



**Stress Management Strategies for tests and exams based on  
Mindsight and the Three Centres of Intelligence**

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## INTRODUCTION

Research has shown that in South Africa 75% of students entering tertiary institutions are failing to graduate (DHET, 2013). As a result of this institutions are being pressed by government, business and civil society to find effective ways of working with students to maximise their chances of graduation. Lack of success in a number of undergraduate degree programmes (in South Africa as well as abroad) is generally viewed as a ‘problem’ in need of ‘fixing’ (Badenhorst, Moloney, Rosales, Dyer, & Ru, 2015; Pym & Kapp, 2013). The problem is mostly perceived to lie in students’ lack of content knowledge and technical skills. However, since the early 1990’s a sizable body of research in education and psychology has focused on such competencies as self-efficacy, agency, motivation, mindset, and ‘grit’ as key drivers of student success. These competencies have as a common characteristic the need for students to drive and to take responsibility for their own learning (Briceño, 2013; Duckworth & Eskreis-Winkler, 2013; Dweck, 2012; Schunk & Zimmerman, 2012).

This paper builds on the neuroscientific concept of ‘mindsight’ (Siegel, 2010, 2014) to explore the impact of an intervention designed to give students ‘insight’ into the role and function of their ‘minds’ with regard to managing stress so as to improve academic outcomes. Siegel (2010) refers to mindsight as a ‘kind of focused attention that allows us to see the internal workings of our own minds’. Drawing on the concept of ‘name and tame’ he goes on to explain why mindsight is so important in managing stress in order to achieve mental consistency. In his own words:

*It helps us be aware of our mental process without being swept away by them, enables us to get ourselves off the autopilot ingrained behaviours and habitual responses, and moves us beyond the reactive emotional loops we all have a tendency to get trapped*

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3 *in. It lets us 'name and tame' the emotions we are experiencing, rather than being*  
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5 *overwhelmed by them (Siegel, 2010).*  
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11 The implication of this approach is that that deeper learning goes beyond cognitive  
12 engagement with subject matter, to include insight into the fundamental drivers of stress and/  
13 or anxiety at the level of the mind. This in turn provides us with a conceptual framework with  
14 which to plan and structure interventions aimed at enabling students to identify effective  
15 ways to cope with stress and thus be more in control of their own learning.  
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26 The research documented in this paper aims to answer the following question: Is it possible,  
27 within an accounting degree course, to provide an intervention that moves beyond that of  
28 content instruction to develop mindsight into the role of stress in sabotaging the mind, so that  
29 students can constructively manage stress in order to thrive at university?  
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39 The remainder of the paper is structured as follows. First of all the conceptual framework  
40 underpinning the study is presented. This is then followed by a detailed description of the  
41 intervention focusing on the design and method used. An analysis of the data collected is then  
42 presented. The paper concludes with recommendations and with suggestions for future  
43 research.  
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54 **CONCEPTUAL FRAMEWORK: WHERE MINDSET AND THE THREE CENTRES**  
55 **OF INTELLIGENCE CONVERGE**  
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6 Although initially located in the disciplines of psychiatry and psychology, research into the  
7 interconnectedness of the brain and the mind have move into a wide range of fields, including  
8 linguistics, computer science, genetics, mathematics, neuroscience, sociology, and  
9 developmental and experimental psychology (Siegel, 2010). The conceptual framework  
10 underpinning this research continues to reside in the field of psychology but focus in  
11 particular on the role and function of Mindsight in relation to stress management.  
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### 23 **Mindsight**

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26 Within each and every individual there is an internal mental world filled with thoughts and  
27 feelings, memories and dreams, hopes and desires. Research has shown that under very  
28 stressful conditions the mind can become chaotic, resulting in feelings of anxiety, fear and or  
29 lack of control. Sometimes these feelings are just temporary - an attack of nerves before a test  
30 - but sometimes they seem to be something much more intractable, 'so much part of the very  
31 essence of who we are that it may not even occur to us that we can change them' (Siegel,  
32 2010). Left unexplained or unexamined these states of mind can sabotage personal wellbeing  
33 and ultimately academic success. Extensive research into the study of the brain has however  
34 revealed that through a process of mindsight or 'insight' into the functions of the brain, a  
35 person is potentially able to free him/her from sabotaging patterns of the mind, and to thrive  
36 both personally and academically.  
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52 In order to understand the role and function of mindsight, Siegel (1610) offers the following  
53 metaphor: 'Mindsight can be seen as a very special lens that gives us the capacity to perceive  
54 the mind with greater clarity than ever before...A uniquely human ability, mindsight allows  
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3 us to examine closely, in detail and in depth, the processes by which we think, feel, and  
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5 behave. And it allows us to reshape and redirect our inner experiences so that we have more  
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7 freedom of choice in our everyday actions, more power to create the future, to become the  
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9 author of our own [academic journey].’  
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12 As is evident from the above explanation Mindsight is more than just an understanding of the  
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14 mind. Mindsight gives us the tools to monitor the internal world with more clarity and depth,  
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16 and also to modify that internal world with more power and strength. Findings in  
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18 neuroscientific research indicate that the mental and emotional changes we can create through  
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20 cultivation of the skill of mindsight are transformational at the very physical level of the  
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22 brain. By developing the ability to focus our attention on our internal world, a person can  
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24 ‘resculpt’ the neural pathways, stimulating the growth of areas of the brain that are crucial to  
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26 whole brain integration and academic success (Siegel, 2014).  
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31 Research has also shown that Mindsight into patterns of attitudinal and behavioral sabotage is  
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33 of limited value if it remains at the level of insight and lacks action with regard to integration  
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35 of the different parts of the brain. Although pharmacological products have been proven to  
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37 promote integration, interventions of this kind lie outside the realm of the (nonmedical)  
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39 educator. Nonpharmacological interventions of a more suitable nature include instilling  
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41 ‘coping self-efficacy’ and the development of growth mindsets (Zadina, 2014). Although  
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43 relatively new to the field of neurology and neuroscientific research, mindfulness practices,  
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45 particularly with regard to breathing exercises and body relaxation techniques, have also been  
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47 shown to cultivate well-being and brain integration (Siegel, 2010).  
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### 51 52 **Personality Styles and the Three Centres of Intelligence**

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55 The literature on personality styles and attachment theory indicates that there are three basic  
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57 drivers of human agency, or Centres of Intelligence: the Head Centre, the Heart Centre, and  
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3 the Body or Gut Centre (Horney, 1991, 2013; Levine, 1999; Riso & Hudson, 2003). We  
4 speak of a person who is 'in their head', another who is 'all heart' and yet another who relies  
5 heavily on a 'gut feeling'. Each of these basic drivers is also associated with one of the basic  
6 mechanisms of defence in the animal kingdom: fight, flight, and freeze. Although every  
7 person embodies all three Centres of Intelligence, each person has a primary Centre, a  
8 secondary Centre and a tertiary (or third) Centre. All three are available to healthy persons  
9 who are able to move in any of these directions when needed, but people generally tend to  
10 rely on their primary Centres as a way of orientating to and experiencing the world (Horney,  
11 1991, 2013).

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25 Head Centered individuals are also known as 'Detachers'(Levine, 1999). They engage in  
26 extensive mental analysis, value facts, information and ideas. The rational, logical, cognitive  
27 context is the Detacher's environment. They can also display high levels of fear or doubt, a  
28 fundamental mistrust of reality and obsessing about the fact that something negative could  
29 happen. When faced with stressful or dangerous situations the instinctive response of these  
30 individuals is to flee the danger that they perceive (Lapid-Bogda, 2004).

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40 Common descriptors of Detachers include the following: the Over-thinker, the Questioner,  
41 the Doubter, the Trouble-Shooter, the Dreamer and the Planner. These very names collocate  
42 accurately with the type of behaviour encouraged in the academic context. The integrated  
43 Detacher epitomizes the successful academic, and in the case of the Accounting Profession,  
44 the successful Chartered Accountant. Healthy Detachers exhibit the following attitudinal and  
45 behavioral attributes: they are reliable, responsible, loyal, trustworthy, cautious, vigilant,  
46 analytical, theoretical, determined and hardworking (Riso & Hudson, 2003). However when  
47 plagued by self-doubt and fear of the unknown, Detachers may become more fearful, security  
48 conscious, problem-seeking, and resort to compulsive reasoning. This in turn can result in  
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3 confusion, indecision and self-defeating behaviour. Detachers, in distress, fundamentally  
4 lacks faith in themselves and their knowledge.  
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9 Examples of potentially sabotaging attitudinal and behavioral patterns of habit exhibited by  
10 unintegrated Detachers, and observed by lecturers within our School include the following:  
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12 Students tend to work hard, but not smart; there is a reluctance to work though past exam and  
13 test papers unless memorandums are made available up-front; students don't want to think for  
14 themselves or trust their own abilities, they want to be told what to do; instead of being  
15 proactive and working ahead of time, students tend to procrastinate and leave assignments to  
16 the last minute; 'Students don't trust the lectures in the misguided belief that the lectures are  
17 out to 'trick' or 'fail' them; and, finally students tend to defer to authority, they rote-learn or  
18 'cut and paste' from other sources for fear of being wrong or not being competent in their  
19 own right.  
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34 Heart Centred individuals or 'Attachers' want others to respond to them in very specific ways  
35 and create an image to get the desired response (Levine, 1999). With the common focus on  
36 'image' and 'acceptance' Attachers don't feel valued for who they really are but for what  
37 they can give or do, giving rise to the emotion associated with that Centre, that of anxiety in  
38 the face of low self-esteem. The survival mechanism of these individuals when faced with  
39 danger is to freeze (Lapid-Bogda, 1610).  
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48 Common descriptors of Attachers include: the Givers, the Succeeders and the Individualists.  
49 Attachers expect recognition and praise for achievements, they are goal directed and results  
50 orientated, decisive, competitive and task-orientated. They are practical, image directed,  
51 highly productive, enthusiastic, authentic, self-motivated, and optimistic. They can however  
52 also lose sight of the fact that they are valued for 'who' they are in favour of 'what' they have  
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3 achieved, what they can give or how unique they are. Fundamental to the Attacher's Ego-Self  
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5 is the need to avoid failure at all costs.  
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9 Due to an innate need to 'appear' confident, successful and unique, students operating from  
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11 the Heart/Image Centre often display signs of greater academic success than those of their  
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13 contemporaries. The fact that these students are self-identified Attachers may not appear to be  
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15 of immediate relevance to both students and lectures as these students tend to function as  
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17 high achievers in the first few years of their degrees, but such attitudinal and behavioral  
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19 patterns should act as warning signals to lecturers teaching these students in subsequent  
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21 years, as they suggests the potential for self-sabotage should these students encounter  
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23 stressful situations in which they may have to deal with failure. They may be coping well at  
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25 the lower levels of their degrees, but as the academic challenges become progressive harder  
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27 and more intense during the natural course of their degrees, they may indeed self-sabotage  
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29 and untimely fail.  
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35 Examples of sabotaging attitudinal and behavioral patterns stemming from Attachers can be  
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37 seen in the following observations by lecturers in our School: students tend to overestimate  
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39 their levels of competence and underestimate how much work is needed; instead of taking  
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41 responsibility for failure, students revert to victim mode by blaming the lecturer for  
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43 inadequate information in lectures, or the exam for being unfair; students don't feel the need  
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45 to consult – they think they can work it out on their own; and students will do anything to  
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47 avoid failure, even resorting to cheating in tests and exam.  
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53 Body or Gut Centred individuals or "Defenders" rely primarily on their 'gut' instinct and  
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55 have different ways of dealing with issues around justice, power and control, arising from the  
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3 emotion associated with that Centre, that of anger. The natural reaction in the face of danger  
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5 for these individuals is to fight (Lapid-Bogda, 1610).  
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9 Common descriptors of Defenders include: the Controllers, the Perfectionists, the  
10 Peacemakers, the Mediators, and the Bigger Picture Thinkers. Defenders operate from  
11 instinct; they just know if something is right or wrong. They have an intuitive information  
12 gathering system. Phrases like: 'I feel it in my body' and 'I have a gut feel for that' are  
13 congruent with this personality style. This, along with their innate ability to access right from  
14 wrong, makes them ideal candidates for the accounting profession.  
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23 Creating order is a never ending job for a Defender. Order may range from trying to enforce  
24 world peace to being fastidiously neat, clean and tidy. Defenders' excessive need to be  
25 perfect, to excel or to be in control can manifest in stomachaches, headaches and back and  
26 neck aches.  
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33 At the core of this Intelligence is the negotiating of relationships with regard to justice, power  
34 and control. Examples of disintegrative attitudinal and behavioral patterns stemming from  
35 Defender processes and attributes can be seen in the following observations by Lecturers  
36 within our School: there is reluctance amongst [Defender] students to show any form of  
37 weakness or need; students are conscientious, hardworking and responsible, but this can  
38 result in them being extremely critical of themselves as well as others; they fastidiously and  
39 timeously attend lectures and tutorials but don't tend to ask questions during the lectures and  
40 tend not to follow-up with one-on-one consultations for fear of revealing their innate anxiety  
41 and vulnerability ; feelings of vulnerability as a result of being criticized or overlooked can  
42 result in a) displays of anger or aggression, b) implicit, just under the surface rumblings of  
43 anger or c) passive-aggressive and/or stubborn behaviour .  
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## **The Relationship between Mindsight and the Three Centres of Intelligence**

The literature on Mindsight and the Three Centres powerfully dovetails when it comes to providing students with a) general insights into the role and function of the brain with regard to wellbeing and academic success, and b) specific insights into the role and function of motivational drivers within the brain with specific reference to flight, fright and freeze impulses. In addition to these insights, both approaches advocate the use of breathing exercises and body relaxation techniques for attitudinal and behavioral integration of the mind for successful study and exam writing abilities.

### **METHODOLOGY**

A case study methodology was adopted for the research on the grounds that such an approach would allow for an 'in-depth', 'multi-faceted exploration' of a 'complex issue' in a 'real-life setting' (Rule & John, 2011). The value of this approach lies in its ability to examine and report on a large, but contained number of students with regard to the manifestation of stress according to the Three Centres of Intelligence and the management thereof within a specific place and at a specific time in their academic journeys. The data collected for the study included ethnographic observations of a pilot group of students, as well as written answers to a questionnaire completed by 735 students doing a second year Management Accounting course at a South African university.

The questionnaires were analyzed through a process of discourse analyses to identify the resultant effect of students' insights on stress management strategies. Although a relatively

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3 well-established method of analysis in linguistic studies, this method of analysis in  
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5 educational studies, following a similar process to that of content analyst, pays particular  
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7 attention to the form of language use. The researcher draws inference not just from ‘what’ is  
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9 said but ‘how’ it is said (Rule & John, 2011). When data are analyzed through a discourse  
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11 analysis approach, the symbolic or referential use of language is brought into focus. Close  
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13 attention to the choice of lexical and syntactic devices helps the researcher decode, often  
14  
15 implicitly encoded meanings in the text. This is based on the theoretical assumption that  
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17 ‘people attempt to work out textually, in their use of language, the dilemmas they face in  
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19 defining their own identities (Fairclough, 2003).  
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### 25 **Description of the intervention**

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30 The first step in developing the tool used to carry out this research was to prepare visual  
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32 representations of the personality styles of each of the Centres of Intelligence (Detachers,  
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34 Attachers or Defenders). This material was prepared using drawings of retro-comics i.e.  
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36 comics with a retro feel to them that students would find humorous, appealing and that would  
37  
38 accurately describe their personality style. These comics were obtained from a web-site and  
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40 the author of the comics granted the researchers permission for using the comics for research  
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42 purposes. For each Centre of Intelligence three drawings were chosen representing the  
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44 characteristics of each personality style. The next step was to prepare a handout for students.  
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46 This handout contained descriptions of each of the personality styles, the retro-comics,  
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48 relaxation techniques, breathing exercises and stress management strategies specific to each  
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50 personality style.  
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3 To test whether the material that was prepared would act as an effective tool for helping  
4 students self-identify with their personality styles a pilot project comprising 30 students was  
5 run. This pilot involved one of the researchers explaining to the group the purpose of the  
6 research and asking them to go through the material to see whether they thought that the  
7 material would help them learn about the characteristics of the various personalities, and  
8 support them in the acquisition of stress management techniques suitable to them. After  
9 students went through the material they were asked to get into three groups, one for each of  
10 the personality styles, and to discuss whether they agreed with the descriptions of their  
11 personalities and with the stress management strategies proposed for each of them. Overall  
12 the feedback received from the students was very positive. They were all able to identify with  
13 one of the three groups and they agreed with the strategies that were being proposed. They  
14 also suggested new strategies that the researchers had not originally identified from the  
15 literature. These strategies were then added to the final document that was prepared for the  
16 whole of the second year class.  
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36 The researchers then used one of the Management Accounting lectures to introduce students  
37 to the concepts of both Mindsight and the Three Centres of Intelligence. All the material was  
38 then made available to the students through the web-based portal of the course and students  
39 were asked to self-study the material. Students were also told that after one of their semester  
40 tests they would be asked to complete a simple questionnaire in which they had to identify  
41 themselves as belonging to one of the three personality groups (Detachers, Attachers or  
42 Defenders). They also would have to explain why they thought that they belonged to that  
43 particular group. The last question of the questionnaire asked them to specify the stress  
44 management strategies that worked for them when feeling stressed in test or exam situations.  
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3 In total 735 students out of a class of 750 completed the questionnaire. Completing the  
4 questionnaire was voluntary and there were no marks attached to doing so. Student were also  
5 reassured of the confidentiality of their responses.  
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## 10 11 12 13 **ANALYSIS OF THE RESULTS**

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16 In the following section, a sample of responses by the students is presented. In total, 60% of  
17 the students self-identified as Detachers, 23 % as Attachers and 13% as Defenders. A fourth  
18 group of students, those who were unable to successfully self-identity comprised 4 % of the  
19 total number of students.  
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### 25 26 27 **Detachers**

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29 Analysis of the responses provided by self-identifying Detachers indicate a strong collocation  
30 between the attitudinal and behavioral habits of Detachers (as defined in the literature) with  
31 those reported by students in the questionnaires. Follow are a number of examples of the  
32 sabotaging attitudinal and behavioural patterns exhibited by self-identified Detachers. It is  
33 important to notice that Detachers, when describing themselves, choose lexicon and  
34 syntactical phrases relating to 'thoughts' and 'thinking processes' and not necessity feelings  
35 or body sensations.  
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47 One of the student's response to question one (i.e. what personality style most describes you -  
48 What makes you think that you are either an **Attacher** or a **Detacher** or a **Defender**? Please  
49 explain with examples of your behavior if possible) was as follows:  
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3 *I like to overthink a lot of things. I never take things at face value. I always think that*  
4 *any question is a trick question which needs me to apply my mind more than I actually*  
5 *need to. An example would be when a lecturer asks a simple question. I'd know the*  
6 *answer but then begin to doubt myself and start trying to find reasons why my initial*  
7 *answer is incorrect.*

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16 Another student's response to question one was:

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21 *I am a safe person, very risk averse. I am a detacher because, literally every decision*  
22 *I make is calculated, from the decision to study on campus or at res to whether to buy*  
23 *take-aways or cook for dinner. In my decision-making I weight up the pros and cons*  
24 *before I commit to anything, I think about whether an outcome is going to be of more*  
25 *benefit than that what it costs. So I live my life making decisions by analyzing the*  
26 *situations costs vs benefits. I plan my day thoroughly and even write memo's on my*  
27 *phone to remind me of the activities I need to do for the day. Every decision I make is*  
28 *carefully thought of. I am not impulsive on anything.*

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41 A third student's response to question one was:

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45 *I tend to think hard about almost everything I encounter in life before I make any*  
46 *decision. I also have a fear of failure, so I spend too much time on one question*  
47 *during a test or exam, trying to think of ways to get it right. For example, in the first*  
48 *Management test, by the end of the time I had finished no more than 59% of the*  
49 *paper, because I spent a lot of time trying to figure out question 1.*

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3 As can be seen in the first response, this student embodies a number of the attitudes and  
4 behaviours of a Detacher - that of self-doubt, lack of trust in the intent of the lecturer, lack of  
5 faith in oneself and one's knowledge, commitment to working 'hard' but possibly not  
6 working 'smart'. The second student's response is indicative of the cautious, vigilant,  
7 questioning nature of the Detacher. The need to 'make sense of the word though thinking' is  
8 highlighted in the third student's response. But in this regard the student appears to self-  
9 sabotage through over-thinking, over-analyzing and compulsive reasoning. Also in keeping  
10 with the habit of 'give up personal authority to a trusted authority figure' (i.e. the lecturer) for  
11 'right action', this student reported using most, if not all, the calming strategies suggested by  
12 the lecturer in the on-line material.  
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27 The self-same students' responses to question two (i.e. did you experience any  
28 stress/anxiety/tension before or during the test? What did you do to keep yourself calm?  
29 (Please explain and give examples if possible.) follow in respective order of their answers to  
30 question one:  
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38 The first student wrote:  
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43 *I always have this stressful feeling that I will not finish my test or exam; I keep*  
44 *looking at the time (almost every five minutes) to ensure that I'm still within the*  
45 *recommended time for each question. I also stress about how they could ask about*  
46 *certain topics and whether I know the topic enough to answer it in whichever way it is*  
47 *asked.*  
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3 *I keep myself calm I sometimes count the number of invigilators, other times I try to*  
4 *count how many people in front of me in different rows are wearing the same type of*  
5 *shoes. I ALWAYS chew my nails to stay relaxed.*  
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12 The second student had this to say:

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16 *Before the test I was calm and went through my notes in my head, making sure I knew*  
17 *everything. During the test I panicked a little bit when the time was drawing near to*  
18 *the end and I hadn't completed my last question. I breathed through it and set times*  
19 *where I had to be done with a certain sub question and frequently checked that I*  
20 *didn't lapse over the time I allocated myself.*  
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30 The third student's response was:

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34 *Yes, I did [experience stress]. At the time which I got anxious and got my panic button*  
35 *activated, I recalled the strategies that were highlighted on the personality styles pdf*  
36 *on SAKAI. In some instances I took a couple of breaths in and out to get myself to a*  
37 *point of being calm. I stopped in some places and started counting the objects on the*  
38 *ceiling. I used some water breaks during the test as well.*  
39  
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47 Although plagued by the fear of not being able to finish the test timeously, the first student  
48 was however able to act strategically and calm herself down by drawing on 'appropriate'  
49 relaxation strategy for Detachers, that of calming herself down by shifting her focus from  
50 inside her 'head' to the 'external environment' (by counting invigilators and people's shoes).  
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3 The second student was able to calm himself down by concentrating on sensation in the  
4  
5 'body' (i.e. through breathing) and by turning to 'the clock' for external structure and  
6  
7 support. Another strategy that was mentioned that collocates with a change in focus from the  
8  
9 'head' to the 'body' was that of biting one's nails. Although this may not necessarily be the  
10  
11 most 'healthy' option to adopt, it does fulfill the function of self-soothing through shifting a  
12  
13 'pain' in the head' to creating a 'pain' (or distracting sensation) in the body. In addition to  
14  
15 calming himself down with the breathing exercises suggested online, the third student  
16  
17 counted objects on the ceiling and took water breaks – all effective stress management  
18  
19 strategies for people operating primarily from within the Head Centre of the Three Centres .  
20  
21  
22  
23

24  
25 Finally, in addition to the above mentioned self-soothing strategy of counting the lights in the  
26  
27 ceiling, students described: 'counting sips of water', 'going through the alphabet', 'tapping  
28  
29 one foot and counting the taps', and 'counting stationary' (to name but a few other  
30  
31 strategies) as a means of calming themselves down and reducing stress.  
32  
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### 36 **Attachers**

37  
38 As with the Detachers, the findings from the analysis of the responses provided by self-  
39  
40 identifying Attachers indicates a strong collocation between the attitudinal and behavioral  
41  
42 habits of Attachers with those reported by the students in the questionnaires. The following  
43  
44 examples of Attacher students' responses highlight the 'affective' nature of the attitudinal and  
45  
46 behavioural patterns exhibited. They also highlight the Attachers need for affirmation from  
47  
48 external sources - be it human or material.  
49  
50

51  
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53  
54 One of Attacher student's responses to question one was:  
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3 *I am a too emotional person. I do things from my heart. People's reactions do matter*  
4 *to me. Sometimes, I think a lot. I want to know what people think and talk about me. I*  
5 *am romantic. I cry a lot when I get low marks in exams. I have no control over my*  
6 *feelings.*  
7  
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11  
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13  
14 A second student's response to the same question was:  
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16  
17  
18 *I believe that I am an Attacher due to the fact that I require affirmation in many*  
19 *aspects of my life. With respect to varsity, I often consult on a tutorial before I attempt*  
20 *it completely to first get feedback that I was on the right track. I am nervous to do a*  
21 *tut in case I do it wrong. I prefer to have affirmation before I start the question.*  
22  
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28  
29 The third student's response was very similar to that of the first student's – explicitly  
30 emotional:  
31  
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35  
36 *I'm very emotional and I overact. For example, if someone tells me that how could I*  
37 *have failed a test that they found easy, I overreact and get hurt easily.*  
38  
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40  
41

42  
43 The common thread uniting all of the above responses is the need for external affirmation or  
44 motivation in order to assuage feelings of low self-worth or self-doubt. The students in the  
45 above examples looked to other people for affirmation and/or motivation. But in keeping with  
46 the Attachers 'way of making sense of and operating in the world through attachment to  
47 people, relationships and things', a number of self-identifying Attachers described needing  
48 material things, for example: clothes, status, good grades, to feel good or secure about  
49 themselves. In addition a number of students wrote about needing to pray before or during a  
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3 test to keep calm. An example of this can be seen in the following response to question two:  
4

5 *To keep calm, I just told myself that I have done my part which is studying and the rest I shall*  
6  
7 *leave to God.*  
8

9  
10  
11 Of the three students quoted above, the second student made particular reference to his lack  
12  
13 of faith in his own ability and his need to consult with a tutor before embarking on a course  
14  
15 of action. This behaviour is indicative of one of two styles of action that Attachers generally  
16  
17 embark on with regard to consulting tutors or lectures – some move towards lecturers and  
18  
19 tutors for guidance and affirmation, while others actively avoid them for fear of being seen as  
20  
21 academically incompetent or unworthy. The above mentioned student is an example of the  
22  
23 former group.  
24  
25  
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28  
29 The first student's response to question two was:  
30

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32  
33  
34 *I started with the easy question first so I don't feel anxious. When I came to a difficult*  
35  
36 *part of a question I moved to the next question to score easy marks first and didn't get*  
37  
38 *panicky. I believe in myself. I try trusting myself and to be calm as possible. I did not*  
39  
40 *think too much about the answer but wrote whatever I felt was right and trusted*  
41  
42 *myself.*  
43  
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45  
46

47 The second student's response to question two was:  
48

49  
50  
51  
52 *Before a test, I feel nervous and unprepared when listening to what other students are*  
53  
54 *saying. Even though I am in fact well prepared and ready to write. I prefer to stand*  
55  
56 *and wait away from the crowd.*  
57  
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5 Finally, the third student's response was:  
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9  
10 *I was stressed before the test, as I thought I didn't know my work because when I was*  
11 *revising the work I couldn't remember anything.*

12  
13  
14 *How did I calm myself down?*

15  
16 *Well, my friends that I spent time with before the test motivated me and told me to*  
17 *start with questions I could easily answer but if I didn't know the answer to a question*  
18 *I should move on and leave it for last. I did this and it helped me calm down.*  
19  
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24  
25 The literature suggests that in order to calm down, Attachers need to 'move inwards' and  
26 'away from' harmful or unhelpful solicited advice. Two of the above mentioned students  
27 were successfully able to do this: one by physically moving away from 'the crowd' and the  
28 other by moving inward through the process of closing her eyes and 'taking a few deep  
29 breaths'. Although the third student mentioned moving towards people in order to calm  
30 herself down, the choice of 'friends' in this instance appeared to be helpful and motivational.  
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#### 41 **Defenders**

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43 As with the Detachers and Attachers, the findings from the analysis of the responses provided  
44 by self-identifying Defenders indicates a strong collocation between the attitudinal and  
45 behavioral habits of Defenders with those reported by the students in the questionnaires. The  
46 following examples of Defender-style students' responses highlight the 'effective' nature of  
47 the attitudinal and behavioural patterns exhibited. They also highlight the Defenders need for  
48 inner and outer control of his/her environment.  
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3 The first Defender student's response to question one was concise and to the point:  
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6

7 *I am more of a control freak and a perfectionist. I am used to being an 'A' student*  
8 *and if I don't get things right, I panic. I am a leader and love having things my way.*  
9 *Getting things wrong makes me feel angry and I spend much time and energy into*  
10 *getting the work done and not only done on time; but it also has to be perfect.*  
11  
12  
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17  
18 The second student's response was slightly more detailed, while the third student's was even  
19 more so:  
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23

24  
25 *I like to be in control of what I'm doing. I don't like to be unsure or uncertain about*  
26 *things. I do, I need it to be right and I find it difficult to cope with making mistakes.*  
27  
28

29 *I like to be neat and tidy and I can't stand being around mess.*  
30

31 *I always get anxious before tests as I know I need to do well. Due to the fact that I like*  
32 *being neat, I always battle to finish papers and I am forced to write faster, which is*  
33 *out of my comfort zone.*  
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40 *I feel I am a defender as I like to take control over situations and try to take the lead*  
41 *where possible, for example in groups. I strive for perfection and try control*  
42 *situations always. I am afraid to let people whom I don't know try to lead situations.*  
43  
44

45 *When things are not perfect, I get anxious and I get frustrated. I like people to hear*  
46 *what I have to say and when I am ignored, I become frustrated. I like there to be*  
47 *boundaries and I feel I need my own space. I derive respect from knowing that people*  
48 *are aware of my being there. I am full of energy and I try to act as a peace maker in*  
49 *times of conflict. I trust my intuition and use my gut feel to pick up on instances that*  
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3 *don't feel right. In certain situations, I can be considered a control freak when it*  
4  
5 *comes to doing things the way I want them done. I like to feel in control of situations.*  
6  
7

8  
9  
10 The fourth and final student's response was :

11  
12  
13  
14 *I am highly fastidious; I believe in doing something perfectly and it can't be done*  
15  
16 *properly, I struggle to motivate myself to do it at all. My perfection manifests itself in*  
17  
18 *making sure my workspace is very tidy, and I find myself tidying when there is no*  
19  
20 *need to, and making sure that I attempt whatever I do very neatly and with prudence,*  
21  
22 *which often can waste my time, after which I curse myself for it. I also hate it when*  
23  
24 *people try and interfere with any process of mine. I lose my temper and shout out*  
25  
26 *everything. This means I struggle to accept criticism or advice, which can be*  
27  
28 *detrimental to my academic progress. But I do not like conflict. I have never fought*  
29  
30 *with anyone in my life. Conflict with others disrupts my thought process and I take*  
31  
32 *preemptive action by avoiding confrontational individuals and being respectful to all*  
33  
34 *I come across.*  
35  
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41 Unlike the Detachers and Attachers, Defenders typically manifest stress physically in their  
42 bodies and resort to literally acting or reacting when they feel out of control. Their actions  
43 range from the expression of unbridling rage to calm but passive-aggressive stubborn  
44 withdrawal. The first student wrote about being a control freak and perfectionist who panics  
45 and gets angry at not getting things right. Student two stresses his need to be in control  
46 through being neat and tidy. The third student in the group writes about striving for such  
47 perfection and control, that he is afraid of letting 'unknown' people take control his  
48 environment. Full of energy and wanting to be a leader herself, the fourth student describes  
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3 herself as a peacemaker in times of conflict. Of importance however is the fact that she  
4  
5 explicitly states that she does not like conflict and ‘has never fought with anyone in [her] life’  
6  
7 but that she struggles to accept criticism or advice and loses her temper and shouts when  
8  
9 people try to ‘interfere’ with any of her ‘processes’. All of these actions or reactions to stress  
10  
11 are totally in keeping with the attitudinal and habitual patterns of Detachers.  
12  
13

14  
15  
16 In terms of their responses to question two, these self-identifying Defenders had the  
17  
18 following to say. The first student wrote:  
19

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21  
22 *I almost panicked/froze when I realized that I did not understand what was required in*  
23  
24 *question 3. To keep myself calm: I remembered that I can not always get things right and its*  
25  
26 *okay to not know. I started answering the question since the personality guide said if I don’t*  
27  
28 *know the answer I should just write. After a couple of lines, I realized that I was on the right*  
29  
30 *track and did not waste time thinking.*  
31  
32

33  
34  
35 In contrast to their answers to question one, the second, third and fourth students’ responses  
36  
37 to question two were all short and to the point. The second student’s response was: *Yes, I*  
38  
39 *did, I just tried to think about other things besides the test and relaxed myself by walking*  
40  
41 *around. I always get butterflies and I never know what to expect.* The third student responded  
42  
43 with the following: *‘exercise, mediation and occupy myself with anything other than what I’m*  
44  
45 *being examined on’*; while the fourth student, in referring to a previous test, said: *my*  
46  
47 *preparation was poor, but I didn’t take any steps to resolve my issue. I left early and have*  
48  
49 *hated myself for that.*  
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3 Also in keeping with the attitudinal and behavioral patterns of Detachers are the above  
4  
5 mentioned students' strategies for stress management. These range from metaphorically  
6  
7 'letting go' of the need to know everything and/or of the need for perfection (as with students  
8  
9 one and two), to the act of physically relaxing the muscles of the body by 'walking about'  
10  
11 (student one) or 'putting down [ones] pen and sitting quietly (student three)'. Student three  
12  
13 also wrote about 'taking a deep breath' while student four referred to adopting the age old  
14  
15 practice of meditation.  
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### 20 21 **The Combination[ers]**

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23 As mentioned above, 4 % of the total cohort of students either misidentified or self-identified  
24  
25 as comprising '*a little bit of all three*'. Reasons for this can only be speculative and include:  
26  
27 a) some students didn't engage with the material online so were unable to self-identity, b)  
28  
29 some students may have engaged with the material but were unable to relate to the content  
30  
31 and so were unable or unwilling to act upon it and, finally c) some students genuinely felt that  
32  
33 they comprised all three. This mistaken assumption is an understandable one; as has already  
34  
35 been mentioned in the literature review, an individual does in fact comprise all Three Centres  
36  
37 of Intelligence but tends to favour one above the other two (Horney, 1991, 2013; Lapid-  
38  
39 Bogda, 2004).  
40  
41  
42  
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44

45  
46 In addition to the three above subgroups, a fourth subgroup did in fact self-identify with one  
47  
48 Centre but on analyzing the content of their responses, it became evident that there was a dis-  
49  
50 connect between the Centres chosen and the descriptions of their attitudinal and behavioral  
51  
52 patterns of habit with regard to self-awareness and stress management. For example one  
53  
54 student self-identified as a Defender; he stressed that he liked to be in control of his  
55  
56 environment. However, when answering question two, regarding the types of strategies he  
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3 used to calm himself down before the test, he explained that he had telephonically contacted  
4 both his mother and his girlfriend before writing the test. Although this strategy could  
5 potentially fall into the Defender's 'diversion' strategy, it is more reflective of the attitudinal  
6 and behavioral patterns of the outward-directed Attacher who is calmed down and affirmed  
7 by reaching or making contact with other persons.  
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16 Following is an example of another Combination[er]'s response. It is illustrative of somebody  
17 who appears to show very little understand of the content material:  
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19

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22  
23 *I am a great romantic because I am the sweetest guy, I'm creative, I like having fun in*  
24 *a very nice way (Attacher)*  
25

26  
27 *I always plan things, stuff, I mean I always plan what I will do, when and how but I*  
28 *also can adapt to change (Detacher)*  
29

30  
31 *I'm a peace-maker because I am a very humble person, I am not a fighter, I'm a*  
32 *lover.*  
33  
34  
35

36  
37  
38 In response to question two, this student had the following to say:  
39

40 *Stress – NO; Anxiety – yes – time really flies hey; Tension – yes – I was wondering if I*  
41 *will actually be able to finish and writing the correct things. I just kept on writing*  
42 *what I know.*  
43  
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49  
50 The following is indicative of s student who has obviously engaging with the material but is  
51 genuinely unsure of their primary personality driver:  
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3 *I feel as if I am both a detacher and a defender. I am an over thinker. I want to be*  
4 *perfect so badly, so I constantly think and rethink things. I make plans for my*  
5 *personal and academic future and often find myself in my own head. I also spend lots*  
6 *of time in introspection. These detacher qualities, I believe, enable me to be a*  
7 *defender. They facilitate my defender like behaviour. I wouldn't plan or over think if*  
8 *I didn't want to be in control. In group situations, I naturally drift towards being the*  
9 *leader. That's because I make a great effort to be assertive over things I care about*  
10 *and be knowledgeable about the topic at hand and myself.*  
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23 This student's response is indeed indicative of both, but his choice of lexicon and syntactic  
24 devices (in both questions one and two) are slightly more suggestive of the Detacher than the  
25 Defender. Going forward, should this student feel the need to clarify his primary Centre, the  
26 research team is available to assist him with the process – as with any other students in that  
27 situation.  
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## 36 **CONCLUSION**

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40 As a result of the findings emerging from this research project, we are now confident that an  
41 intervention of this nature can be effective in transmitting stress management skills and  
42 strategies to a large number of students. Discourse analysis of the data collect from  
43 questionnaires indicates that 96% of the student cohort successfully accessed the material on-  
44 line and actively worked through the descriptions to the extent that they were able to  
45 accurately and confidently pin-point their personality styles and concomitant habits of  
46 attitude and behaviour. Information presented in a slightly different format (i.e. using comics  
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3 and humor), in addition to the literal, appears to have facilitated access to, and understanding  
4  
5 and integration of ‘unfamiliar’ content material.  
6  
7

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9  
10 In addition, the findings demonstrate that accounting students are in fact able to move out of  
11  
12 their subject content comfort zones and engage with material outside of their field of study.  
13  
14 Concepts like Mindsight and Centres of Intelligence, once made explicit, can be meaningfully  
15  
16 integrated into the attitudinal and behavioral styles of students.  
17

18  
19  
20 Finally, the findings confirm that ‘stress’ continues to remain a very real reality in students’  
21  
22 lives but one that they are willing (and apparently able) to manage through self-awareness  
23  
24 and the use of breathing and relaxation techniques - those suggested and ones that have been  
25  
26 tailor-made to suit their individual personality styles. Further research will need to be carried  
27  
28 out to try to establish the long term impact of this type of intervention on the academic  
29  
30 performance of students.  
31  
32

33  
34  
35  
36 By way of concluding, we would like to quote the following statement which we found  
37  
38 written on the back of a questionnaire response form:  
39  
40

41  
42  
43 *Dear lecturer*

44  
45 *Thank you for doing this research. I don't think of it as just a research process, of*  
46  
47 *surveys being filled in, but I have learned a little more about me and who I am and*  
48  
49 *how I can be a better me. That is one of the important aspects in life, that is what I*  
50  
51 *believe.*

52  
53  
54 *Thank you and continue doing this for us, the students.*  
55  
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