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## Academic success: the role of mental toughness in predicting and creating success

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### ABSTRACT

Research examining the links between Mental Toughness, Positive and Negative Affect and Academic Success was presented at the Annual Higher Education STEM Conference (HEA STEM). The results indicated that undergraduate students of psychology ( $n = 141$ ) showed a positive correlation between Control of Life (a component of Mental Toughness) and Academic Success, as measured by their grades. Further relationships between components of each scale were found to differ between genders. Females showed negative relationships between Confidence in Abilities and Control of Emotion and Academic Success, while males showed links only between Commitment and Positive Affect, and Commitment and Academic Success – both of these being positive relationships. In this conference reflection piece, the results of this research will be examined in the light of the wider discussions on employability in relation to ‘Resilience’ and how Academic Success is measured.

### ARTICLE HISTORY

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### KEYWORDS

Academic success; mental toughness (MT); gender differences; employability

### Rationale

The research presented at the HEA STEM Conference (2017) aimed to identify which personal factors are predictors of Academic Success in students, focusing specifically on Mental Toughness and Affect (both Positive and Negative). The literature indicates that Mental Toughness (MT) improves participants’ ability to deal with negative feedback, to progress in their course, and ultimately to succeed in an academic context (Crust et al., 2014). However, most research in this area is conducted with Sports Science students (e.g. Clough, Earle, & Sewell, 2002) and/or younger, adolescent students (e.g. St Clair-Thomson, Bugler, Robinson, Clough, McGeown & Perry, 2014) The second key factor identified through our literature review is ‘Affect’ (or ‘mood’). Previous research in this field focuses on negative emotions (see a review by Valiente, Swanson, & Eisenberg, 2012), and does find that they are directly related to poor grade outcome – that is, more negative emotion is associated with lower academic achievements. However, previous studies have looked predominantly at school children (e.g. Gumora & Arsenio, 2002), though the limited evidence from students,

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specifically those in HE and FE in South Africa, does suggest associations between positive emotions and Academic Success (Zyl & Rothman, 2012).

### Summary of study and findings

The study presented at HEA STEM measured MT, Positive and Negative Affect, and Academic Success in 141 undergraduate psychology students. MT was assessed through the MT Questionnaire 48 (MTQ48) (Clough et al., 2002). This is a 48-item validated questionnaire with six subscales: Commitment, Control of Emotion, Control of Life, Challenge, Confidence in Abilities, and Interpersonal Confidence. Positive and Negative Affect were measured through the Positive and Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988).

Academic Success was measured through students' grades at the end of the current academic year – this is acknowledged as being a somewhat blunt measure, looking at only one component of Academic Success. See below for discussion of research by Cachia, Lynam, and Stock (2017), which examines the issue of defining and measuring Academic Success.

Pearson's correlations revealed that across all students there was a positive correlation between Academic Success and the 'Control of Life' component of MT (also found by St Clair-Thompson et al., 2014). This suggests that if a student feels that they are in control of their own life, this is associated with higher grades.

Multiple regressions (with all MTQ48 subscales, and the PANAS scales as predictors, and grade as outcome) were conducted by gender, with previous research suggesting that males show higher levels of MT than females – or perhaps males and females express MT in different ways (Nicholls, Polman, Levy, & Backhouse, 2008). Our own study found that for females, both Control of Emotion and Confidence in Abilities negatively predicted Academic Success. These associations suggest that there can be 'too much' Emotional Control, and 'too much' Confidence in Abilities, leading to poorer academic performance. For males, neither Control of Emotion nor Confidence in Abilities were related to Academic Success, but grades were positively predicted by Commitment. So for males – but not females – showing strong Commitment was associated with better grades.

With regard to the measure of Affect, females' grades were not predicted by either their negative or positive emotions. However, for males, Positive Affect was associated with higher grades. This indicates that while MTQ48 identified that 'too much' Control of Emotion could lead to poorer academic results for females, the level of emotion in itself was not a predictor. For females, it is not the valence of their emotions that predicts their grades, but whether they are controlling – possibly over-controlling – these emotions (see also Crust, 2009). However, for males, Commitment and Positive Affect both lead to greater Academic Success, suggesting that when male students are happy and engaged, this is reflected in their grades.

These findings lead us to three points for further research. First, when male students commit and engage, it is 'paying off' and is reflected in their grades. However, this was not found for females. Are males 'working smarter' in some way? Second, is the negative relationship between confidence and grades in females suggesting that there may be a tendency to be overconfident? Finally, are females over controlling their

emotions to an extent which is detrimental to academic performance, while males are able to reap the benefits of their positive emotions?

### Reflection on academic success and employability

Like many delegates, the HEA STEM conference leads us to reflect on employability, what it is, and how it can be addressed within our degree programmes. In doing so, we also acknowledge a potential limitation in our own research – the fact that Academic Success is measured only by grade, and not by any other measure of employability (see our comments on Professor Sir Wakeham’s keynote address below).

Measuring Academic Success by grade is common practice in such research but, as noted above, is only identifying one component of Academic Success. Our own qualitative research (Cachia et al., 2017) found that students themselves define Academic Success as ‘gaining skills and knowledge through the university learning process, giving priority to personal development and the professional achievement of a university qualification’. So while the ‘grade’ may be implicit in the university qualification, students themselves also give a strong weighting to personal development. Our ongoing programme of research in this field has also identified that students feel there are a number of intrinsic factors (self management, motivation, personal skills) as well as extrinsic factors (support, teaching provision) that help them to achieve this success (Cachia et al., 2017). Although students do not necessarily call ‘employability’ by name, they are aware of the diverse employability skills required and the need for their development through their university programme (Lynam & Cachia, *in press*). They also do not mention the term ‘Mental Toughness’, but we would suggest that this is implied within ‘personal development’.

### MT or resilience?

In his keynote speech, Professor Sir Wakeham presented a summary of findings from the Wakeham Review (2015) and concluded that embedding employability in the curriculum is a key way of ensuring that graduates are given the very best chance of employment. It is noteworthy that four of the Review’s seven recommendations advise that ‘further work is needed . . .’ in specific STEM fields, with each field being addressed separately. As such, the Review acknowledges that employability is not ‘one size fits all’, but needs to be tailored to each discipline. Our own findings at this stage are exclusively from psychology students, and in the context of employability it is clear that we should be cautious in generalising beyond our field. However, one attribute that was identified across a number of specialisms as being of great value to employees – and therefore graduates looking to become employees – was that of Personal Resilience (Wakeham, 2015, 2017). This was also an issue addressed in the group discussion of our paper – that resilience may be a better measure here than ‘mental toughness’.

Strycharczyk (2015) addresses the fact that people frequently use the terms ‘resilience’ and ‘mental toughness’ as synonymous, when they are closely linked, but still demonstrably distinct. MT includes aspects of confidence and a positive reaction to adversity, both factors which influence how we look to our future, while resilience is a more purely reactive and immediate aspect of a person’s personality. Strycharczyk

(2015) concludes that ‘All mentally tough individuals are resilient, but not all resilient individuals are mentally tough’. Essentially, by measuring MT we are already also measuring resilience.

It should also be noted that Rivers and Webster (2017) challenge the prevailing discourse around the importance of resilience, suggesting that it is another way of focusing on a ‘lack’ or ‘fault’ in students. This negativity was something that the current study directly wanted to avoid – our interest is in looking at what helps students succeed, rather than at what might lead them to ‘fail’ (however that may be defined). As such, the components of Challenge and Confidence – the forward looking components – remain important to our programme of research. And while the discussion regarding the construct validity of MT may continue, there is no doubt in our findings that it does link to Academic Success, and therefore to employability.

### Discussion and future directions

All students showed a positive correlation between Academic Success and Control of Life. This is encouraging as we see Control of Life as a key component of employability, and it is clearly positive that our measure of Academic Success – their grades – is able to capture this. Having established its importance, future research should examine what it is that may lead to a feeling of lack of Control for our students and what, if anything, can we (as educators) do about this?

The differences between males and females need further exploration. While our study showed no gender differences in levels of MT (only differences in how it links to Academic Success), previous literature suggests that males self-report higher levels of MT than females. However, it may be that they are expressing MT in different ways (Nicholls et al., 2008). Is there an inherent gender bias in the measure? Speculatively, this is linked to the reported differences in how genders apply for employment positions, with males being more ready, due to their higher levels of confidence, to take on roles for which they may, on paper, be less qualified (Kay & Shipman, 2014). Can this be quantified within Confidence and Challenge components of MT?

Finally, much of our discussion of our findings at the conference focused on which aspects of MT are valued by employers. Crucially, how can these be identified and developed in our students? As Professor Sir Wakeham suggested, as with other employability skills, these skills do need to be considered and embedded within the courses we teach at our institutions.

### Disclosure statement

No potential conflict of interest was reported by the authors.

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