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Hunt, Frances, Usher, Lee, Fern Pollak, Liory, Stock, Rosemary, Lynam, Siobhan and Cachia, Moira
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Frances Hunt, Lee Usher, Liory Fern Pollak, Rosemary Stock, Siobhan Lynam, Moira Cachia | University of West London, UK

MENTAL TOUGHNESS: IS IT THE KEY TO ACADEMIC SUCCESS?

*This paper explores the relationship between mental toughness
and end-of-semester grades in university students*



Why consider mental toughness as a learning attribute?

The transition from secondary education into higher education (HE) has been identified as a time of risk in young adults. The challenges facing undergraduates are extensive, such as, moving away from home, taking control of finances, forming friendship groups and establishing a support system (Nelson *et al.* 2013). Furthermore, the peak age of onset for a range of mental health disorders is below the age of 24 and this coincides with the age at which most students' transition into HE (Kessler *et al.* 2007). Masaskill (2013) reported that students in widening participation universities are particularly vulnerable to depression and anxiety and are at greater risk of dropping out of university. There are added concerns for young adults in this age group who have an increased risk of drug and alcohol abuse (Stamp *et al.* 2015). All of these factors have been associated with poor academic performance and higher attrition rates (Nelson *et al.* 2013). Numerous studies concentrate on risk factors, whereas the aim of the present study is to identify factors that have an ameliorating impact (see also Stamp *et al.* 2015). This study focuses on ways of developing 'mental toughness' to address the disruptive experience of transitioning into higher education.

What is 'mental toughness'?

Mental toughness (MT) is a multidimensional psychological construct that conceptualises the way in which individuals respond to adversity and recover from setbacks. Students in sports-related studies who are high in MT, are reported to not only be more resilient in stressful situations, but flourish in them (Clough *et al.* 2002). Clough *et al.* (2002) define MT within a set of four sub-components. Crust *et al.* (2002) outline these components as follows:

- 1) Commitment which refers to the level of engagement with a task
- 2) Control (emotional and life) which describes the extent to which people feel that they exert an influence over situations
- 3) Challenge characterises a situation where adversity is seen as opportunity for self-development
- 4) Confidence (in abilities and interpersonal) is defined as the resolute belief in the ability to succeed.

Mental toughness (MT) is a multidimensional psychological construct that conceptualises the way in which individuals respond to adversity and recover from setbacks. Students in sports-related studies who are high in MT, are reported to not only be more resilient in stressful situations, but flourish in them

Clearly, these constructs are characteristics that are fundamentally important in dealing with the challenges of higher education. One point to note is that much of the research leading to the development of these components has been conducted in the area of sports and students for studying sports-related degrees. Therefore, the recent concern is whether this can be applied to students on other degree courses.

Emotional control and mental toughness

Crust (2009) argues that MT is associated to high levels of emotional control, in particular, the avoidance of the consequences of negative emotions on performance. Research would seem to support this view, for example Clough *et al.* (2002) reported that irrespective of whether feedback was positive or negative, performance of those higher in MT remained stable. Conversely, the performance of individuals lower in MT was dependent upon whether they were given positive or negative feedback. Nevertheless, Crust (2009) found that there was no association between MT and intensity of emotions. This suggests that individuals higher in MT feel emotion as intensely as those lower in MT, but that

they are able to exert control over their emotions. It is possible that being able to exert control over the negative emotions (that can lead to depression and anxiety) is of key importance rather than the manifestation of positive emotions.

Cognition and mental toughness

Studies are emerging that have reported that MT is associated with cognitive functioning and ultimately achievement and progression. Dewhurst *et al.* (2009) reported that those high in MT were less distracted by irrelevant information during a memory task. This indicates that mental toughness helps individuals to remain focussed on current goals with less interference from unnecessary intrusion. Furthermore, Hardy *et al.* (2014) found that mental toughness was associated with complex task learning in particular on the MT sub-scale that related to self-belief. Their finding appears supported by the research of Crust *et al.* (2014) who reported that there was a positive correlation between MT, grades and ultimately progression in university students studying for a sport degree. That is, the higher the MT score the higher the grades, hence the student is more likely to remain in HE and progress.

It is important to note that research on mental toughness was initiated in the area of sport and has been advanced further in the area of occupational psychology. It is only more recently that studies have endeavoured to investigate the role that mental toughness may play in higher education

Gender differences in mental toughness

An area that has been given little attention is that of possible gender differences in mental toughness. One of the few studies to have systematically investigated these potential differences is that of Nicholls *et al.* (2009). However, it should be noted that this research was again conducted on athletes and individuals studying sports related degrees. The researchers reported that males were significantly higher in MT in comparison to females on total MT scores as well as on the subscales of 'control-of-life', 'control-of-emotion', 'confidence-in-abilities' and 'challenge'. Nicholls *et al.* suggest that this could be due to differences in the way males and females express mental toughness or reflect socialisation differences. This difference in scores therefore does not necessarily mean that females are less mentally tough than their male counterparts, but they may exhibit MT in different ways perhaps due to social expectations. It is also possible that both males and females give socially desirable answers and the differences in scores could reflect this. For example, females may be reticent to give answers that suggest aggression whereas the converse may be true of male. That is, males may feel pressured to give responses that suggest high levels of aggression. Thereby, perceived gender difference might reflect the giving of social acceptable answers. However, it does seem that this is an area that needs further consideration as the number of females entering HE has increased substantially and HESA figures for 2013/14 reveal that 56% of students entering University are females. If the scores to reflect a real difference in MT between males and females then this could have an impact on attrition and attainment.

The role of age and experience in mental toughness

Nicholls *et al.* (2009) also investigated the impact of age in their study and found that it was a significant predictor of MT scores. Given the age of a typical student entering HE this would seem to highlight a potential area of vulnerability. That is, the majority of students transitioning into higher

education are 18-19 years old, who may have not yet reached a degree of mental toughness necessary for the rigours of higher education. Further to this, Nicholls *et al.* also reported that years of experience (as an athlete) was a significant predictor of mental toughness. As the authors point out, age and experience are likely to be highly correlated. However, it is possible to have a mature student who is new to higher education, thereby having age but lacking in recent education experience. This does seem to suggest that research should consider age and experience as factors that could have an impact on levels of mental toughness.

Research in higher education

It is important to note that research on mental toughness was initiated in the area of sport and has been advanced further in the area of occupational psychology. It is only more recently that studies have endeavoured to investigate the role that mental toughness may play in higher education. While studies such as Crust *et al.* (2014) offer some insight students in HE, this and other studies have been mainly conducted on students studying for sport-related degrees.

One of the aims of the present study is to investigate whether HE students who report higher mental toughness are more likely to be academically successful than those reporting lower mental toughness. A further aim is to gain further insight into the role of affect, that is, positive and negative emotions, in academic success. Given that there are also some indications that gender and age may have an influence, both factors were taken into consideration.

An opportunity sample of 161 undergraduate students, 120 females (age range 18-48) and 41 males (age range 18-28) took part in a survey. Participants were asked to fill out two questionnaires to assess mental toughness and affect (emotion). The first questionnaire was the "Mental toughness Questionnaire 48" (MTQ48) (Clough *et al.* 2002) a 48 item validated questionnaire with the subscales as described above. This has a 5 point Likert scale where participants rate a number of statements on a scale of 1 (strongly disagree) to 5 (strongly agree). The





second questionnaire was the “Positive and Negative Affect Scale” (PANAS) (Watson *et al.* 1988). Participants are asked to rate 10 positive mood descriptors and 10 negative mood descriptors as to how closely they reflect their mood state on a scale of 1 to 5, where 1 = slightly/not at all and 5 = extremely. With the students’ permission their questionnaire data was compared to their mean end of year mark.

Findings of the present study

Analysis was conducted separately for males and females and age was accounted for within the analysis by using partial correlations that removed any confounding effects of age. However, given the low number of male participants these results for males should be treated with caution. Interestingly in females, there was a negative relationship between grades and ‘control-of-emotion’ and a negative relationship between ‘confidence-in-abilities’ and grades. Indicating that as control-of-emotion and confidence-in-abilities increased grades decrease. This could suggest that there is an element of over-confidence that perhaps leads female students to take less notice of the requirements of an assignment than they should. The negative relationship between control-of-emotion and grades may indicate a lack of emotional engagement in their studies. In males there was a positive relationship between grades and commitment. That is, the more committed male students are to their chosen course of study, the higher their grades.

As might be predicted by the research of Crust *et al.* (2009) there were no relationship between the PANAS and grade in females. While it is as predicted, this would seem to be at odds with the correlation between grade and control-of-emotion. That is, given that control-of-emotion is related to grades it might be expected that the PANAS that directly measures emotion does not show a similar relationship with grades. As such, this seems to be difficult to easily explain and perhaps requires further investigation. Surprisingly, for males there was a positive relationship on the positive PANAS scale and grade, that is the higher the positive emotion the higher the grade. This seems to indicate that having positive affect (emotion) is related to academic outcomes in males.

Females who believe that they are in control of the outcomes, engage in their studies to a greater extent than those with lower mental toughness. Given the perception of greater emotionality in females, the finding that control-of-emotion has little impact comes as something of a surprise

Taken together with the positive correlation between grades and commitment would suggest that feelings of commitment and positive affect are important factors in success in males.

Regression analysis was conducted to consider whether mental toughness as measured by the MTQ45 can be used to predict grades. This revealed that in males 'commitment' remained a positive predictor of grade. Likewise, in females' confidence-in-abilities was a negative predictor of grade. Again this suggests a degree of over-confidence in female students. Furthermore, control-of-life positively predicted grades whereas control-of-emotion did not. This could indicate that females who believe that they are in control of the outcomes, engage in their studies to a greater extent than those with lower mental toughness. Given the perception of greater emotionality in females, the finding that control-of-emotion has little impact comes as something of a surprise.

Further regression analysis conducted on all 161 participants rather than separately for males and females, revealed that control-of-life positively predicted grades, indicating that the higher the control of life the higher the grade. Conversely, confidence-in-abilities negatively predicted grade whereby as confidence-in-ability increase grades decrease. This seems to indicate that where students believe that their outcomes are under their control, as opposed to being subject to external control factors, their grades improve. It could suggest that there is a sense that taking responsibility and putting in effort will bring rewards. Conversely over-confidence could lead to an assumption by the student that they understand the requirements of assignments and as a result do not engage adequately with the assignments instructions.

Conclusion

The above are the preliminary findings and data is still being collated at this time. It is hoped that with more data some of the above findings will be clarified particularly the gender difference by an increase in male participants. To summarise the findings to date, confidence-in-ability and control-of-emotion were found to have a negative impact on performance. In HE we try to instil a sense of confidence in students, however this research suggest that students should be cautioned against being overly confident. Furthermore, high levels of control-of-emotion may be indicative of lack of emotional investment in studies which relates to a negative performance. This could suggest that lack of emotional investment is an important factor in academic success that needs further investigation. As an institution we should consider ways in which emotional investment in studying can be encouraged in our students. Arguably, one of the most important finding is the positive relationship between control-of-life and grades. It is perhaps unsurprising to those teaching in HE that students who see their attainment as being in their control have better outcomes than those who do not. The problems we face is engendering in students control-of-life, that is, a sense that their attainment is within their control and not externally driven.



About the authors

Dr Frances Hunt is a Senior Lecturer in Psychology and Senior Fellow of the Higher Education Academy

Dr Lee Usher is a Lecturer in Psychology and Fellow of the Higher Education Academy

Dr Liory Fern Pollak is a Lecturer in Psychology and Fellow of the Higher Education Academy

Dr Rosemary Stock is a Lecturer in Psychology and Senior Fellow of the Higher Education Academy

Dr Siobhan Lynam is a Lecturer in Psychology and Fellow of the Higher Education Academy

Dr Moira Cachia is a Senior Lecturer in Psychology and Fellow of the Higher Education Academy

Keywords

Mental toughness, higher education, student attainment





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