-year students.
- Null hypothesis 3: There are no statistically significant relationships between the subscales/dimensions of hope, resilience and optimism, and the academic performance of a group of first-year students.
- Alternative hypothesis 3: There are statistically significant relationships between the subscales/dimensions of hope, resilience and optimism, and the academic performance of a group of first-year students.
- Null hypothesis 4: The subscales/dimensions of the independent variables (hope, resilience and optimism) do not contribute statistically significantly to the variance in the academic performance of a group of first-year students.
- Alternative hypothesis 4: The subscales/dimensions of the independent variables (hope, resilience and optimism) contribute

statistically significantly to the variance in the academic performance of a group of first-year students.

2. Research methodology

Within a quantitative paradigm, a cross-sectional survey design was used. This design allows for the description of the population at a specific point in time (Shaughnessy & Zechmeister 1997) and, according to Morgan & Griego (1998), this type of design can be used to address descriptive and predictive functions associated with correlational research and to establish the strength of the interrelationships among variables.

2.1 Participants

From a population of 1.800 first-year students enrolled for a course in Industrial Psychology at a tertiary institution in South Africa, 789 students participated in the study. The participants were selected by means of non-probability sampling, or so-called convenience sampling. The majority of the students were female (57%) between the ages of 18 and 20 (80.10%). Nearly 15% (14.96%) were between the ages of 21 and 25, 2.79% between 26 and 30, while only 2.15% were older than 30 years. In terms of home language, the majority of the students (approximately 53%) spoke an African language such as Sesotho (24.59%), Setswana (13.05%), IsiXhosa (6.84%), isiZulu (44%), Sepedi (2.53%), and TshiVenda (1.14%). In addition, 35.74% had Afrikaans as their home language, 6.97% were English-speaking, and 4.69% of the sample indicated that they spoke other languages. Regarding the degrees for which they were registered, the majority of the students (56.16%) were studying BCom, 11.41% BSocSc, 13.43% BAccounting, and 11.28% were studying for the BA degree. Approximately 8% (7.73%) of students indicated their study field as 'other'.

The researchers presented the research project to the first-year students during class sessions. Verbal and written instructions were given before the completion of the questionnaires. The questionnaires were collected immediately after the students had completed them.

2.2 Measuring instruments

Four questionnaires were used to gather data for this study. A biographical questionnaire gathered data relating to the gender, age, degree registered for, and home language of the sample. Visser's (2007: 85-106) Adult Resilience Indicator (ARI) was used to measure resilience; the State Hope Scale (SHS) (Snyder *et al* 1996: 231) was used to measure hope, and the Life Orientation Test-Revised (LOT-R) (Scheier *et al* 1994: 1063) was used to measure optimism.

To determine the construct validity of the questionnaires, a confirmatory factor analysis was conducted, using LISREL v.8.80. Table 1 provides the results of the analysis. A test of multivariate normality was conducted prior to fitting the data to the models. Due to the fact that the data deviated significantly from multivariate normality, the robust maximum-likelihood method of estimation was used. A discussion of the relevant questionnaires, as well as the results of the construct validity of these questionnaires follow.

Table 1: Goodness-of-fit summary for measurement models in this study

Measurement model	Satorra-BentlerX^2	df	RMSEA	SRMR	CFI
Resilience	702.32	406	0.03	0.03	0.96
Hope	113.20	8	0.13	0.09	0.91
Optimism	40.60	9	0.07	0.06	0.93

Note: $p < 0.05$; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual; CFI = comparative fit index

2.2.1 The Adult Resilience Indicator (ARI)

The Adult Resilience Indicator was designed in South Africa to measure resilience in adults, by assessing the internal and external resources on which people tend to draw in times of hardship and adversity. It consists of 52 items and measures eight dimensions of resilience. Respondents indicated on a five-point Likert scale whether the statement is 1 (almost never true of me), 2 (rarely true of me), 3 (sometimes true of me), 4 (often true of me), and 5 (almost always true of me). The ARI measures the following dimensions of resilience (Visser 2007: 117-8 & 2009):

- Confidence and optimism

  This includes self-confidence and confidence in one's own abilities to overcome the adversity with which one is faced. It also refers to having an optimistic view of the future, and to expecting that all will end well, while maintaining a positive outlook under duress.

- Positive reinterpretation

  This refers to the ability to reinterpret the current situation in a positive way, especially during difficult times, while trying to turn it around into something positive. It also includes the ability to try to find some meaning in what has happened, and to learn from bad or difficult experiences.

- Facing adversity

  This relates to the willingness of resilient people to face their adversity and to have the courage to live up to it, even when it seems to be unpleasant.

- Support

  Resilient people make use of social support, which can be present in the form of friends and/or family. They try actively to find support, to get help from others, to reach out to them and ask them for support. Thus, they have a support base that carries them through difficult times.

- Determination

  This refers to carrying on doing something, despite opposition or the encountering of obstacles. The overcoming of challenges refers to overcoming of obstacles, not losing heart, and refusing to accept failure.

- Negative rumination and helplessness

  This vulnerability factor reduces the resiliency of people if they engage in it. It refers to people who do not harbour negative feelings about the difficulties they face, or become bitter. They work through their sadness, do not feel sorry for themselves (have no self-pity), and do not become negative about their problems.

- Religion

  This factor includes the themes of faith and religion. It highlights resilient people as those who have faith in a Higher Power, and a strong belief that the Higher Power will help them during difficult times. They also engage in some form of religious practice, such as praying.

- Emotional regulation

  This refers to the ability to regulate emotions, specifically negative emotions.

In terms of the reliability of the ARI, Cronbach *alpha* reliability coefficients for the ARI subscales (ranging from .69 to .89) were reported as acceptable (Visser 2007: 96 & 2009). A Cronbach *alpha* coefficient of .90 was obtained in this study for the total scales of the ARI. The following Cronbach *alpha* coefficients were obtained for each dimension: confidence and optimism (.78); positive re-interpretation (.85); face adversity (.69); support (.89); determination (.71); negative rumination and helplessness (.81); religion (.73), and emotional regulation (.70). With regard to construct validity, Table 1 indicates that the resilience construct as operationalised by the ARI seems to provide acceptable levels of fit (CFI = 0.96; RMSEA = 0.03; SRMR = 0.03). According to Hair *et al* (2006: 747), CFI values above 0.90 are indicative of a good fit with the model, while RMSEA values below 0.10 are acceptable. SRMR values equal or below .08 are recommended (Cabrera-Nguyen 2010: 102). In addition, the reliability of the total scales (α = .904) and the dimensions seem reasonable (Hair *et al* 2006: 102, 137).

Although a few attempts have been made to measure resilience in adults, such as the Resilience Scale for Adults (Friborg *et al* 2003), the Connor-Davidson Resilience Scale (Connor & Davidson 2003) and the Ego-Resiliency Scale (Block & Kremen 1996), the ARI is currently the only resilience questionnaire that has been developed in South Africa. It focuses on the measurement of internal and external resources on which people can draw in times of hardship, and which also bear the potential to be enhanced. Therefore, the ARI was regarded as the most appropriate for the purposes of this study.

2.2.2 The State Hope Scale (SHS)

The six-item State Hope Scale (Snyder *et al* 1996: 231) was used as a measure of hope. The SHS consists of two subscales: the three-item pathway subscale (for example, "If I should find myself in a jam, I could think of many ways to get out of it"), and the three-item agency subscale (for example, "At the present time, I am energetically pursuing my goals"). Participants responded to the SHS on an eight-point scale ranging from 1 (definitely false) to 8 (definitely true). The SHS is scored by summing the items of each subscale to produce a total pathways score and a total agency score. All the items are summed to produce a total SHS score. The SHS has been demonstrated to have adequate reliability, with Snyder *et al* (1996: 234) reporting Cronbach *alphas* ranging from .82 to .95 for the SHS; from .83 to .95 for the agency items, and from .74 to .93 for the pathways items. In Peterson & Luthans's (2002: 8) study, the Cronbach *alpha* for the State Hope Scale was .76.

In the current study, a Cronbach *alpha* coefficient of .68 was obtained for the State Hope Scale.

Snyder *et al* (1996: 234) report that the SHS has strong convergent validity with the Dispositional Hope Scale (r = .79, p <.001). With respect to discriminate validity, when controlling for the shared variance between state and dispositional thinking, the SHS has been found to predict daily appraisals of thought and events reliably (Franklin & Doran 2009: 133, Snyder *et al* 1996: 234). With regard to construct validity, it appears that the hope construct, as operationalised by the State Hope Scale, has acceptable levels of fit, as is evident in Table 1 (CFI = 0.91; SRMR = 0.09). The value of the RMSEA (0.13) was slightly above the recommended value of 0.10 (Hair *et al* 2005: 747-8). As the development of the HSH was based on a state approach to hope (Snyder *et al* 1996: 321), considering hope to be a dynamic construct that can change (Peterson & Luthans 2002: 9), it was regarded as the most appropriate instrument for the measurement of hope.

2.2.3 The Life Orientation Test-Revised (LOT-R)

The Revised Life Orientation Test (LOT-R) (Scheier *et al* 1994: 1063) was designed to measure generalised outcome expectancies, with

higher scores indicating a more optimistic overall outlook on life (Scheier & Carver 1985: 219). The original Life Orientation Test (LOT) (Scheier & Carver 1985: 219) as well as the LOT-R originally had a two-factor structure (optimism and pessimism); however, follow-up analyses have demonstrated a one-factor structure, indicating that the LOT-R measures a degree of high, average, and low optimism (Scheier & Carver 1985: 219, Rothmann & Essenko 2007: 141). The LOT-R consists of ten items, three of which assess optimism, and three reversed-scored items that measure pessimism, in addition to four filler items. Participants responded using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items enquire about the person's general expectations regarding the favourability of future outcomes (for example, "I hardly ever expect things to go my way" and "I'm always optimistic about my future"). Scheier *et al* (1994: 1063) reported a Cronbach *alpha* of .78 and a test-retest correlation of .68 over 4 months for the LOT-R, whereas McIntosh *et al* (2004: 62) reported a Cronbach *alpha* of .84 for their study. In contrast to these studies, a Cronbach *alpha* coefficient of .51 was obtained in the current study for the LOT-R.

Moderate correlations between the LOT-R and measures of self-mastery, self-esteem, and neuroticism attest to the scale's discriminant validity (McIntosh *et al* 2004: 62; Scheier *et al* 1994: 1063). As far as construct validity is concerned, Table 1 clearly indicates that the optimism construct as operationalised by the LOT-R seems to provide acceptable levels of fit (CFI = 0.93; RMSEA = 0.07; SRMR = 0.06) (Hair *et al* 2005: 747-8). Coupled with the Attributional Style Questionnaire (ASQ) (Seligman *et al* (1979), and the Optimism and Pessimism Instrument (OPI) (Dember *et al* 1989), LOT is one of three instruments mostly utilised worldwide for measuring optimism within a positive psychology paradigm (Reilley *et al* 2005: 43). Due to the criticism relating to the factor structure of the ASQ (Reilley *et al* 2005: 57), and the suggestions that the O and P scales of the OPI may be confounded by other related or overlapping psychological constructs (Chang *et al* 1994: 158), the LOT-R was regarded as most appropriate for the purposes of this study.

2.2.4 Academic performance

Academic performance was measured by making use of students' final mark in Industrial Psychology, including assignments, tests and examinations.

2.3 Statistical analysis

The data analysis for this article was generated using EViews7 software. For the purpose of the statistical analysis of the data, Pearson product-moment correlations and multiple regressions were used. A simple multiple regression was run on all the subscales/dimensions of the various independent variables in order to determine which dimensions significantly contribute to academic performance. A p value of 0.05 was used as selection criteria in the model-building process.

3. Results

Table 2 provides the correlation matrix between academic performance and the composite hope, resilience and optimism measures included in the model. The purpose of the correlation analysis is to examine whether each independent variable explains variance in academic performance on its own and to determine the strength of the relationship between each of the independent variables and the dependant variable (academic performance).

Table 2: Pearson correlations between academic performance and resilience (dimension totals), hope (subscale totals) and optimism (N=789)

Variables	Academic performance	Resilience: total	Hope: total	Optimism
Academic performance	1	0.0808 0.0232*	0.1284 0.0003**	0.0892 0.0122*
Resilience: total	0.0808 0.0232*	1	0.3620 0.0000**	0.6070 0.0000**
Hope: total	0.1284 0.0003**	0.3620 0.0000**	1	0.4065 0.0000**
Optimism	0.0892 0.0122*	0.6070 0.0000**	0.4065 0.0000**	1

*p <0.05; **p <0.01

Table 2 clearly indicates that there were slight ($r < 0.2$) (Lachenicht 2007: 184), but statistically significant relationships between academic performance and the three variables included in the model, namely resilience ($p < 0.05$), hope ($p < 0.01$) and optimism ($p < 0.05$). Therefore, the null hypothesis 1 was rejected.

Table 3 describes the results of the simple multiple regression analysis. The latter, in contrast with the correlation analysis, examines whether each independent variable (resilience, hope and optimism) significantly explains unique variance in academic performance in a model that includes all the remaining predictors.

Table 3: Hope, optimism and resilience as predictors of academic performance of first-year Industrial Psychology students: multiple regression results (N=789)

Variable	Parameter estimate	Standard error	t value	p value
Resilience: total	0.0165	0.0328	0.5038	0.6146
Optimism	0.1489	0.2154	0.6912	0.4897
Hope: total	0.5249	0.1919	2.7358	0.0064**

*p<0.05; **p<0.01

R square value: 0.0184; adjusted R square value: 0.0147; F statistic (p value): 4.9146 (0.002176)

Although it is evident from Table 3 that the simple multiple regression analysis indicates that all the predictors in the model explain approximately only 2% of the variance in the student group's academic performance, the model seemed to be statistically significant (given the F statistic). One variable, namely hope, was a statistically highly significant predictor of academic performance ($p < 0.01$). Therefore, null hypothesis 2 was rejected.

For exploratory purposes, a Pearson product-moment correlation analysis was conducted on all the subscales/dimensions of the independent variables and academic performance in order to examine whether each subscale/dimension of the independent variables explains variance in academic performance on its own and to determine the strength of the relationship between each of the subscales/dimensions and the dependant variable (academic performance). Table 4 describes the results of the correlation analysis

between academic performance and the subscales/dimensions of resilience, hope and optimism.

Table 4: Pearson correlations between academic performance and dimensions of resilience, hope and optimism (N=789)

Variables	Academic performance	Hope agency	Hope pathways	Confidence and optimism	Positive reinterpretation	Facing adversity	Support	Determination	Negative remuneration and helplessness	Religion	Emotional regulation	Optimism
Academic performance	1	0.0928 0.0091**	0.1262 0.0004**	0.0544 0.1269	0.0066 0.8523	0.0992 0.0053**	0.0120 0.7357	0.0554 0.1198	-0.0607 0.0884	0.1442 0.0000**	0.0103 0.7718	0.0892 0.0122*
Hope agency	0.0928 0.0091**	1	0.4615 0.0000**	0.3763 0.0000**	0.2953 0.0000**	0.2487 0.0000**	0.1788 0.0000**	0.2899 0.0000**	-0645 0.0702	0.1593 0.0000**	0.2102 0.0000**	0.4339 0.0000**
Hope pathways	0.1262 0.0004**	0.4615 0.0000**	1	0.2790 0.0000**	0.2564 0.0000**	0.2173 0.0000**	0.0488 0.1706	0.2810 0.0000**	-0972 0.0063**	0.1282 0.0003**	0.1484 0.0000**	0.2638 0.0000**
Confidence and optimism	0.0544 0.1269	0.3763 0.0000**	0.2790 0.0000**	1	0.5042 0.0000**	0.4826 0.0000**	0.2795 0.0000**	0.5369 0.0000**	-0.3016 0.0000**	0.2459 0.0000**	0.3102 0.0000**	0.6787 0.0000**
Positive reinterpretation	0.0066 0.8523	0.2953 0.0000**	0.2564 0.0000**	0.5042 0.0000**	1	0.4910 0.0000**	0.3999 0.0000**	0.4947 0.0000**	-0.2651 0.0000**	0.2380 0.0000**	0.4642 0.0000**	0.4327 0.0000**
Facing adversity	0.0992 0.0053**	0.2487 0.0000**	0.2173 0.0000*	0.4826 0.0000**	0.4910 0.0000**	1	0.2730 0.0000**	0.4763 0.0000**	-01615 0.0000**	0.2275 0.0000**	0.3698 0.0000**	0.3529 0.0000**
Support	0.0120 0.7357	0.1788 0.0000**	0.0488 0.1706	0.2795 0.0000**	0.3999 0.0000**	0.2730 0.0000**	1	0.2506 0.0000**	-0.1636 0.0000**	0.2254 0.0000**	0.2732 0.0000**	0.2520 0.0000**
Determination	0.0554 0.1198	0.2899 0.0000**	0.2810 0.0000**	0.5369 0.0000**	0.4947 0.0000**	0.4763 0.0000**	0.2506 0.0000**	1	-0.2480 0.0000**	0.1756 0.0000**	0.3483 0.0000**	0.4631 0.0000**
Negative remuneration and helplessness	-0.0607 0.0884	-0.0645 0.0702	-0.0972 0.0063**	-0.3016 0.0000**	-0.2651 0.0000**	-0.1615 0.0000**	-0.1636 0.0000**	-0.2480 0.0000**	1	-0.0765 0.0316*	-0.2012 0.0000**	-0.4029 0.0000**
Religion	0.1442 0.0000**	0.1593 0.0000**	0.1282 0.0003**	0.2459 0.0000**	0.2380 0.0000**	0.2275 0.0000**	0.2254 0.0000**	0.1756 0.0000**	-0.0765 0.0316*	1	0.1306 0.0002**	0.1834 0.0000**
Emotional regulation	0.0103 0.7718	0.2102 0.0000**	0.1484 0.0000**	0.3102 0.0000**	0.4642 0.0000**	0.3698 0.0000**	0.2732 0.0000**	0.3483 0.0000**	-0.2012 0.0000**	0.1306 0.0002**	1	0.2877 0.0000**
Optimism	0.0892 0.0122*	0.4339 0.0000**	0.2638 0.0000**	0.6787 0.0000**	0.4327 0.0000**	0.3529 0.0000**	0.2520 0.0000**	0.4631 0.0000**	-0.4029 0.0000*	0.1834 0.0000**	0.2877 0.0000**	1

*p <0.05; **p <0.01

From Table 4 it is evident that slight (r < 0.2) (Lachenicht 2007: 184), but statistically significant relationships were found between academic performance and the two subscales of hope, namely agency (p <0.01), and pathways (p <0.01), two resilience dimensions, namely facing adversity (p <0.05) and religion (p <0.05), and academic performance, as well as between optimism (p <0.05) and academic performance. Therefore, null hypothesis 3 was rejected. Overall, none of the subscales/dimensions of the constructs had very high inter-correlations. The latter implies that there was no substantial overlap among these constructs.

These results warranted further investigation and therefore a simple multiple regression analysis was conducted in order to examine whether each subscale/dimension of the independent variables significantly explains unique variance in academic performance in a model that includes all the remaining predictors. Table 5 describes the results of the simple multiple regression analysis.

Table 5: Hope (subscales), optimism and resilience (dimensions) as predictors of academic performance of first-year Industrial Psychology students: multiple regression results (N=789)

Variable	Parameter estimate	Standard error	t value	p value	Standard estimate
Confidence and optimism	-1.24375	1.020982	-1.21819	0.2235	-0.0651
Positive reinterpretation	-1.95317	0.921046	-2.1206	0.0343*	-0.1017
Facing a dversity	1.925933	0.833411	2.310905	0.0211*	0.1017
Support	-0.23619	0.572148	-0.41281	0.6799	-0.0162
Determination	0.011129	0.817714	0.01361	0.9891	0.0006
Negative remuneration	-0.80007	0.640398	-1.24933	0.2119	-0.0489
Religion	2.050138	0.565274	3.626806	0.0003**	0.13401
Emotional regulation	-0.33546	0.575106	-0.58329	0.5599	-0.0238
Hope: agency	0.7751	1.101795	0.703488	0.482	0.0304

Variable	Parameter estimate	Standard error	t value	p value	Standard estimate
Hope: pathways	2.435631	1.000137	2.435298	0.0151*	0.0986
Optimism	0.321354	0.245059	1.311333	0.1901	0.0686

*p <0.05; **p <0.01
R square value: 0.049; adjusted R square value: 0.036; F statistic (p value): 3.649 (<0.0001)

From Table 5 it is evident that the simple multiple regression analysis indicated that all the predictors in the model explain approximately 4% of the variance in the student group's academic performance, yet the model seems to be statistically significant (given the F-statistic). Three resilience dimensions, positive reinterpretation, facing adversity (p <0.05), and religion (p <0.01) were significant predictors of academic performance. In addition to these three dimensions, the pathways component of hope also contributed significantly to the prediction of academic performance (p <0.01). There were positive estimates between facing adversity and academic performance, religion and academic performance, as well as pathways and academic performance, while there was a negative estimate between positive reinterpretation and academic performance.

Since only four out of the eleven predictors in the model statistically significantly explained unique variance in academic performance not explained by the other variables in the model, the question arose as to how much of the variance in academic performance these four predictors (facing adversity, religion, positive reinterpretation, and pathways) explain, and what the relative importance/influence of each of these four predictors was. The R^2 for the current model provides a slightly inflated estimate of the proportion of the variance explained; therefore, the model was refitted to only contain the four predictors that significantly explained unique variance in academic performance and to determine the relative importance of the various predictors. Table 6 provides the results of the simple multiple regression conducted on the new model.

Table 6: Positive reinterpretation, facing adversity, religion and hope: pathways as predictors of academic performance of first-year Industrial Psychology students: multiple regression results (N=789)

Variable	Parameter estimate	Standard error	t value	p value	Standardised estimate	Partial correlation Sq	Semi-partial correlation Sq
Positive reinterpretation	-1.922	0.791	-2.431	0.015*	-0.100	0.007	0.007
Facing adversity	1.769	0.770	2.297	0.022*	0.093	0.007	0.006
Religion	2.019	0.556	3.631	0.000**	0.132	0.017	0.016
Hope: pathways	2.834	0.901	3.146	0.002**	0.115	0.012	0.012

*p <0.05; **p <0.01

R square value: 0.042; adjusted R square value: 0.037; F statistic (p value): 8.615 (0.0000)

From Table 6 it is evident that the simple multiple regression analysis indicated that all the predictors in the model (positive reinterpretation, facing adversity, religion, and pathways still explained approximately 4% of the variance in the student group's academic performance. The model seems to be statistically significant (given the F-statistic). It is further evident from the semi-partial correlation squared coefficient that, if the predictive effects of the other independent variables in the regression model are removed, religion had the strongest relationship with academic performance, followed by hope: pathways, positive reinterpretation, and facing adversity. From the partial correlation squared coefficient it seemed that religion had the greatest predictive power beyond the independent variables already in the regression model, followed by hope: pathways, and both positive reinterpretation and facing adversity.

4. Discussion of results

The purpose of this study was to explore whether first-year students' psychological capital (hope, optimism and resilience) can be significant predictors of their academic performance. The

results of the multiple regression showed that pathways ($p < 0.01$), a subscale of hope, and three dimensions of resilience, namely positive interpretation ($p < 0.05$), facing adversity ($p < 0.05$) and religion ($p < 0.01$), were significant predictors of academic success, while optimism was not a predictor of academic performance in this model. Although only a small proportion of the variance (approximately 4%) in academic performance is explained in the current model, the model seems to be statistically significant.

The results also showed that there was a negative estimate between positive reinterpretation and academic performance. Yet, theoretically, it would be expected that positive reinterpretation would be positively related to academic performance. The negative partial regression coefficient for positive reinterpretation may mean that this dimension acts as a suppressor variable in the multiple regression model. In support of this interpretation, it is noted that the positive reinterpretation dimension of resilience did not show a significant correlation with academic performance (criterion) in the correlation matrix (see Table 4), although it did correlate significantly with the four predictors that do significantly explain variance in the criterion. Positive reinterpretation, therefore, explains non-relevant variance in the four predictors that do explain variance in academic performance. Thus, it is possible that positive reinterpretation acts as a covariate, controlling the non-relevant variance in one of the other predictors, as its negative partial regression coefficient may 'penalise' students who scored high on agency, pathways, religion, and facing adversity. This may be due to the fact that students are strong in part of one or more of the variables that display a significant correlation with positive reinterpretation, but not with academic performance.

The results confirm, in some respects, the results of various previous studies, but are also contradictory in other respects. In previous studies, it was demonstrated that both agency and pathways are positively related to academic achievement (Ciarrochi *et al* 2007: 1161; Snyder & Lopez 2002: 823; Curry *et al* 1997: 1265); yet, in the current study, only one subscale of hope, namely pathways, was found to be a predictor of academic success, indicating that students who perceive themselves as having the ability to find alternative pathways (different ways) to achieve their goals, performed better academically.

The results of the current study also support the results of the research conducted by Bennedsen & Caspersen (2008: 1), Nes *et al* (2009: 1902) and Robbins *et al* (1991: 761) that found no predicted pathway between optimism and academic results. Both agency (a subscale of hope) and optimism in the current study were not shown to be predictors of academic performance. In this regard, it is meaningful to mention that optimism, as used in this study, is defined as general outcome expectancies (Scheier & Carver 1985: 567), and that other researchers have subsequently proposed that optimism is, therefore, related specifically to hope agency, which is viewed as the expectancy and motivation individuals have for attaining their desired goals. Hope pathways, therefore, are regarded as Snyder's unique contribution above and beyond what is offered by optimism, since it focuses on alternate pathways that are formed to attain the desired goals (Snyder 2000: 9). Snyder (1994: 5) states that, because goals, willpower (agency), and waypower (pathways) are so intertwined in our thinking, it often suffices to ignite one component, and that the others will then follow naturally. In light of these arguments, and based on the results of the current study, it may be postulated that positive outcome expectancies regarding desired goals as such will not suffice to contribute to the attainment of those goals, namely academic performance, unless alternative pathways have been created to achieve these goals.

Two additional dimensions pertaining to resilience showed a positive estimate with academic performance, namely the ability of students to face their adversity, and their religious beliefs. The ability of students to face their adversity and its relationship to academic performance has been confirmed in previous research (Dass-Brailsford 2005: 588; Merdinger *et al* 2005: 891). Martin & Marsh (2009: 367) make use of the term "academic buoyancy", and refer to it as a frontline and proactive approach to deal with academic adversity by means of enabling factors. Although no previous research could be found relating religion, faith and spirituality to academic performance, the literature regards religion as being instrumental in the development of hope, optimism and coping mechanisms.[6] The theme of resilience often highlights resilient people as those who have

6 See Koenig 2002: 487; Kulig 2001: 18; Lazarus 1999: 169; Sethi & Seligman 1993: 256.

faith in a Higher Power that gives meaning to their lives, and provides comfort and assistance during challenging times (Dass-Brailsford 2005: 583). In the context of the large body of research and theorising in respect of life or general resilience, there has been relatively limited research into academic resilience (Martin & Marsh 2009: 367).

This study has thus confirmed the role of some subscales/dimensions of hope and resilience in academic performance, although the proportion of variance in academic performance accounted for by these variables were relatively small. The focus of this research was to explore the influence of psychological capacities on academic performance; yet it seems that, most probably due to the complexity of academic performance, other variables, perhaps such as cognitive ability, also play a role in academic performance. Taking into consideration that various previous studies have confirmed the significant role of these psychological capacities in performance in academic settings, the primary practical value of research relating to psychological capacities, such as hope and resilience, is its potential to inform the design and implementation of initiatives intended to promote high academic achievement for students. The developmental nature of hope and resilience affords the opportunity to establish and implement micro-interventions to focus on enhancing these positive strengths. If hope is considered an enduring pattern of thinking about oneself in relation to life goals, the concern is that, unless students begin to utilise the knowledge and skills available for raising their hope, what they hope now is probably what they will hope in the future (Snyder 1994: 68). Teaching hopeful thinking and skills in goal-setting and formulating strategies to students have the potential to improve students' goal pursuits, not only academically, but in all areas of their lives. Interventions for successfully raising hope and resilience in various settings, including academic settings, have been developed with successful outcomes.[7]

In addition to these interventions, an important part of a teacher's role is also to encourage students in the pursuit of classroom goals. This can be accomplished through modelling and direct reinforcement of students' efforts. Resilience interventions can focus on enhancing

7 See Curry *et al* 1997: 1265; Duggleby *et al* 2009: 2382; Franklin & Doran, 2009: 128, 133; Lopez *et al* 2000: 123; Steinhardt & Dolbier 2008: 445.

protective factors, taking responsibility, and transforming stress into resilience. Raising both hope and resilience levels of students who enter higher education may be meaningful in order to enhance academic performance. Therefore, these constructs seem worthy of further study when investigating performance in academic settings.

5. Conclusion

The purpose of the research discussed in this article was to determine whether three psychological constructs (hope, optimism and resilience) were predictors of the academic performance of a group of first-year students in a tertiary institution. The results showed that pathways, one of the subscales of hope, and three dimensions of resilience, namely facing adversity, religion, and positive reinterpretation, were predictors of academic performance. It should be noted that a negative estimate between positive reinterpretation and academic performance was found and that it was suggested that positive reinterpretation act as a suppressor variable in the multiple regression model. Optimism was not found to be a predictor of academic success.

Based on both the results of this study and previous research, it appears that the generation of alternate pathways in order to achieve goals, as well as resilience, do have benefits for students in terms of academic performance. The predictive validity of these constructs in terms of academic performance may portend the educational usefulness of these constructs. Academic performance starts with focusing upon a desired goal and the thoughts about how one is going to produce the pathways to secure the desired goal. These pathways provide the student with a mental plan of action that is focused on overcoming potential obstacles that may interfere with achieving academic success, while courageously facing any adversity they may encounter. Students' thinking, therefore, stays focused 'on task'. Consequently, they are far less likely to become distracted by self-deprecatory thinking and counterproductive negative emotions. It is evident from the current study that, although agentic thinking and optimism may reinforce the pathways and the focus on specific goals, the generation of the pathways is the key to attaining the goal of academic success.

Adding a repertoire of psychological competencies to first-year students' academic and life skills may be considered when universities plan student preparations courses. Currently, most South African universities are focused on improving student success rates, so it is within this context that this study makes a valuable contribution. Institutional planners in the higher education sector have to take cognisance of the fact that, by strengthening hope and resilience in students, a contribution could be made to bridging the school-university gap towards the attainment of academic success.

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